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Career Competencies, Preparing Students for the Future

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Abstract: The changing nature of the labor market demands lifelong development of employees. This places a new responsibility on education to prepare students for a future of lifelong development. An important aspect of this preparation is the development of career competencies. Career competencies are examined from different perspectives. Two meta-studies, analyzing 77 and 80 international studies, highlight two key theories for understanding career competency development: the Intelligent Career Theory (ICT) and the Social Cognitive Career Theory (SCCT). This article aims to provide deeper insight into career competencies for students by analyzing them conceptually through various theoretical lenses and linking them to research on educational practice in the Dutch context, where development of career competencies is a mandatory part of the pre-vocational and secondary educational curriculum. The ultimate goal is to develop recommendations for designing a learning environment that fosters career competency development in students.

Keywords: career competencies; career development; career guidance; vocational education; collaboration with labor organizations

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1. Introduction

Work is constantly evolving and demanding individuals continuously learn and adapt to remain employable. Theories about careers show a transition from traditional, stable careers to more flexible and unpredictable "modern careers" (see, e.g., Evans et al. 2023), that are "boundaryless" (Defillippi and Arthur 1994) and "multishaped" (Lent et al. 2002). This shift places greater responsibility on individuals to manage and develop their own careers. The changing nature of the labor market presents a new responsibility for education to prepare students for a future of lifelong development (e.g., Grosemans and De Cuyper 2021). A degree alone is no longer sufficient. Employers seek individuals with intrinsic motivation and competencies that extend beyond just professional knowledge. In a changing landscape, developing career competencies is essential. The concept of career competency describes the knowledge, skills and abilities required to effectively manage one's career in a society where lifelong professional development is imperative. From a career perspective, lifelong development is defined as the "(Pro)active development of qualities throughout life, based on one's motives and possibilities, for a sustainable contribution to society, one's work environment, one's health and happiness, now and in the future" (Kuijpers et al. 2025, p. 55). Career competencies empower individuals to navigate career uncertainties, take ownership of their professional paths and proactively capitalize on emerging opportunities.

Over the past two decades, career competencies have received significant attention. In 2023 and 2024, two overview studies reviewed 77 and 80 (inter)national studies, respectively, conducted over the last 30 years, examining why, how and where career competencies are valuable (Jo et al. 2023; Talluri et al. 2024). The PhD research into career competencies that I

started in 1999 resulted in a dissertation published in 2003. Prior to that, only Defillippi and Arthur published on research into career competencies with *The Boundaryless Career: A competency-based perspective* (1994). Their work laid the foundation for extensive research conducted over the past 30 years shaping our understanding of career competencies and their impact. The economic benefits of developing and utilizing career competencies have been evident from various studies conducted since 2006. The 2023 and 2024 review articles conclude that studies demonstrate how career competencies contribute to enhance employability (Eby et al. 2003; Fleisher et al. 2014 in Talluri et al. 2024; Direnzo and Greenhaus 2011 in Jo et al. 2023), improved work engagement (Akkermans et al. 2013 in Talluri et al. 2024) and career success (Bonneton et al. 2019; Eby et al. 2003; Singh et al. 2009 in Talluri et al. 2024). But also from a personal viewpoint, career competencies are relevant. Autonomy and security (Colakoglu 2011 in Talluri et al. 2024; Dickmann and Harris 2005 in Jo et al. 2023) appear to be related to career competencies. Studies on career competencies are mainly conducted amongst employees. However, if career competencies are effective for the career development of employees, it is important that students develop these competencies in preparation for working on the labor market and participating in society. Studies among students show that career competencies contribute to various outcomes, including career maturity (Abdul Rahim et al. 2021 in Jo et al. 2023), the ability to manage career shocks and overall life satisfaction (Akkermans et al. 2018 in Jo et al. 2023).

The significance of career competencies in preparing students for the future labor market, as highlighted in meta-studies, underscores the need to explore diverse perspectives to expand our understanding of career competencies and the environment that is needed for fostering their development. This article aims to provide deeper insight into career competencies for students by analyzing them conceptually through various theoretical lenses and linking them to research on educational practice in the Dutch context, where development of career competencies is a mandatory part of the pre-vocational and secondary educational curriculum. The ultimate goal is to develop recommendations for designing a learning environment that fosters career competency development in students.

