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Edited by Xinqiao Liu

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Contributors
Alina Nadine Geßler, Andreas Frey, Andrés César, Angela Ulrich, Diane D. Kret, Divya Singh, Fırat Keser, Heidi Svendsen, Lourdes Susaeta, Mary T. Grant, Melanie Hochmuth, Silke Seyffer, Xinqiao Liu, Yuxin Guo

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Aims and Scope of the Series

Education and Human Development is an interdisciplinary research area that aims to shed light on topics related to both learning and development. This Series is intended for researchers, practitioners, and students who are interested in understanding more about these fields and their applications.

Meet the Series Editor

Katherine Meltzoff received her BA in Psychology from Trinity College, in Connecticut, USA and her Ph.D. in Experimental Psychology from the University of California, San Diego. She completed her postdoctoral work at the Yale Child Study Center with Dr. James McPartland. Dr. Meltzoff' doctoral dissertation explored neural correlates of reward anticipation to social versus nonsocial stimuli in children with and without autism spectrum disorders (ASD). She has been a faculty member at the University of California, Riverside in the School of Education since 2016. Her research focuses on translational studies to explore the reward system in ASD, as well as how anxiety contributes to social challenges in ASD. She also investigates how behavioral interventions affect neural activity, behavior, and school performance in children with ASD. She is also involved in the diagnosis of children with ASD and is a licensed clinical psychologist in California. She is the Assistant Director of the SEARCH Center at UCR and is a faculty member in the Graduate Program in Neuroscience.

Meet the Volume Editor

Xinqiao Liu is an associate professor at the School of Education, Tianjin University, China. He obtained his Ph.D. from Peking University. Dr. Liu plays a significant role in academia, serving as an associate editor or editorial board member for several high-impact journals, including *Depression and Anxiety, Discover Education*, and others. His scholarly contributions have garnered significant recognition, with more than 10 papers classified as ESI Highly Cited Papers (top 1%). Dr. Liu's current research interests encompass higher education, engineering education, student development, and the economics of education.

Contents

Preface

In an era of transformation and industrial change, with market demands rapidly evolving and the employment environment undergoing complex changes, cultivating modern talent oriented toward future technological advancements and capable of adapting to new economic situations has become a global mission that transcends borders and gathers wisdom. *Bridging Education and Work Experience* is precisely the result that meets the demands of this era. We understand that the combination of theoretical knowledge and practical skills is the key to success in the process of career development. Based on this understanding, this book dives deeply into the intricate relationship between education and work experience, focusing on critical topics such as internships, apprenticeship programs, and continuing education. It aims to present the importance of integrating theoretical knowledge and practical skills and identify feasible and practical paths for achieving this integration, thereby helping to cultivate future outstanding engineers capable of tackling complex engineering challenges. In addition, through comprehensive discussions on academic mentoring, career counselling, and skill assessment, this book strives to provide a complete guide for students seeking to enhance their career prospects.

This book explores the relationships among education, teaching, and work experience in two dimensions: future talent and skills and practical skills and work experience. It interprets the prominent significance and practical paths of combining theoretical knowledge with practical skills.

The first section focuses on the dimensions of future talent and skills. It emphasizes that education must possess a forward-looking vision and closely align with the developmental trajectory of future society. Education development must not only fully consider the diverse requirements that future society places on individual growth but also actively contribute to the flourishing development of society as a whole. In practical terms, education should focus on cultivating mastery of the core skills essential for future society and on shaping outstanding talents who can adapt to and lead the developmental direction of future society. For example, research has shown that factors such as the institutional environment, work pressure, and personal traits significantly impact the psychological state of vocational educators. It is imperative to establish fair and objective evaluation mechanisms to improve this situation, provide appropriate training resources, and enhance societal support. Additionally, integrating work experience with academic theory through the work-integrated learning (WIL) model can effectively bridge the gap between graduates and actual workplace demands, significantly enhancing their thinking ability, problem-solving skills, and psychological resilience, thereby laying a solid foundation for their smooth entry into the workforce. Furthermore, technology, apprenticeships, transferable skills, mentorship, and industry-academia collaboration play crucial roles in bridging the gap between education and work experience.

The second section discusses practical skills and work experience. Since society is transforming continuously, improving students' practical skills and enriching their work experience is crucial. This can be achieved through collaborative efforts and proactive innovation practices, which have become focal points in the field of education today. Specific measures include deeply integrating industry internships into the educational system, enabling students to train in real work environments, and enhancing their workplace competitiveness through planning, practice, and evaluation. Additionally, teaching methods, such as practical courses, debates, and case studies, are being innovated to cultivate critical abilities and lay a solid foundation for future careers. Special attention is also paid to transitional support for specific groups, such as newly graduated nurses, and complex educational scenarios, such as disabled refugee children. This is done by enhancing teachers' professional skills, improving policies, increasing educational inclusiveness, and mastering cross-cultural and legal frameworks. These efforts provide comprehensive support for students' smooth adaptation to the workplace and future development.

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Xinqiao Liu
School of Education,
Tianjin University,
Tianjin, China

Section 1

Future Talents and Skills

Chapter 1

Anxiety and Depression among Early-Career Academic Researchers in China: Causes and Organizational Support

Yuxin Guo and Xinqiao Liu

Abstract

Early-career researchers encounter distinct challenges, balancing intense competition with the demands of securing funding and publishing their work. These pressures have increased anxiety and depression, impacting their performance and overall well-being. Yet, their mental health remains a low priority for both society and institutions. This study adopts a qualitative research approach, employing purposive sampling to select 14 early-career faculty members from various academic disciplines, including the natural and social sciences. Data were gathered through semi-structured, in-depth interviews and subsequently analyzed to identify the primary sources of stress. The study revealed that the institutional environment, academic pressure, and personal attributes were the main influencing factors, which need to be supported by fair evaluation and a rational training system. The study also provides recommendations for grassroots organizational interventions and primary health care services to address these issues.

Keywords: early-career academic researchers, anxiety, depression, influencing factors, organizational support

1. Introduction

Young scientific and technological workers play a crucial role in advancing the national innovation system. Among the special projects initiated by the Ministry of Science and Technology under the "14th Five-Year Plan" national key research and development plan, 43 have implemented young scientist programs, accounting for approximately 80% of the total [1]. However, while young scientific and technological workers are rapidly growing and making outstanding contributions, their mental health has also become a focus of social concern, and the "mental illness" of young scientific researchers needs to be urgently addressed. Based on survey data from over 10,000 science and technology professionals in China, a proportion of them

experience anxiety to different extents. Among them, individuals with intermediate professional titles exhibit the highest levels of anxiety, with some experiencing moderate to severe anxiety [2]. The results of a large-scale survey of young science and technology workers in China aged 35 years and under in 2009 and 2017 revealed that 49.7% of young science and technology workers experienced anxiety problems [3]. Moreover, the anxiety level of science and technology workers has gradually increased over time. The proportion of science and technology workers with mild, moderate, and severe anxiety problems increased from 39.9%, 6.3%, and 1.9% in 2017 to 42.2%, 8.8%, and 4.5% in 2019, respectively. According to this survey, 21% of young scientific and technology workers experienced different levels of depression, making them more susceptible to depression than other age groups. A 2019 survey on the mental health of science and technology workers revealed that nearly a quarter of the respondents experienced varying degrees of depression, of which 17.6% of science and technology workers tended to experience depression, and 6.4% of science and technology workers could be classified into a high-risk group for depression. There is a direct correlation between the likelihood of experiencing depression and the likelihood of having thoughts of suicide among individuals working in the field of science and technology [4]. Common symptoms of depression include low mood, loss of energy, and reduced concentration. Depression not only has a serious impact on the study, work, normal life, and interpersonal activities of science and technology workers but also places a heavy burden on their families and society.

As an important group of young scientific and technological workers, early-career academic researchers are at a critical stage in their career development, often facing pressure from scientific research, uncertainty about career prospects, and the dilemma of balancing personal life and academic work. Compared with other scientific and technological professions, their mental health issues may be more intricate and severe. This study focuses on the mental health status of early-stage academic researchers in the scientific research environment. The goal is to identify the factors that contribute to anxiety and depression and propose measures to address these issues. This study aims to establish grassroots organizations and a primary health care service network to improve the overall well-being of early-career academic researchers.

2. Literature review

2.1 Factors influencing anxiety among early-career academic researchers

Anxiety is influenced by a wide range of elements, which can be categorized into five groups: social factors, familial factors, personal circumstances, lifestyle habits, and interpersonal connections. First, various elements, such as social stress, changes in the objective environment, the uncertainty of social transformation, social and cultural influences, and social status, significantly influence individuals' psychology. Specifically, social stress and changes in the objective environment frequently result in social anxiety. The uncertainty and unpredictability brought about by social transformation can cause anxiety in individuals of various ages [5]. Conflicting values can lead to significant psychological conflicts and anxiety when individuals' value needs are not met or are severely threatened [6]. Groups with low social status are more prone to anxiety issues, and under the ongoing influence of social factors, anxiety can shift from an individual psychological problem to a social psychological problem [7].