2. Methods

To gain deeper insight into the concept of career competencies relevant to students, theories from two recent overview studies—analyzing 77 and 80 (inter)national studies on career competencies from the past 30 years—were examined in relation to research on career competency behavior. This involved comparing starting points and objectives from different perspectives. Subsequently, the implications of these insights for educational practice were explored. For this purpose, studies were used that were conducted in the Dutch context, in which career competencies are a compulsory part of the curriculum in pre-vocational secondary education. Regarding the physical capabilities of students in developing career competencies, findings from brain research were linked to students' career development. To illustrate the necessary learning environment, studies were analyzed in the context of pre-vocational and secondary vocational education, involving 3499 students and 166 teachers across 226 classes in 34 schools. Additionally, research in higher professional education included 4820 students and 371 (school) career counselors across 11 universities in the Netherlands. This was complemented by an analysis of professional practice, based on desk research covering 17 previous studies, four case studies, and 34 interviews. Furthermore, insights into leadership were drawn from interviews with managers representing 10 teams and 32 teachers.

3. Career Competencies

Career competencies are examined from different perspectives. The 2023 and 2024 review articles describe two key theories for understanding their development: the Intelligent Career Theory (ICT) and the Social Cognitive Career Theory (SCCT).

Based on the "Intelligent Career Theory (ICT)", Defillippi and Arthur (1994) distinguish three types of knowledge that are important in a "boundaryless career": knowing why, knowing how and knowing who. Individuals with a strong knowing why have a clear view of their values, interests and ambitions, and how these align with their career choices. "Knowing how" concerns the practical "knowhow" that enables someone to be successful in the field. Individuals with good "knowing whom" are aware of effectively leveraging relationships to create career opportunities.

The Social Cognitive Career Theory (SCCT, Lent et al. 2002, based on Bandura's social cognitive theory), assumes a dynamic interaction between personal factors, environmental factors and learning experiences in the development of career competencies. SCCT emphasizes that career competencies are not static, but develop during the career. Instead of the "boundaryless career", the concept of "protean career" is used. This concerns meta-competencies related to self-awareness and adaptability. The individual is seen as the "manager" of his or her own career.

Both the boundaryless and protean career theories formed the foundation of my research on employees' career competencies. Later, in collaboration with Frans Meijers, I conducted research into the career competencies of vocational education students and the learning environment that is required to support their development. This research into career competencies among both employees and students led to the following categorization (Kuijpers et al. 2006; Kuijpers et al. 2011):

- Reflection on motives: thinking/talking about experiences that evoke emotion to identify wishes, interests and values.
- Reflection on capacities: thinking/talking about strengths (to be developed) based on experiences.
- Work exploration: investigating requirements, values, possibilities and developments in work and the training required for this.
- Career action: proactively making choices and taking steps to develop, create opportunities and profile qualities based on motives for new possibilities in the future.
- Networking: building, using and maintaining contacts that are important for career development.

Career action is actual self-management in one's career. Reflection on motives provides direction on which steps are desirable, reflection capacities on which steps are promising, work exploration where career steps can be taken and networking to help with taking the career steps. Both career action and networking were found to correlate positively with career success (Kuijpers et al. 2006; Kuijpers and Meijers 2012).

Dimensions and Aims of Career Competency Research

Career competencies can be described in three dimensions, which align with the Intelligent Career Theory (ICT) and the Social Cognitive Career Theory (SCCT).

The first dimension is reflectiveness: reflecting on experiences to gain self-insight into values, interests, strengths and areas for development and relating them to career opportunities in the environment. The outcome of the reflection would lead to "knowing why" in ICT and self-awareness related to experiences appropriate to SCCT.

The second dimension, proactiveness, involves the actions individuals take to shape their career: initiating career advancement, seeking employment and developing skills. These align the "knowing how" of ICT and with the adaptability and ability to influence

one's own career and adjust to changes in order to achieve career goals, as outlined in SCCT.

The third dimension is interaction, which involves communicating with others, building and maintaining career-oriented networks and seeking support that fosters career development. This corresponds to the "knowing whom" in ICT, as well as the interaction with the environment that is emphasized in the SCCT.