Second, family relationship tension, child-rearing stress, and family member illness make science and technology workers more prone to depression and anxiety [8]. Third, individual heterogeneity is also an important factor in anxiety [7]. Anxiety is influenced by self-perception and is closely related to an individual's sense of control [9]. When an individual perceives that they are unable to predict or control potential negative events, the risk of developing an anxiety disorder increases [10]. Fourth, lifestyle habits such as poor sleep quality and exercise are closely related to anxiety. Anxiety is associated with increased sleep latency and decreased sleep quality [11]. The physical activity pattern of patients with anxiety disorders is characterized by sedentary behavior, so reducing the number and duration of sedentary behavior and increasing light exercise can alleviate anxiety levels [12]. Fifth, fear of negative evaluation [13] and social exclusion in interpersonal interactions are important factors influencing anxiety. Fear of negative evaluation is a core trait of social anxiety [14]. When people perceive rejection from the surrounding environment, it will stimulate adverse reactions to the evaluation of others, which in turn leads to the occurrence of social anxiety [15]. In addition to general influencing factors, pathological anxiety is an exaggerated state of fear, which is an overexcitable manifestation of the fear circuit, including the amygdala and extended amygdala [16]. In addition, the pursuit of scientific research achievements and the pressure of scientific research assessment were also important factors that caused anxiety in early academic researchers. The conflict between interest and assessment indicators has brought pressure and distress to the development of some early academic researchers [17]. The gradual promotion and implementation of the "promotion or leave" policy in China has put increasing pressure on young teachers in universities, who are representatives of scientific and technological talent. Academic publication, promotion, peer competition, course teaching, and environmental adaptation have become the "five mountains" that weigh young teachers. Promotion and academic publication have become the main factors that exacerbate professional anxiety [18].

Anxiety has been extensively researched in the literature. However, it is difficult to find relevant research on anxiety status, influencing factors, and prevention and treatment measures for early academic researchers in domestic and foreign research. The literature focuses primarily on the introduction, cultivation, growth, promotion, innovative development, and incentive evaluation of early-career academic researchers. This highlights the importance of creating high-quality teams of early-career academic researchers and recognizing their role as a new driving force in the development of the national innovation system.

2.2 Factors influencing depression among early-career academic researchers

The factors that affect the level of depression among early-career academic researchers are complex. The general factors can be divided into four categories: demographic characteristics, lifestyle, living environment, and social support. Demographic characteristics mainly include sex and age differences, but existing studies have not reached a consensus. With respect to gender, some studies have reported that the mental health literacy level of male science and technology workers is greater than that of female science and technology workers, but other studies have reported that there is no statistically significant difference in the level of depression. In addition, studies by early-career academic researchers have reported that there is no significant difference in the level of depression between men and women [4, 19, 20]. The gender disparities in depression among early-career academic

researchers arise from physiological disparities between males and females, including genetic susceptibility and hormonal variations. Additionally, differences in self-perception and societal expectations across genders contribute to distinct emotional reactions and behavioral tendencies [21]. There is a negative correlation between age and the prevalence of depression among science and technology professionals. Specifically, those under the age of 35 in this field experience significantly greater levels of depression than their older counterparts do. This pattern is not observed among science and technology workers in other age groups [4]. A survey of IT professionals revealed that those aged 26–30 years and 36–40 years had higher levels of depression than other age groups did [22]. The prevalence of depression among early-career academic researchers can also be attributed to the poor lifestyle choices that are common in modern society. First, a lack of regular physical activity increases an individual's risk of depression [23]. Physical activity helps maintain physical health, which is strongly associated with mental health. Therefore, when more physical activity is engaged in, physical health is better, and the risk of depression is lower. Second, the level of depression in early-career academic researchers is also positively correlated with their sleep problems. The better the quality of sleep is, the better their mental health is [24–26].

With respect to the impact of the living environment on depression, some studies have shown that, mediated by subjective social class, individuals' perceptions of the community environment affect their level of depression and that the living environment and public facilities have the greatest influence [27]. Economic income is a significant determinant of individuals' subjective assessment of their social class and has a direct effect on their overall quality of life. A previous study revealed that the lower the monthly income of science and technology workers is, the greater the level of depression [4]. The impact of social support on depression is influenced by the relationship between family and work among science and technology workers. Specifically, a positive influence of family on work was associated with lower levels of depression, whereas a negative influence of family on work was linked to higher levels of depression among science and technology workers [24]. Marital status significantly influences the degree of depression among early-career academic researchers. Specifically, unmarried and nonstable partnered early-career academic researchers are more prone to experiencing depression than their counterparts are [22]. Poor coworker interactions are also a contributing factor to the development of depressive moods among workers in the scientific and technological fields [19]. Furthermore, the level of depression among early-career academic researchers is also influenced by the pressure of doing research and the evaluation of their findings. Furthermore, there is a strong correlation between the level of depression and job burnout among early-career academic researchers. This means that unpleasant emotions, such as depression, directly impact workers' levels of work engagement [28].

In recent years, the depressive symptoms of early-career academic researchers have gradually worsened, and further research is needed to explore this issue in greater depth. Existing studies have focused primarily on scientific and technological professionals working in the fields of education, information technology, and medical and healthcare systems. Early-career academic researchers, who are the primary drivers of scientific research and innovation, experience heightened mental health challenges. However, a limited amount of research has focused explicitly on mental health disorders and the factors that influence these individuals. With respect to measurement tools, the majority of previous studies have utilized commonly used questionnaires to evaluate the level of depression in individuals (such as the

Flow Center Depression Inventory and the Adult Mental Health Scale (PHQ)-9). However, more comprehensive measurement questionnaires specifically designed for early-career academic researchers are scarce. Furthermore, the multitude of factors that influence the extent of depression among early-career academic researchers are intricate and necessitate a complete analysis encompassing both broad and specific aspects. Finally, with the improvement of mental health services, the prevention and treatment of depression for early-career academic researchers should consider a two-pronged approach of general prevention and treatment with the participation of multiple subjects and specialized interventions to pay attention to the problem of depression among early-career academic researchers and implement timely and effective interventions.

2.3 General treatment measures for anxiety and depression in early-career academic researchers

Research on the alleviation and treatment of depression and anxiety is a significant focus in the medical and psychological fields. Numerous scholars have dedicated their attention to studying depression and anxiety in various groups and have conducted extensive research that has yielded fruitful outcomes. College student groups are similar to early academic researcher groups, and improvements in their mental health and the alleviation of anxiety and depression should be approached from both internal and external perspectives. On the one hand, it is important to enhance an individual's self-control and cognitive ability. They should take specific actions to improve their own well-being when they become aware of their negative emotions. On the other hand, efforts should be made to improve the environment. For example, organizations should increase awareness and education about mental health. Regular lectures on mental health can also be conducted [29]. Psychological research has established a robust association between social support and depression and anxiety, indicating that social support acts as a protective factor for mental health. College and university students, as well as scientific and technological talent, who experience high levels of psychological pressure or mental illness, should receive increased support and care to ensure that they feel a sense of community support and empathy [30]. In addition, many studies have proposed valuable suggestions to alleviate the anxiety and depression of early-career academic researchers. The government should ensure the mental well-being of early-stage academic researchers by implementing a comprehensive management system. Additionally, robust rest and vacation benefits for scientific and technological talent should be established. The organization should also create an impartial and rational assessment and evaluation system to alleviate the pressure faced by researchers in their scientific endeavors. At the individual level, scientific and technical talent should be directed toward improving awareness of mental health and lifestyle [31]. Furthermore, we may initiate the process of nurturing scientific and technological talent, construct a novel paradigm for talent cultivation, enhance the teaching system for mental well-being, and facilitate the methodical advancement of psychological education [32, 33].

Most patients (approximately 74%) who seek therapy for symptoms of anxiety or depression do so from primary care physicians rather than mental health professionals. Anxiety, depression, and other psychological disorders are prevalent in primary care settings. Research has shown that the primary healthcare services provided in foreign nations are insufficient for identifying and managing anxiety and depression [34, 35]. In China's primary care system, there is a similar issue: approximately 50%

of patients who seek treatment from primary care doctors are not identified, and even if they are diagnosed, fewer than 10% of patients receive suitable treatment [36]. The present research on therapies for anxiety and depression focuses primarily on psychotherapy and medicines. Despite the existence of productive research findings and a comprehensive treatment system, studies on the integration of primary care are lacking. Exploring strategies to enhance the incorporation of treatment interventions for anxiety and depression into the primary care system has emerged as a significant area of interest for future investigations.

2.4 Demand for primary health care services among early-career academic researchers

Primary health care serves as a crucial gateway for patients to obtain health care services [37]. According to the World Health Organization (WHO), primary health care is defined as a method of engaging the entire community in health-related issues with the aim of providing healthcare services that are easily accessible and closely aligned with people's everyday surroundings [38].

Currently, primary health care is an effective model given the limited availability of medical resources. Countries such as the United States have been enhancing primary care services in recent years and have acquired valuable expertise [39]. An increasing number of European governments are advocating for the reconstruction of the primary health care system, and numerous countries have implemented a range of reform initiatives to enhance the primary health care system. China has gained valuable insights into enhancing its primary health care system by focusing on delivering people-centered health care services, promoting the coordination and integration of health services, and ensuring comprehensive, continuous, and accessible primary health care services [40].

China's primary health care system is dominated by government investment, with public health services funded mainly by the government, which provides full subsidies for the personnel, development, construction, and operating expenses of public primary health care institutions run by the government. For private primary care institutions, the government does not subsidize all of their operating costs [41]. Since the implementation of medical reform in 2009, the primary medical care system in mainland China has become a crucial focus of reform [42]. There has been a substantial increase in government funding, as well as gradual enhancements in primary facilities, equipment, and the development of a skilled workforce. These improvements have facilitated further advancements in the primary health care system. For example, measures such as implementing and enhancing the physical examination system, gradually incorporating mental health assessments into routine health examinations for scientific and technological workers, establishing qualified units to provide psychological counseling centers for scientific and technological workers, offering psychological health care and counseling services, reinforcing physical and mental health education and training for scientific and technological workers, developing daily education on physical and mental well-being, and establishing and implementing a vacation system for scientific and technological workers have been taken [43].

In general, there have been extensive studies on anxiety, depression, and primary health care services, but there is still a lack of research focusing on the early academic research community. In domestic and foreign research, studies on anxiety, depression, and health care services that focus solely on the early academic research

community are almost impossible. There are notable distinctions between the early academic researcher group and other groups. First, this group has a demanding work schedule that makes it impractical for them to make frequent visits to the hospital for mental health assessment and treatment. Second, this group places significant importance on external evaluation and is highly sensitive to the social stigma associated with mental illness. Consequently, they may be reluctant to seek medical treatment because of concerns about being labeled with a mental health diagnosis. Third, a majority of individuals in this group are affiliated with organizational units such as scientific research institutions and universities. This makes it feasible to establish a suitable primary healthcare service network through the organization of grassroots units, departments, and similar entities.

3. Research methods and process

3.1 Research methods

This study adopted a qualitative research method to explore the anxiety and depression of early academic researchers and the factors affecting them. "Qualitative research" is "an activity in which the researcher uses himself as a research tool, in a natural setting, using a variety of data collection methods (interviews, observations, physical analysis) to conduct an in-depth and holistic exploration of research phenomena, forming conclusions and theories from raw data, and gaining an interpretive understanding of the behavior and meaning construction of the research object through interaction with the research object" [44]. Using qualitative research, this study hopes to explore the mental health status of early academic researchers and the factors that affect it through the interaction between the researcher and the research subject and from the research subject's perception of their own anxiety and depression.

3.2 Research process

This study adopted the purposeful sampling method commonly used in qualitative research, which involves selecting people, places, and events that can provide the most information for the research question [45].

The interviewees were selected based on the following criteria: (1) Career Stage and Title: All participants were early-career faculty members, with academic titles ranging from lecturer to associate professor. Special attention was given to young scholars who had not yet attained senior titles, as they typically experience higher pressure related to academic promotion. (2) Academic Discipline: The participants represented a variety of disciplines, including natural sciences, social sciences, and others. This diversity enabled the study to examine the specific pressures and challenges faced by scholars in different fields. (3) Gender Balance: Efforts were made to ensure a gender-balanced sample in order to explore potential gender-related differences in the experience of academic career stress.

A total of 14 early-career academic researchers were selected as interviewees for semi-structured, in-depth interviews. The basic information of the interviewees is shown in **Table 1**.

After the interviewees were identified, the interview outline and informed consent form were sent to the interviewees. The researcher and the interviewee

ID	Gender	Age	Title
Respondent 01	Male	31–35	Lecturer
Respondent 02	Female	31–35	Assistant Professor
Respondent 03	Female	31–35	Associate Researcher
Respondent 04	Female	<30	Lecturer
Respondent 05	Male	31–35	Lecturer
Respondent 06	Male	35–40	Lecturer
Respondent 07	Female	<30	Lecturer
Respondent 08	Female	<30	Lecturer
Respondent 09	Male	31–35	Associate Professor
Respondent 10	Male	31–35	Junior Researcher
Respondent 11	Female	<30	Lecturer
Respondent 12	Female	<30	Lecturer
Respondent 13	Male	<30	Lecturer
Respondent 14	Female	<30	Associate Researcher

Table 1.
Basic information of the respondents.

collected data online at predetermined times, and the interviews lasted approximately 45–60 minutes. After all the interviews were transcribed, the data were analyzed via the software NVivo11 and the three-level coding method of grounded theory, which is a qualitative research method. As shown in **Table 2**, after the data were coded, three categories were obtained: "stress that causes anxiety and depression," "factors that affect anxiety and depression," and "support for relieving anxiety and depression."

Category	Attribute	Dimension
Stress that causes anxiety and depression	The pressure of assessment and promotion	"Promotion or departure," high assessment standards, unstable policies, and fierce competition.
	Pressures on teaching tasks	Overloaded teaching tasks, unfamiliarity with teaching courses.
	Pressures on administrative affairs	Time-consuming tasks, negative feedback, overwhelming responsibilities.
	Pressure in family life	Financial pressure, marital pressure, childcare pressure.
Factors that affect anxiety and depression	The institutional environment	Institutional design, organizational environment, policy implementation.
	Academic activities	Unsuccessful research progress, insufficient teaching experience, uncertainty in project applications.
	Individual heterogeneity	Gender, age, and proactivity.
Support for relieving anxiety and depression	Organizational support	Institutional improvements, capacity enhancement, and compensation guarantee.
	Social support	Family support, friend support, and colleague support.

Table 2.
Coding table for data analysis.

4. Results

Research has revealed that early academic researchers, while making rapid progress and making outstanding contributions, are facing relatively serious mental health conditions, and the "mental health" of early academic researchers urgently needs to be addressed. Consistent with previous research findings, the respondents believe that their mental health is poor and that they have varying degrees of anxiety and depression. The respondents with severe symptoms suspected that they had anxiety disorders (Respondent 12). The study revealed that the main reasons for the anxiety and depression experienced by early academic researchers were the pressure of assessment and promotion, the pressure of teaching tasks, the pressure of administrative affairs, and the pressure of family life.

4.1 The pressure of assessment and promotion

Currently, due to the reform of higher education, Chinese universities have adopted a pretenure track system for faculty appointments. As the number of universities that have introduced the pretenure track system continues to increase, the number of young faculty members working on a pretenure track has also increased annually. Since the pretenure track system has a relatively strict evaluation mechanism, pretenure track faculty members who fail to pass the tenure review (also known as the expiration assessment) during the pretenure period are usually not reappointed. This "promotion or departure" assessment not only motivates teachers to work hard but also creates problems such as high work pressure, multiple and differentiated identities, and a decline in job security and a sense of belonging [46]. Approximately 50% of the interviewees were young teachers under the new university system, and they said that the pressure to be promoted was an important source of anxiety and depression. For early academic researchers under the old system, although they did not face strict assessment pressure and the cruel "promotion or leave" rule, they also believed that the pressure of promotion could easily lead to psychological states of anxiety and depression. "Anxiety comes from the title. Like us, everyone is either promoted or fired. The company has an assessment period, assessment tasks, and needs to be assessed for its professional title. This pressure is even greater." (Respondent 01) "When I first started working, I felt a lot of pressure. I think it was because I needed to adapt to the job, and the pressure of the assessment was like a sword of Damocles hanging over my head. If I did not meet the requirements, I would feel anxious. For a long time after I started working, I did not feel like I was in control of my own time. I was more like being pushed forward, and I felt anxious." (Respondent 02)

Some respondents believe that excessively high assessment requirements, unstable assessment policies, and vicious competition caused by promotion pressure are important causes of anxiety and depression. "What is worrying is the kind of vicious competition and the very vague promotion channels. If it is either promotion or departure, I think it is okay to have a clear assessment system, and then we all abide by the rules of the game and the survival of the fittest. However, under a more vague and dynamic system, this anxiety will be greater, and it is not good to create more vicious competition. I think most teachers do not want to see this phenomenon." (Respondent 03)

4.2 Pressures on teaching tasks

The anxiety and depression experienced by early-career researchers due to teaching duties mainly stem from the pressure of preparing lessons, heavy teaching duties,

and the challenge of guiding students. These factors combine to cause them to face greater psychological pressure in the early stages of their careers.

First, the pressure of preparing lessons is high. Owing to their relatively short job time, many early-career researchers need to take completely new courses, which often require much time to prepare. In particular, new teachers may have to teach courses that they are not familiar with, which increases the difficulty and time pressure of preparing lessons. Many teachers are occupied with preparing lessons during the day, at night, and even on weekends and are unable to conduct independent research, which greatly affects their work-life balance. New teachers lack autonomy in course scheduling and are usually only able to accept courses arranged by the school. This passive acceptance prevents them from fully developing their career direction and personal research interests, further increasing their psychological burden. "For novice educators, the heavier pressure is still the pressure of preparing lessons. Especially in our school, all the classes I took in my first year were new classes. I even had to teach some classes that I was completely unfamiliar with. Many times, I did not have much autonomy in choosing the classes, and I had to teach whatever classes I was assigned." (Respondent 04)

Second, teaching tasks are heavy. Some universities have high teaching requirements for new teachers, requiring them not only to achieve a certain teaching duration but also to take on additional teaching tasks, such as serving as undergraduate class teachers and academic advisers. These additional responsibilities increase the workload and make them feel more stressed. "In addition to preparing lessons, I also need to take master's or undergraduate students and guide them in doing projects or writing papers. This semester, I am also the undergraduate class teacher and academic adviser." (Respondent 02)

The third challenge involves supervising students. In addition to teaching, early academic researchers also need to supervise the research work and thesis writing of master's and undergraduate students. Although some students are more cooperative, some students with strong personalities are unwilling to accept supervision, which may lead to research not progressing smoothly and even affecting students' graduation. "Some of my colleagues have encountered students with strong personalities. When you give them guidance, they may not be willing to accept your advice, which I think can be stressful. Interviewee 2 The main difficulty in guiding students is related to their personal abilities. Because the students here still lack a little self-learning ability." (Respondent 06)

4.3 Pressures on administrative affairs

Teaching, research, and public service are recognized as important functions of universities. In addition to teaching and research, university teachers also need to engage in administrative affairs. However, excessive and burdensome administrative affairs not only occupied the time of early academic researchers in teaching and research activities but also caused them to experience anxiety and depression. The respondents said that the pressure of administrative affairs was also one of the reasons for their negative emotions, mainly due to the fragmentation of time caused by a large number of chores, the conflict between administrative work and research goals, excessive workload and a sense of responsibility, and the mandatory arrangement of administrative tasks by leaders.