Both the Intelligent Career Theory (ICT) and the Social Cognitive Career Theory (SCCT) have similarities with the concept of career competencies from my research. All three approaches emphasize that individuals play an active role in shaping their careers and recognize that developing specific competencies is essential for success on the modern labor market. However, the career competencies from a boundaryless and protean career perspective focus on the outcome of applying competencies, such as knowledge, self-awareness and adaptability. Additionally, the "knowing how" competency emphasizes job performance within a specific work context, rather than self-management in one's career across different work contexts.

ICT and SCCT provide a theoretical framework for understanding career development. My research on career competencies was not focused on theory building or testing, but aimed to provide practical tools for developing and measuring the competencies necessary for success in a boundaryless and protean career. While ICT emphasizes "knowing" and SCCT focusses on an individual's ability to adapt to changing career circumstances, career competencies identified by my research can be seen as the tools and resources that individuals use to shape their personal careers in relation to a changing environment where lifelong development is key. These career competencies function interdependently, often influencing one another and the outcomes of their application.

4. The (Im)Possibilities of Career Development by Students

Preparing students for an uncertain labor market by stimulating the development of career competencies means that results of brain research should be considered (Van Dinteren and Kuijpers 2017). In research into the functioning of the brain, a distinction is made between two brain systems (e.g., Kahneman 2011). One concerns emotional considerations. The other has to do with logical thinking, organizing, choosing and making rational decisions. The latter relies on brain networks in which the prefrontal cortex is in charge. During adolescence, many important choices are made, including those related to career. A good career choice aligns with one's qualities (what you are capable of and can become skilled at) and motivations (what you consider worthwhile). However, during this period the prefrontal cortex of the brain is still developing and the degree of connection between the two systems varies from one student to another. In general, adolescents focus on here and now and not on the future, their abilities are often unknown, they are following impulses and comparing themself with the peer group. The extent to which students are able to make conscious and suitable choices depends on their stage of development. Three periods can be distinguished within adolescence (Jolles 2016):

- Early adolescence from 10 to 14 years in which adolescents have great difficulty inhibiting emotions, are mainly concerned with the short term, are focused on positive feedback and have moderate self-insight.
- Middle adolescence from 14 to 17 years in which rational knowledge about the meaning of experiences is not yet well linked to the emotions of experiences. Choices are often based on the choices of the environment.
- Late adolescence from 17 to 22 years in which the adolescents can make increasingly complex choices for the medium and long term, are more resistant to social pressure and have the capacity for self-reflection.

Developing self-insight and having an overview of the medium and long term grows during adolescence. Learning to reflect involves the connection of neurons. Practicing these skills strengthens these neural connections. The development of complex skills, such as self-reflection and self-management, can be enhanced through active stimulation from early to late adolescence. Emotional experiences, both positive and negative, help young people make responsible decisions.

The development of career competencies involves fostering the development of the brains of students. Through reflection on their motives and abilities, the two brain systems are actively engaged. Emotions and thoughts associated with an experience help to give meaning to that experience. Reflection plays a crucial role in shaping their self-image and provides direction for taking steps to further develop their careers. The ultimate goal of reflection is to inspire action. This action, in turn, generates meaningful experiences, which again become opportunities for reflection. Supporting this continuous cycle of experience, reflection and action places significant demands on the design of the learning environment.

5. Career Learning Environment

The Dutch National Council for Secondary Vocational Education integrated career competencies in the qualification requirements of secondary vocational education as part of the examination program for pre-vocational training. This policy measure, introduced by the Ministry of Education, based on the outcome of research (Kuijpers et al. 2011) necessitates an alternative method of career guidance in schools.

By understanding these factors, individuals, schools and organizations can work more effectively on fostering career competency development. Career competencies should be viewed as a dynamic and cumulative developmental process, which can be enhanced through targeted interventions over time. Students' career development is best supported within a career-oriented learning environment that facilitates students to experience, reflect and make choices for steps in personal development.

Such an environment is:

- Practice based, where students engage in real working life experiences.
- Dialogical, allowing students to reflect on their experiences and formulate career-related actions.
- Inquiry based, enabling students to make choices regarding their learning and future career actions.

5.1. Opportunities for Experiences

To develop and apply career competencies, one needs opportunities to experience and experiment. Both meta-studies on career competencies highlight the critical role of gaining different experiences. For students, the learning environment, particularly the structure of the program, plays a significant role in the fostering of career competency development. Large-scale studies in Dutch pre-vocational, secondary and higher vocational education show that career competencies are applied and developed in a learning environment that encourage real-life work experiences and a dialogue about these experiences (Kuijpers et al. 2011; Kuijpers and Meijers 2012). Even when accounting for students' personality traits and varying educational programs, the characteristics of the learning environment influenced the types and extent of career competencies learned and applied. A practice-based curriculum is necessary for forming a realistic self-image in relation to work. The more the student can become acquainted with various activities, professions and practice options in his environment, the more likely it is that the young person will find it easier to make a choice for a profession or further education.

Students can develop a sense of who you need to be and comprehension of the demands in terms of values and commitment to work. Moreover, gaining new experience gives students the opportunity to explore their potential and environments that suits their motives.

5.2. Expanding Networks

From research among employees we learn that immediate supervisor support and the organization's internal networks are crucial to the development of career competencies. These factors supplement influencing personal factors (Talluri et al. 2024). The literature study of Talluri et al. (2024) shows the importance of the facilitation of building networks by mentors (referring to Jayashree et al. 2020). They point out that people accessing external networks outside their current employer receive additional learning opportunities that contribute to the development of career competencies.

To equip students with effective networking skills, schools should teach students how to build and maintain a network. Peer opinions play a significant role in decision-making. They make career choices based on "likes" from their network, often peers, without thoroughly exploration alternative options. Students should not be confined to their initial choices, as their interests and orientations can shift multiple times throughout their development (Vulperhorst 2022). Engaging with inspiring adults and professionals who serve as role models can foster vocational hope, strengthen career identity and enhance confidence in their career choices (Kuijpers and Meijers 2012). By connecting with individuals who exemplify potential future selves, students can develop a clearer vision of their career paths and make more informed choices.

5.3. Career Guidance

The meta-studies on career competencies show that career guidance plays a critical role in supporting the shift to the increasing responsibility of individuals for managing their own careers in the face of a rapidly changing work environment by fostering the development of career competencies. Traditional career guidance models, focused on matching individual traits to specific jobs, are becoming less effective in the unpredictable landscape of modern careers. According to the results of the meta studies, a more holistic approach is needed that focuses on developing career competencies, empowering employees and students to navigate their own career paths by facilitating career dialogue. In schools, career conversation contributes considerably to career competencies. Career-related coaching and counseling can change and increase reflective career competencies by emphasizing appreciative, reflective and active guidance conversations that focus on self-image, work and career action (Kuijpers and Meijers 2017). On the other hand, a helping form of guidance conversation and conversations about educational progression is negatively related to career competencies. In particular, the career dialogue in schools and the conversations with students in the workplace proved to be crucial for applying career competencies and developing a career identity.

Because the self-insight of students develops over time, students often under- or over-estimate their abilities and can lack self-confidence. They need to develop a positive realistic self-image. They learn the most from positive feedback on qualities and motives (Van Dinteren and Kuijpers 2017). Students need opinions from others for self-insight. Also, learning how to reflect on experiences helps students to understand the meaning of the emotions. Emotions can be meaningful but also confusing. Coaches can help students to translate experiences with emotions into words in terms of self-image about their values and capacities. Reflection on work experiences gives direction to the steps that students can take in their learning to pursue the career of their ambition. Coaches can give suggestions

for alternative behavior of students' self-management and give space to students to make choices and to experiment. Therefore, an inquiry-based curriculum is needed.

6. Managing a Career Learning Environment

Creating a career-oriented learning environment requires collaboration with labor organizations to provide practical work experience for students. Effective leadership within schools is essential for managing a career-oriented learning environment in schools.