First, they are unable to manage their time effectively, and their energy is scattered. A large number of administrative tasks, such as proctoring exams, grading

papers, recruiting students, conducting interviews, and serving as class advisers, cause the time of early-stage academic researchers to be highly fragmented. They need to juggle these trivial tasks between their heavy daily teaching and research tasks, and they are unable to concentrate on completing academic research. This fragmentation of time and the interlacement of tasks make them feel that they are unable to manage their time effectively, which in turn leads to anxiety and depression. "For example, proctoring examinations, evaluating papers, providing lectures, recruiting students, and conducting interviews are all still needed. These things will fragment the time, which I believe is inconvenient. You cannot put it all together into a single time frame to achieve something." (Respondent 01)

Second, there is a gap between career expectations and reality. Early academic researchers often enter universities with the original intention of engaging in academic research, but a large amount of administrative work is inconsistent with their career expectations. The frequent interruption and time occupation of administrative tasks prevent them from focusing on scientific research, resulting in a sense of disparity between career ideals and reality. This inconsistency leads to psychological disappointment and frustration, which further exacerbate anxiety. "I have a relatively negative attitude toward these administrative tasks. After all, the original intention of taking the academic path and entering the university was to do some academic research that I was interested in, but these administrative tasks will take up a lot of time, and meetings are a common occurrence." (Respondent 06)

The third factor is the passive acceptance of administrative tasks. Administrative tasks are often assigned by leaders, and early academic researchers lack the autonomy to choose when faced with these tasks. Some leaders are strict about administrative work and even exert pressure, which makes them feel passive and helpless. This passive acceptance of administrative tasks, especially when tasks conflict with personal academic goals, increases the psychological burden, leading to anxiety and depression. "I do not truly want to do these administrative tasks, but I have no choice because they are assigned by my supervisor." (Respondent 05)

4.4 Pressure in family life

Interviews have indicated that early-career academic researchers also encounter anxiety and depression due to the demands of family responsibilities. The majority of early-career academic researchers are approximately 30 years old, and they place significant importance on their family responsibilities. Acquiring property, establishing a family, and procreating have emerged as significant components of their familial obligations and personal development. Furthermore, individuals must consider both the parental assistance they receive and the education of their offspring. Early-career academic researchers working in major metropolitan areas confront exorbitant housing costs and the financial burden of providing their children with high-quality education. Additionally, they experience significant stress and mental health issues due to economic demands, marital challenges, and reproductive concerns. "Our school salary is still very low...in terms of life, it is the mortgage and marriage, the school only has a kindergarten now, and the children are going to secondary school, and they have to go and compete with the other schools with the people piece by piece, so all these pressures are still quite high." (Respondent 05)

This study revealed that female early-career academic researchers face greater challenges in balancing family and career development. The existing assessment mechanism and personnel system are not friendly to women, and the double burden

of research pressure and family responsibilities makes them feel exhausted. Especially during childbearing years, female researchers often have to make difficult choices between career development and family responsibilities, and this pressure strongly affects their mental health. "I think for young teachers, especially for young female teachers, the current assessment mechanism, especially the new system after the reform of the personnel system, is in fact not so friendly to young female teachers because the pressure of research is very high. For young female teachers, it is still difficult to take care of them because they may have to face the pressure of getting married and having children, including taking care of the elderly at home and so on." (Respondent 02)

5. Discussion

5.1 Factors influencing anxiety and depression in early-career academic researchers

Research has demonstrated that the causes of anxiety and depression encompass a wide range of areas, which can be categorized into five main groups: social factors, familial factors, personal circumstances, lifestyle habits, and interpersonal relationships. The findings of this study indicate that the anxiety and depression experienced by early-career academic researchers are influenced mostly by the institutional environment, academic activities, and individual heterogeneity, as shown through in-depth interviews.

5.1.1 Institutional environment

China's recent adoption of the "promotion or departure" policy has placed increasing pressure on early academic researchers. They now face challenges in terms of academic publication, title promotion, peer competition, curriculum teaching, and environmental adaptation, which have become significant obstacles for young teachers. Title promotion and academic publication are the primary factors that exacerbate career anxiety [18]. The development and execution of the organization's evaluation and advancement system, as well as the subsequent work environment, significantly impact the levels of anxiety and depression experienced by early-career academic researchers.

First, the current academic evaluation system places high value on the quantification of results, making direct comparisons between the results of different teachers and ignoring the diversity and uniqueness of individuals. The interviewees consider competition under this system to be "cruel" because it does not truly serve the purpose of cultivating talent but rather is more like a "predatory" practice. This quantitative approach ignores teachers' individual strengths and the different stages of academic growth, leading to increased anxiety and frustration.

Second, in recent years, colleges and universities have continuously adjusted and reformed their hiring standards, such as the implementation of policies such as "breaking the five only," which, although aimed at optimizing the academic environment, has also brought about instability in the system. The interviewees felt that these frequent policy changes increased their anxiety about the system, as they needed to adapt constantly to new standards and requirements and that this uncertainty had a negative impact on their mental health.

Finally, the respondents reported that their colleges were marginalized within the university and lacked sufficient voice. This marginalization leads to the college's lack of influence in resource allocation and decision-making processes, which in turn affects the career development opportunities and psychological well-being of the college's faculty. Teachers felt pressured to work in an environment of limited resources and weak voice, making it difficult to achieve their professional goals.

5.1.2 Academic activities

Teaching and research are among the main job descriptions of early-career academic researchers, represented by university teachers. However, as new entrants to the academic community, they may experience more serious anxiety and depression when faced with the high uncertainty of subject application, the long period of paper publication, and the lack of a sense of significance of research results.

First, subject declaration is one of the main sources of research pressure faced by early-career academic researchers. Owing to the uncertainty of the declaration process, it is difficult for researchers to control the outcome, leading them to feel stressed throughout the declaration process. In particular, the lack of clear feedback and guidance further exacerbated their anxiety.

Second, the cycle of paper publication is long. Domestic journals have a long cycle for publishing papers, which usually takes a year or even longer. This long waiting process makes it difficult for researchers to plan and keep track of their scientific progress, especially under the requirement of assessment, and the pressure of publishing in such a long cycle results in constant anxiety. In addition, there are differences in the difficulty and cycle of publications in different disciplines and directions, and some exploratory topics take longer, which further increases their psychological burden.

Finally, some early-career academic researchers lacked confidence in their ongoing scientific research and questioned its significance and value. This lack of meaning for their research results, especially in the face of a difficult research environment and limited resources, can make them feel frustrated and powerless. Working in this state for a long period of time not only affects their research motivation but also leads to persistent anxiety and depression.

5.1.3 Individual heterogeneity

Individual heterogeneity, driven by cognitive processes, plays a significant role in anxiety and is intimately linked to an individual's sense of control. The study revealed that early-career academic researchers of varying genders, ages, and levels of initiative exhibited distinct responses in managing anxiety and depressive mood. In general, the higher the level of subjectivity is, the more effective early-career academic researchers are in reducing anxious-depressive moods and mitigating their detrimental impacts.

5.2 Countermeasures to alleviate anxiety and depression in early-career academic researchers

Early-career academic researchers often experience higher levels of anxiety and depression due to the increased strain of assessment and promotion, teaching responsibilities, administrative work, and family obligations. To address the anxiety and

depression experienced by early-stage academic researchers effectively, it is advisable to involve multiple stakeholders, empower grassroots units, offer organizational and social assistance, and address issues related to the organizational system, talent capacity, welfare and treatment, and interpersonal relationships. Additionally, it is crucial to establish a primary healthcare service network specifically tailored to the mental health needs of early-career academic researchers.

5.2.1 Organizational support

Studies have proposed some informative suggestions to alleviate the anxiety and depression of early-career academic researchers; for example, the government should provide protection for the mental health of early-career academic researchers at the level of the management system; establish and improve the welfare benefits of scientific and technological talent for rest and vacation; establish a new concept of quality of talent training; improve the mental health teaching system; promote the systematic development of psychoeducation [32, 33]; and guide scientific and technological talent to increase mental health awareness and improve lifestyles [31]. The respondents believe that organizational support is important for alleviating their anxiety and depression.

First, a fair and reasonable appraisal and evaluation system should be established at the organizational level to reduce the work pressure of early-career academic researchers. Early-career academic researchers are in the golden period of the development of energetic and vigorous creativity, and all research units must establish a scientific, fair, and reasonable assessment and evaluation system to help early academic researchers compete reasonably, develop healthily, and escape the swamp of "performanceism." On the one hand, early academic researchers should be guided to set up ambitious academic ideals and work ambitions, avoiding "working for the sake of completing the assessment" or "working for the sake of working." On the other hand, scientific research units at all levels must combine stage assessment with long-term development and create good soil for the sustainable and healthy development of early academic researchers.