6.1. Collaborations Between School and Work

An unclear understanding of an occupation can negatively impact students' career trajectories. Practical experiences and career-related guidance are essential for students to develop a realistic perspective on work and their own role in relation to it. To enable students to proactively shape their learning and career development during transitions between school and work environments, collaboration between teachers and workplace supervisors is crucial. However, research reveals that collaboration between schools and labor organizations often relies on divided rather than shared responsibilities in guiding students' careers (Kuijpers 2019). Teachers at school are primarily responsible for the content and assessment of the learning process, while work organizations mainly provide practical placements. A structured career dialogue with students is frequently absent. When reflection does occur in schools or work organizations, it tends to focus on students' performance rather than the development of a self and work image. Consequently, the integration of learning experiences from school and work is often left to the students themselves, who must independently connect these experiences to make informed career choices. Both teachers and workplace supervisors report a lack of skills to effectively guide students in their career development. They also feel unsupported by their management in acquiring or enhancing these skills (Kuijpers and Meijers 2017). To create a career-oriented learning environment where students can develop a clear self-concept related to work, it is essential that teachers and workplace supervisors collaborate closely in providing career guidance.

The study (Kuijpers 2019) highlights several key recommendations to improve the integration of career guidance in practice-based learning. Teachers and workplace supervisors should collaborate within teams that focus on shared, innovative goals to better support students' career development. Providing teachers with opportunities to develop career learning practices in partnership with work organizations is essential for aligning educational objectives with workplace expectations. Management also plays a critical role in this process by initiating and facilitating innovation projects that encourage collective learning and cooperation between schools and labor organizations. Furthermore, fostering open dialogue among teachers, between teachers and workplace supervisors, and between teachers and managers can help build a shared understanding and cohesive approach to guiding students in their careers.

6.2. Leadership in Career Learning

Although career competencies are mandatory for students in pre-vocational and secondary vocational education in the Netherlands, efforts to create career learning environments that provide students with work experience, career competencies and career guidance dialogues appear to stagnate in vocational education and training institutions in the Netherlands (Magee et al. 2022). A study on leadership in career learning reveals that while the vast majority of teachers and managers view coaching as an integral part of the VET curriculum, there is often no clear distinction made between educational guidance, vocational guidance and career guidance. Perspectives on career guidance differ signifi-

cantly among teachers and their managers. Although managers are generally aware of the school's vision and research related to career guidance, this information is not adequately communicated to teachers.

Interestingly, the lack of leadership reported by some participants allowed them to implement career guidance in their own preferred way. However, other teachers expressed frustration with the absence of uniformity and shared understanding within their teams. To address these issues, more effective dialogue between management and teachers is needed. Such communication could foster better sense-making around career guidance and open up new possibilities for providing consistent and meaningful career support to students.

7. Conclusions and Discussion

Preparing young people for an uncertain labor market, where they must take charge of their lifelong development, requires a new vision and approach to career guidance. Instead of focusing on a one-time match between students and professions, a learning process should be established that enables young people to develop essential career competencies. This necessitates a career-oriented curriculum that is practical, dialogical and inquiry-based.

Career guidance should prioritize fostering a strong self-image and self-management skills over purely academic performance, with consideration for the developmental stages of young people's brains. To create a truly career-oriented learning environment, collaboration between schools and labor organizations is crucial. Additionally, effective management is essential, guided by a shared vision for the implementation and professionalization of career guidance. Such an approach will provide the foundation for students to develop the competencies they need to navigate their future careers successfully.

This study has several limitations. The research discussed in this article was conducted within the Dutch context, which may limit the generalizability of the findings to other educational systems. However, the relationships in this article established with international meta-studies suggest that similar career development processes occur across different national contexts. Furthermore, a Delphi study with 64 international career guidance experts showed strong support for an enhanced role of teachers in career provision and a whole-school approach to careers (Rice and Hooley 2024).

Future research should further explore the development of career competencies of students in an international context to identify cross-cultural similarities and differences. Additionally, it is recommended to examine the long-term impact of acquired career competencies, particularly after students transition from school to the labor market.

This article provides practical recommendations for fostering a career-oriented learning environment. These include structuring education to support students' self-reflection and self-management, collaborating with the business sector and ensuring strong leadership in career guidance. To achieve this, national policy efforts should focus on the professionalization of school leaders, workplace supervisors and teachers, ensuring they are equipped to support students in their career development effectively.

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