Second, practical and effective measures have been taken to promote the growth and maturity of early-career academic researchers. On the one hand, we pay attention to the new teacher group, provide comprehensive induction education for new young teachers, and provide useful guidance for young teachers in interpersonal communication, teaching, and research through new and old exchanges, pairing, etc. On the other hand, we pay attention to the on-the-job growth of early-career academic researchers and promote the growth and maturity of early-career academic researchers through the organization of academic salons, school-based training, and professional development schools for teachers.

Third, the security of early-career academic researchers should be improved in terms of economy, salary, and welfare benefits to alleviate the pressure on their economic lives. Scientific research units should increase their internal salary and welfare systems to meet the specific needs of early-career academic researchers. This includes offering reasonable salaries and providing various allowances and subsidies, such as housing, food and beverages, and medical care. These measures aim to address the concerns of early-career academic researchers. Furthermore, scientific research institutions at all levels should prioritize addressing the family life circumstances of early-career academic researchers, particularly women, to support them in achieving a healthy work-life balance alongside their teaching and research responsibilities.

Furthermore, it is crucial to fully utilize primary health care services. First, there is a need to enhance the development and administration of psychological support services for early-career academic researchers. It is advisable to establish and enhance a mental health service system through grassroots organizations such as faculties and institutes. By leveraging trade unions, the Communist Youth League, women's federations, and other organizations, they consistently offer mental health services to young academic researchers. Simultaneously, the utilization of increasing internet technologies allows for the enhancement of psychological services by integrating the promotion and provision of psychological help with digital mental health interventions. Ultimately, the mental health treatment system inside local government departments should be established and enhanced. Direct efforts toward enhancing the caliber of mental health treatment services provided in university hospitals while progressively establishing and enhancing the mental health service framework, including the consultation system, healthcare system, training system, and vacation system, are needed.

5.2.2 Social support

The respondents expressed that, in addition to receiving support from their organization, they believed that social support may assist them in managing anxiety and depression. They also reported that assistance from family, friends, and coworkers was advantageous for alleviating stress. Psychological research has established a robust association between social support and depression and anxiety, indicating that social support acts as a safeguard for mental health. College students and those with advanced scientific and technological abilities who experience heightened psychological pressure or mental illness should receive additional assistance and care to ensure that they sense the collective's compassion [30].

6. Conclusion

It is important to conduct a detailed and in-depth study on early-career academic researchers, as they face unique pressures and difficulties at different stages of their career development. Their physical and mental health, as well as the factors that influence them, vary significantly. The study revealed that the primary determinants of anxiety and depression among early academic researchers are institutional contextual variables, academic activity factors, and personal trait factors. This group should be supplied with organizational assistance, which includes the implementation of a just and equitable appraisal and evaluation system, the creation of a systematic and rational training program, and the provision of a certain level of social support.

To address the anxiety and depression experienced by early academic researchers, providing guidance for multiple parties, empowering grassroots units, and offering organizational and social support is beneficial. First, we need to increase efforts to promote and raise awareness and promptly address mental health issues among scientific and technological workers to ensure timely treatment. Second, we should establish a primary mental health care service network for early-stage academic researchers by leveraging group organizations, departments, and grassroots units. This network should gradually develop and enhance a comprehensive mental health service system, which includes medical checkups, counseling, healthcare, training, and leave of absence.

Conflict of interest

The authors declare no conflict of interest.

Author details

Yuxin Guo[1] and Xinqiao Liu[2*]

1 School of Economics and Management, Dalian University of Technology, Dalian, Liaoning, China

2 School of Education, Tianjin University, Tianjin, China

*Address all correspondence to: xinqiaoliu@pku.edu.cn

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References

[1] Liu MY. Attention to the mental and physical health of young scientific researchers. Beijing Observer. 2022;**4**:38-39. DOI: 10.3969/j.issn.1008-1208

[2] Yang J, Qiu CH. How to Alleviate the Psychological Burden of Scientific Researchers [Internet]. 2021. Available from: https://zqb.cyol.com/html/2021-04/20/nw.D110000zgqnb_20210420_1-12.htm [Accessed: August 5, 2024]

[3] Wang YX, Guo F, Liu YN, Chen ZY. Mental health status and influencing factors of young scientific researchers. Science & Technology Review. 2019;**37**:35-44

[4] Guo F, Chen ZY. The demands and the services for mental health of Chinese scientific and technological professionals. Science & Technology Review. 2019;**37**(11):18-27

[5] Yu GL. Current public mental health status and alleviation of social anxiety. People's Forum. 2021;**716**:78-80. DOI: 10.3969/j.issn.1004-3381.2021.25.018

[6] Wang LP. The impact of cultural diversity and cultural conflict on social anxiety during the transition period. Shandong Social Sciences. 2018;**270**:93-98

[7] Hua HQ, Weng DJ. Social status, life experiences, and anxiety. Society. 2013;**33**(01):136-160

[8] Tao C, Yongyi B, Zongfu M, Rappe P, Edwards GD, Shinfuku N. Identifying factors influencing mental health development of college students in China. Social Behavior and Personality. 2002;**30**:547-559. DOI: 10.2224/sbp.2002.30.6.547

[9] Gallagher MW, Bentley KH, Barlow DH. Perceived control and vulnerability to anxiety disorders: A meta-analytic review. Cognitive Therapy and Research. 2014;**38**:571-584. DOI: 10.1007/s10608-014-9624-x

[10] Yao L, Guo Y, Zhou SY, Zhang JW, Zhang Z, Xing SX, et al. Effect of perceived control on state anxiety in college students. Chinese Mental Health Journal. 2022;**36**:970-974. DOI: 10.3969/j.issn.1000-6729

[11] Yu J et al. Sleep correlates of depression and anxiety in an elderly Asian population. Psychogeriatrics: The Official Journal of the Japanese Psychogeriatric Society. 2016;**16**:191-195. DOI: 10.1111/psyg.12138

[12] Bjorg H, Yvonne F, Orjan E, et al. Physical activity patterns of people affected by depressive and anxiety disorders as measured by accelerometers: A cross-sectional study. PLoS ONE. 2015;**10**:e0115894. DOI: 10.1371/journal.pone.0115894

[13] Chen BZ, Zhang QL, Zhang RM, Zheng X. Online social anxiety: Interpersonal negative experiences in social media. Applied Psychology. 2020;**26**:180-192. DOI: 10.3969/j.issn.1006-6020.2020.02.008

[14] Liu Y, Zhang DJ. On theory of fear of evaluation and its relative research. Advances in Psychological Science. 2010;**18**:106-113

[15] Jia YR, Zhang SC, Jin TL, Zhang L, Zhao SQ, Li Q. The impact of social exclusion on social anxiety in college students: The roles of fear of negative evaluation and interpersonal trust. Psychological Science. 2019;**42**:653-659

[16] Shin LM, Liberzon I. The neurocircuitry of fear, stress, and anxiety disorders. Neuropsychopharmacology. 2010;**35**:169-191. DOI: 10.1176/foc.9.3.foc311

[17] Jiang Z, Deng Y. The needs and challenges in the development of young scientific talents in universities. China University of Science and Technology. 2017;**10**:45-48. DOI: 10.16209/j.cnki.cust.2017.10.015

[18] Tian XP, Jiang SJ. Why are they anxious: A study on professional anxiety among young university teachers under the "up or out" policy. Exploration of Higher Education. 2022;**03**:39-44,87. DOI: 10.3969/j.issn.1673-9760.2022.03.007

[19] Lei XW, Yuan YF, Liao P, Wan AL, Chao XL, Guo M, et al. Prevalence and influeace factors of anxiety and depression among scientific personnel. Chinese Journal of Public Health. 2012;**28**:1096-1098

[20] Ming ZJ, Wang YX, Chen ZY. Mental health literacy of scientific and technological professionals: Present status and analysis. Science & Technology Review. 2019;**37**(11):9-17

[21] Gao W, Ping S, Liu X. Gender differences in depression, anxiety, and stress among college students: A longitudinal study from China. Journal of Affective Disorders. 2019;**263**:292-300. DOI: 10.1016/j.jad.2019.11.121

[22] Wang Y, Wang YX, Liu YN, Zhai JY, Chen ZY. Mental health status and the risk/protective factors of Chinese scientific and technological professionals. Science & Technology Review. 2020;**38**:90-102. DOI: 10.3981/j.issn.1000-7857.2020.10.026

[23] Li Y, Zhao J, Ma Z, et al. Mental health among college students during the COVID-19 pandemic in China: A 2-wave longitudinal survey. Journal of Affective Disorders. 2020;**281**(1):597-604. DOI: 10.1016/j.jad.2020.11.109

[24] Hou JQ, Chen ZY. The effect of work family spillover on scientists and technicians' physical and mental health. Science & Technology Review. 2019;**37**:28-34

[25] Li J, Wang JT, Su H, Zhao JP, Liu QF. Analysis of sleep quality and related impact factors in research staff of a medical university. Journal of the Fourth Military Medical University. 2006;**04**:325-328. DOI: 10.3321/j.issn:1000-2790.2006.04.011

[26] Pan RY, Zhang LJ, Tao SH, Lu N, Cai XF, Liu MY. Present situation of hypertension, insomnia, anxiety and depression in young and middle-aged scientific workers. Chinese Journal of Evidence-Based Cardiovascular Medicine. 2022;**14**:308-312. DOI: 10.3969/j.issn.1674-4055.2022.03.13

[27] Zhang L, Wu L. Community environment perception on depression: The mediating role of subjective social class. International Journal of Environmental Research and Public Health. 2021;**18**:80-83. DOI: 10.3390/ijerph18158083

[28] Chen ZY, Liu ZK, Zhu ZH, Shi ZB. Counseling and psychotherapy in China: Current status and future strategies. Bulletin of the Chinese Academy of Sciences. 2016;**31**:1198-1207. DOI: 10.16418/j.issn.1000-3045.2016.11.003

[29] Hua WQ. A Study on the Current Status of Depression, Anxiety, and Stress among University Students. Changchun Jilin; Jilin University; 2020

[30] Fan RQ, Chen WQ. Association of social support and coping

styles with depression and anxiety among undergraduates. Chinese Journal of School Health. 2007;**07**:620-621. DOI: 10.3969/j.issn.1000-9817.2007.07.023

[31] Liang MF. A Study on the Health Status and Influencing Factors of Leading Scientific and Technological Talents. Xian Shanxi: Xi'an University of Technology; 2016

[32] Xue CY, Liu SX. The mental health of engineering science and technology talents. Research in Higher Engineering Education. 2018;**04**:95-100

[33] Zhang JW, Hua WJ, Ren YC. The situations and solutions of National Defense Science & Technology Talents' psychological quality education: An empirical study on graduates of National Defense Technology Industry. Heilongjiang Researches on Higher Education. 2018;**36**:16-21. DOI: 10.3969/j.issn.1003-2614.2018.12.004

[34] Liu ZY, Ren XZ, Wang GB, Tang SQ, Wu YF, Zhang JY. A randomized controlled trial of Internet-based cognitive behavior therapy for college students with anxiety. Chinese Mental Health Journal. 2020;**34**:159-165. DOI: 10.3969/j.issn.1000-6729.2020.3.001

[35] Goldman LS, Nielsen NH, Champion HC, et al. Awareness, diagnosis, and treatment of depression. Journal of General Internal Medicine. 1999;**14**(9):569-580. DOI: 10.1046/j.1525-1497.1999.03478.x

[36] Liu W, Zhang W, Yang J. Identification and treatment of depression in primary care. China Primary Health Care. 2001;**10**:58-59. DOI: 10.3969/j.issn.1001-568X.2001.10.035

[37] Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. The Milbank Quarterly. 2005;**83**(3):457-502

[38] Sun WZ, Liang XF. Review of primary health care development and thoughts on role of disease prevention and control. 2019;**35**(07):797-800. DOI: 10.11847/zgggws1123260

[39] Wang Y, Han JJ, Xu YL. Learning from the outside world: Implications of American quality measurement strategy for primary care for quality measurement system of general practice in China. Chinese General Practice. Chinese Journal of Public Health. 2019;**22**(16):1889-1899. DOI: 10.12114/j.issn.1007-9572.2019.00.293

[40] Wang XW, Cui YY, Li QF. The concepts and measures for European countries to rebuild primary health care service system. Chinese Journal of Health Policy. 2010;**3**(03):45-50. DOI: 10.3969/j.issn.1674-2982.2010.03.011

[41] Du C. The construction process, shortcomings, and responses of China's public health system since the 2009 new health reform. People's Forum. 2020;**Z1**:78-81

[42] Xiong S, Cai C, Jiang W, et al. Primary health care system responses to non-communicable disease prevention and control: A scoping review of national policies in Mainland China since the 2009 health reform. The Lancet Regional Health – Western Pacific. 2022;**2**:100390. DOI: 10.1016/j.lanwpc.2022.100390

[43] Shi CH, Li RJ, He GX, Zhao YD. Research on physical and mental health status of Chinese scientific researchers and intervention countermeasures. China Science Technological Talents. 2022;**05**:51-59

[44] Chen XM. Qualitative Research Methods and Social Science Research.

Beijing: Educational Science Publishing House; 2000. p. 12

[45] Chen XM. Sojourners and "Foreigners": A Study on Intercultural Interpersonal Communication among Chinese Students in the United States. Beijing: Educational Science Publishing House; 2004. p. 35

[46] Wang TL, Xie XY, Jiang K. Organizational identification and institutional influencing factors of pre-tenure track young faculty in universities: A qualitative comparative analysis based on two research universities. Educational Development Research. 2022;**42**(Z1):107-116. DOI: 10.3969/j.issn.1008-3855.2022.13.015

Chapter 2

Enhancing Fashion Graduate Employability through Non-Placement Work-Integrated Learning: Designing a Scaffolded, Integrated Curriculum Framework for Real-World Impact

Divya Singh and Heidi Svendsen

Abstract

Today's world of work requires graduates with a robust blend of theoretical knowledge, practical skills, and industry acumen, and the contemporary fashion industry is no exception. Fashion higher education institutions face the challenge of nurturing graduates capable of responding to these expectations. Answering this need will require an innovative curriculum that not only imparts disciplined learning and essential skills but also ensures meaningful employment outcomes. Successful career trajectories in fashion are contingent upon graduates' ability to exhibit strong critical thinking, creative problem-solving, and resilience. This research presents a model for successfully cohering in work-integrated learning (WIL) and collaborative learning environments to enable these outcomes. It defines a framework to address the experience gap among fashion graduates and proposes the incorporation of an applied WIL approach, utilizing an interdisciplinary project methodology, fashion brand mentorship, and reflective assessment. The proposed curriculum fosters industry-relevant skills, graduate employability for real-world impact, and career progression in the dynamic fashion industry. Foregrounding synergies between theory and practice, this study contributes to the ongoing dialog on curriculum innovation in fashion education. It offers insights into how institutions can better prepare their graduates for the multifaceted challenges of the modern fashion landscape, bridging the gap between academic learning and industry requirements.

Keywords: graduate employability, integrated curriculum, work integrated learning, graduate attributes, non-placement WIL, fashion education, student success

1. Introduction

The fashion industry is undergoing significant transformations, necessitating a shift in the skillset required of its graduates. In a highly competitive marketplace, today's fashion professionals need more than discipline-specific knowledge and high-level technical skills; they must be adaptable, innovative, and equipped with a broad range of transferable skills [1–3]. Agreeing, Ref. [4] points out that the most valuable employees in the organization are, in fact, those that have a mix of both hard and soft skill competencies.

The garment industry needs graduates who possess a wide range of knowledge and intelligence in predicting the progress of the fashion industry in the future [5]. Globally, the fashion industry has recognized the importance of enhancing academic programs and curricula to better prepare students for the changing face of the industry and career opportunities in the world of fashion. This has been highlighted as a top priority for the International Textile and Apparel Association (ITAA) meta-goals [6]. The identified challenge is confirmed in Ref. [7]; however, they stress a further specific challenge of "university graduates lacking skills development and future employability competency for changing industry demands" especially in the developing world and infer that:

> *It is primarily due to a lack of social justice, a digital divide, a non-uniform education curriculum with varying levels of education quality, gender disparity, and a lack of government initiatives, among other factors. … As a result, many recent graduates find themselves out of work each year.*

Describing the apparel sector in Bangladesh, it is recorded that notwithstanding a current, thriving export market which accounts for more than 80% of the country's national exports, a severe shortage of skilled human resources is one of the pivotal reasons that Bangladesh may not realize further growth in the sector [8]. Due to the skills deficit, fashion companies hire foreign workers because of their better skills and knowledge [9].

Soft skills have become a crucial requirement for employers in Bangladesh. College graduates in Bangladesh often lack the soft skills employers require because of the insufficient efforts of educational institutes. Consequently, the future of college graduates in Bangladesh may be in jeopardy unless measures are taken to enhance their soft skills [9].

A similar situation prevails in Ghana which has a thriving fashion industry [10]. As in Ref. [10], employers are looking for a unique skill set but graduates simply "do not have the necessary skills to make them employable." Further on the issue, his concern is that higher education institutions continue to "emphasize students' conceptualized knowledge rather than the relevant skills and competences" [10]. Ameliorating the situation and for the fashion industry to remain competitive in Ghana will require emphasis on developing a higher and broader skill set [10].

> *HE institutions have a crucial role to play in satisfying those needs. It is critical, consequently, for HE institutions to recognize and address essential requirements for the fashion industry and churn out graduates with the desired competencies to work in them. … [W]orkplace learning cannot be ignored in any HE discussion [10].*

In South Africa, the overarching imperative to produce graduates ready for and attractive to the workplace is underscored by the specific national commitment to

reduce poverty and inequality by raising employment from 13 million in 2010 to 24 million by 2030 [11]. This aspiration from the National Development Plan 2030 has been a strong motivator for higher education institutions to revisit graduateness and become more innovative and responsive in their approaches to curriculum design and content, with the purpose of ensuring that graduates are equipped with the necessary knowledge as well as industry-relevant skills, behaviors, attitudes, and attributes that enhance their potential for employment [12]. Promoting graduate employability in South Africa is a national commitment and reflects on more than individual career success—it is also about achieving national socio-economic growth and success, reducing poverty and inequality, and addressing a critical concern of youth joblessness. In South Africa, the fashion industry makes up nearly 8% of the country's Gross Domestic Product and provides almost 60,000 jobs [13]. Euromonitor International rates the country as the leading apparel and footwear industry in sub-Saharan Africa with a worth of over $11bn [14]. A workforce of skilled, job-ready graduates has the remarkable potential to contribute to a more competitive labor market, attracting both local and foreign investment while fostering innovation, entrepreneurship, and growth [12].

Against this background, there is no gainsaying the imperative for transformative pedagogies that respond to the needs of the industry. Higher education institutions have not been blind to the reality, and there is a concomitant acknowledgment that to remain relevant, institutions must develop a more constructive integration of real-world experiences into their teaching and learning paradigms that promotes employability [1, 15, 16]. Discussing employability as an outcome of higher education, Ref. [17] shares the cogent reminder that employability is more than a mere set of skills: rather, employability should be seen as encompassing the conglomeration of attributes, capabilities, and behaviors which combine and must be in evidence when an individual enters the workplace and for future transfer within, the labor market; or stated otherwise:

> *Employability is a set of achievements – skills, understandings and personal attributes that makes individuals more likely to gain employment and be more successful in their chosen occupation [18].*

Work-integrated learning (WIL) is central to this mission, a crucial constituent of the higher education curriculum that bridges the gap between classroom learning and real-world experience [1]. As Ref. [19] describing the potential of WIL, five broader clusters of WIL are proposed namely, Foundational WIL, Co-curricular WIL, Applied WIL, Embedded WIL, and Professional WIL. However, for higher education institutions offering qualifications in fashion (FHEIs), the challenge lies in developing an integrated WIL framework that reflects the industry's fast-paced, evolving, and diverse nature and effectively prepares graduates for their future roles and functions [20–22]. A promising solution emerges from the combination of aspects of Embedded WIL (EWIL) and Applied WIL (AWIL) incorporated with a non-placement (campus-based) WIL curriculum. This approach offers students the opportunity to apply theoretical concepts in practical, experiential contexts supported by industry mentorship. Such a framework fosters a deep understanding of the fashion industry while simultaneously developing relevant twenty-first-century skills [23, 24]. The novel framework proposed by the researchers will be presented and discussed more fully under Section 3 below.

2. Literature review and discussion

It is impossible to assess the state of the fashion industry without thinking about how one becomes a good member of the fashion industry [25]. The consensus theory of employment and human development theory are both central when building the paradigm for graduateness and employability. Together they present a clear picture of the quality of graduates, and the skills and knowledge required for graduate employability and ensuing success in the workplace [26].

A comprehensive literature review reveals extensive research on WIL methods and their benefits for enhancing relevant learning experiences. As in Ref. [27]:

> *WIL is a]n umbrella term for a range of approaches and strategies that integrate theory with the practice of work within a purposefully designed curriculum.*

As an educational approach, WIL bridges the gap between academic knowledge and practical workplace skills, providing students with opportunities to apply theoretical concepts in real-world settings [1]. While the advantages of WIL across various disciplines have been well-documented, there is a notable research lacuna in how WIL may be successfully incorporated within fashion education. The fashion sector's rapidly evolving nature, coupled with its blend of creative and business elements, presents distinct challenges in implementing effective WIL strategies and there is an important need for research that addresses how WIL can be optimally integrated into fashion curricula to prepare graduates for the industry's multifaceted demands [1, 3, 6, 21].

2.1 Fashion graduates: Graduate attributes for employability

Authentic graduate attributes will prepare students for the professional world and equip them with the much-needed skills, knowledge, and mindset required to thrive in a dynamic and competitive industry [3]. Businesses are acknowledging this fact and employers are increasingly prioritizing those skills that people need to succeed in their personal, social, and professional lives over pure academic competence [28]. Such skills include interpersonal skills such as communication and collaboration; and personal traits such as adaptability and creativity [8]. As highlighted in Ref. [29], communication, problem-solving, creativity, teamwork, leadership, professionalism, and adaptability skills as those that will give graduates an edge when seeking employment. The emerging consensus appears to be that these attributes enhance graduates' employability while also ensuring their readiness to make significant contributions across various fashion roles [30].

Research on hiring practices in the fashion industry identified specific skills valued by employers [30]. Communication skills were the unequivocal front-runner sought after by 73% of the respondents, with team collaboration (29%) and adaptability (28%) following. Other highlighted skills included problem-solving (17%), leadership (14%), and critical thinking (4%). Effectively cultivating these attributes requires implementing an integrated teaching and learning solution. This approach will authentically develop the skills necessary for graduates to make a meaningful impact in the industry, support the fashion economy, drive business growth, and secure the future of fashion in South Africa [1].

The following discussion interrogates each of the key employability competencies identified - communication, teamwork and collaboration, resilience and adaptability,

judgment and reflection, leadership, and critical thinking - against the backdrop of a fashion curriculum in higher education.

2.1.1 Communication

Communication is a fundamental skill that plays a pivotal role in personal and professional success [31]. Effective communication is intrinsic to relationship-building, conflict resolution, empathy, and leadership; it supports the development of interpersonal connections and makes possible constructive interaction between members of the working team. Poor communication, on the other hand, makes it difficult for employees to work cooperatively, often creating a disconnect between what is required and what is done [30, 31].

With specific reference to the fashion industry, where a designer's vision must be translated into marketing materials, production specifications, and retail strategies, the ability to communicate effectively and across disciplines is paramount. Fashion education must inculcate the understanding of the industry argot ("common language") that bridges different areas of expertise [30]. This may take the form of exercises in the curriculum requiring students to explain complex concepts from their respective specializations to peers from other disciplines. For instance, a textile student may be asked to convey the properties and benefits of new sustainable fabric to design and marketing students in a way that is both technically accurate and understandable. Such practice improves communication skills while simultaneously deepening students' understanding of their own area of specialization.

Additionally, the fashion industry is increasingly driven by both creative vision and commercial realities, and in this working environment the ability to build consensus and negotiate effectively is crucial [31]. In preparation, the learning journey may involve simulations of common industry scenarios, negotiating with suppliers, reaching agreement on design directions within a team, or finding compromises between creative ambitions and budget constraints. By engaging in these exercises, students learn to articulate their positions clearly, listen actively to others' perspectives, find common ground, and develop solutions that balance diverse needs and priorities. Fashion education must provide multiple opportunities for students to develop and practice these skills in contexts relevant to their future careers in a scaffolded and integrated manner that mimics the workplace.

Closely linked to positive communication skills are the skills of emotional intelligence and empathy. While often overlooked in the so-called hard curriculum, emotional intelligence and empathy are critical in an industry built on understanding and predicting human desires and behaviors [31]. Incorporating elements that develop these softer skills will include training in active listening, workshops on understanding and managing emotions in high-stress situations (like Fashion Week and Fashion Show preparations), or exercises in perspective. For example, students may be asked to design for demographics different from their own, requiring them to understand the needs and preferences of diverse consumer groups.

2.1.2 Teamwork and collaboration

The fashion industry is innately a highly collaborative field that relies heavily on effective interpersonal relationships [3]. From design teams working together to create cohesive collections, to partnerships between brands and manufacturers, to the intricate relationships between stylists, models, and photographers on a shoot,

success in fashion often hinges on the ability to work well with others. Acknowledging this reality, the transformative fashion curriculum will actively foster the development of robust interpersonal relationship tools that harness the skills of working as a team. Building these interpersonal skills in fashion education will focus on several key areas. For example, in the fashion industry, diverse expertise is often required to solve complex challenges. By emphasizing shared problem-solving in educational settings, students are prepared for the collaborative nature of the industry. Institutions should also create integrated cross-functional scenarios where students from different specializations—such as design, marketing, and production—can work together to find holistic solutions, such as a case study with a project that tasks students with creating a sustainable fashion line. This will require designers to work with textile specialists to source eco-friendly materials, collaborate with marketers to develop a compelling brand story, and partner with supply chain experts to ensure ethical production. Through such exercises, students learn to integrate different perspectives, negotiate priorities, address challenges, and leverage diverse skill sets to achieve the shared goal.

The fast-paced nature of the fashion industry also demands efficient task division and project management. Thus, as students are introduced to the skills of collaborative engagement through projects mimicking real-world scenarios, they may also be required to demonstrate allied capabilities such as delegating responsibilities, coordinating efforts, and effectively managing timelines. For example, students might be tasked with organizing a fashion show, from concept development to final execution. This would require managing task divisions such as design, model casting, venue selection, marketing, and logistics among team members. Through such projects, students learn to assess individual strengths, allocate resources effectively, and coordinate diverse elements to achieve a cohesive result—all critical skills in the professional world of fashion.

Inculcating the ability of fashion students to work in a team has the added industry advantage of generating an understanding and appreciation for diverse approaches. As previously emphasized, the fashion industry is epitomized by artistic vision meeting business practicality, where traditional craftsmanship intersects with cutting-edge technology. Thus, having design students spend time in a production facility can help them appreciate the technical constraints within which pattern makers and seamstresses work. Similarly, allowing marketing students to participate in the design process can give them a deeper understanding of the creative considerations that inform a collection. By understanding and appreciating the complexities of each role, students develop respect for their future colleagues, laying the groundwork for more harmonious and productive professional relationships.

Cultivating mutual respect for different disciplinary approaches is crucial in this multifaceted industry and by exposing students to the intricacies and challenges of various fashion-related roles at the start of the learning journey, the educational program fosters these values.

2.1.3 Resilience and adaptability

In the constantly evolving world of fashion, adaptability emerges as a critical skill for success [3]. The industry is characterized by rapid change, where trends can emerge and dissipate overnight, consumer preferences shift with increasing velocity, and technological advancements continually disrupt traditional business models [32]. In this context, the ability to adapt is not just an asset—it is a necessity for survival and growth in the fashion world [3, 6]. Adaptability in the fashion

industry encompasses a wide range of capabilities, but at its core is the need to be responsive to change while maintaining vision and purpose [3, 30, 32]. For instance, a successful fashion stylist must possess the agility to swiftly respond and adapt to new trends, navigate the constantly changing preferences of celebrities, and handle unexpected challenges that arise on set. This requires not only a keen eye for style but also the flexibility to adjust creative visions in real-time, and often under considerable pressure [3]. Similarly, fashion designers must be adaptable in their approach to creativity. While maintaining a unique artistic voice, they must also be attuned to shifting market demands, emerging sustainable practices, and new production technologies [3, 32]. The ability to pivot designs or entire collections in response to sudden changes in fabric availability, consumer sentiment, or global events can mean the difference between a successful season and a missed opportunity. In the retail sector, adaptability takes on yet another dimension. Fashion buyers and merchandisers must constantly adjust their strategies in response to sales data, emerging trends, and economic fluctuations [3, 32]. The rise of fast fashion and the increasing demand for sustainable options require these professionals to be nimbler than ever, making quick decisions that balance consumer desires with ethical considerations and profit margins [30, 32]. Cultivating key skills of adaptability, flexibility, and resilience in the face of continuing industry pressures requires a set of complex interpersonal and cognitive tools which, being essential to the employability skills set of a fashion graduate, must be introduced in the undergraduate learning curriculum [1, 3, 30].

Problem-solving stands at the vanguard of this adaptability framework. By developing a strong foundation in problem-solving skills, students are equipped to tackle new challenges and find innovative solutions in different contexts [1, 3, 6]. This involves learning established problem-solving methodologies while fostering a mindset that views challenges as opportunities for innovation. Critical thinking is another essential component of adaptability. The ability to analyze information from various sources, evaluate relevance and reliability, and synthesize information into actionable insights is crucial in a fast-paced industry [30–33]. Fashion students should be trained to question assumptions, consider multiple perspectives, and make informed decisions based on rigorous analysis rather than gut feeling alone. Third, exposure to multiple perspectives is vital in developing adaptability. As stated in Ref. [25]:

> *The increasing complexity the future designer will encounter when developing creative proposals will require greater breadth - and depth – of knowledge. The ability to engage with multiple disciplines, and in design teams containing participants with highly diverse expertise, will provide fashion designers with a broader spectrum for creative opportunities.*

Fashion education programs should strive to create interdisciplinary learning experiences that force students to consider viewpoints from fields such as business, technology, sustainability, and cultural studies. This broad exposure enhances students' ability to adapt to new situations by providing them with a diverse toolkit of ideas and approaches. Fourth, flexibility, both cognitive and practical, is a key attribute of adaptability. Fashion education should challenge students to shift between different subjects and adjust to new learning styles. This may involve rapid prototyping exercises, cross-disciplinary projects, or even studying in different cultural contexts through exchange programs.

The rapid adoption of technology infusing all aspects of the fashion industry (including the reinvention of fashion careers) necessitates a focus on digital

adaptability. As the industry embraces the technology tsunami, fashion education programs must ensure that graduates are prepared for emerging technologies such as 3D modeling, virtual and augmented reality, and artificial intelligence. Students must be able to use current tools and platforms and have the wherewithal to adapt their knowledge and understanding to the new tech.

A further element of adaptability in the fashion industry responds to sustainability and ethical considerations. As the industry grapples with its environmental and social impact, fashion professionals must be able to acclimate their practices to meet evolving standards of sustainability and ethical production [33]. This requires knowledge of sustainable materials and processes and the ability to innovate and find new solutions to long-standing industry challenges [33]. Future-proofing graduates for the new fashion industry will require them to be equipped with the skills to blend creative vision with business acumen, technological savvy with sustainable practices, and global awareness with local sensibilities. By placing adaptability at the core of fashion education, we can ensure that the next generation of fashion professionals is prepared to respond to change, drive it, and create a more innovative, sustainable, and responsive fashion industry for the future.

2.1.4 Judgment and reflection

Judgment is the ability to make sound decisions based on availability [34]. In fashion, it is about selecting the right materials, choosing the perfect color combinations, and understanding what will resonate with a target audience. It is essential to subject all promising ideas to rigorous critical analysis [35]. The fundamental difference between a good idea and a successful creative project lies in the capability to evaluate an idea and then implement it. Fashion buyers, for example, must exercise exceptional judgment when selecting merchandise to meet the needs of their customers while maximizing profit. Similarly, a window display designer must be able to judge the effectiveness of the concept to promote and communicate the merchandise store to the target market. In the dynamic and often unpredictable world of fashion, the ability to exercise sound judgment and engage in meaningful reflection stands as a cornerstone to professional success. Judgment, in this context, extends far beyond mere decision-making; it encompasses the nuanced ability to evaluate complex situations, weigh multiple factors, and arrive at decisions that are creative, commercially viable and ethically sound.

At its core, judgment in fashion is about synthesizing an array of information and making choices that resonate with both artistic vision and market demands. This multifaceted skill comes into play across various aspects of the industry. For instance, in material selection, a designer must judge not only the esthetic qualities of a fabric but also its durability, sustainability, and suitability for the intended design. Color combination choices require a deep understanding of color theory, current trends, and the psychological impact of colors on consumers. Judgment in fashion involves an intuitive yet informed knowledge of what will resonate with the target audience, a skill that blends market research with creative instinct. The importance of judgment becomes even more apparent when considering the role of fashion buyers. These professionals must navigate a complex landscape of trends, consumer preferences, and economic factors to select merchandise that will appeal to customers and maximize profit margins. Their decisions can make or break a retail season, highlighting the critical nature of well-honed judgment skills in the fashion industry. Similarly, visual merchandisers and window display designers must exercise acute judgment in

creating displays that effectively communicate a brand's identity and promote merchandise to the target market [27]. Their work requires a delicate balance of artistic expression and commercial strategy, exemplifying how judgment in fashion often straddles the line between creativity and business acumen.

Judgment in fashion is, however, not a static skill. It is continuously refined through the process of reflection, and it is the skill of astute reflection that bridges learning and experience, allowing fashion professionals to critically analyze their decisions, understand their outcomes, and evolve their approach. This iterative process of judgment and reflection is what transforms good ideas into successful creative projects [36]. The ability to step back, evaluate an idea objectively, and then implement it with insights gained from past experiences is what distinguishes the truly successful fashion professional.

Fostering judgment and reflection skills in the educational context requires a multifaceted approach. Case studies of successful and failed fashion ventures can provide students with opportunities to exercise judgment in low-stakes environments, while role-playing exercises, where students take on the roles of buyers, designers, or marketers, can help them understand the complex factors that influence decision-making in various fashion industry roles. Developing judgment and reflection skills in fashion education should also acknowledge the industry's increasing focus on sustainability and ethical practice and students must be trained to judge the esthetic and commercial aspects of their work and its environmental and social impacts [35]. This expanded scope of judgment requires a deep understanding of sustainable materials, ethical production processes, and the long-term consequences of fashion choices on global ecosystems and communities. Furthermore, as technology becomes increasingly integrated in the fashion industry, judgment in fashion must also encompass the ability to evaluate and integrate new technologies into design and business practices. From 3D printing to virtual fitting rooms, the fashion landscape is continuously evolving, and sound judgment is crucial in determining which innovations to adopt and how to implement them effectively.

As the fashion industry becomes more globalized and interconnected, sound judgment capabilities are crucial to avoid cultural insensitivity. As pointed out in Ref. [37]:

> *The new world includes diverse work groups who can the ability to interact globally with different cultures. The ability to use interpersonal communication skills is critical for employees to work with and understand team members. The workforce mixture is changing. There is a combination of individuals from multiple age groups including individuals nearing retirement. Included in the mix are people of different ethnicities and genders. Generational changes have resulted in the increased demand for employees with soft skills.*

Fashion professionals must be able to make decisions that respect and celebrate cultural diversity while avoiding appropriation or thoughtlessness. Summarizing the current climate, the ability to work effectively with people from diverse cultural backgrounds is described as invaluable [35]. This requires a nuanced understanding of global markets, cultural norms, and the social implications of fashion choices; and good fashion programs will promote cultural sensitivity and global awareness as key components of interpersonal skills. This may be achieved through international and cross-cultural project collaborations, or modules focused on global fashion markets and practices. By developing these skills, students are better prepared to navigate the complexities of global supply chains, international brand expansions, and cross-cultural design collaborations.

2.1.5 Critical thinking

Critical thinking is proven to facilitate effective decision-making by enabling critical evaluation of available evidence, seeking consistency, and testing assumptions in problem assessment [38]. Critical thinking stands as a cornerstone of success for fashion graduates, playing a pivotal role in their ability to navigate the complex and ever-evolving landscape of the industry. As highlighted by recent studies, this essential cognitive skill empowers students to analyze trends, interpret consumer behavior, and make informed design decisions that resonate with their target audience and stand out in a competitive market [1, 3, 6]. The multifaceted nature of the fashion industry demands a robust critical thinking framework as fashion designers must engage in a complex evaluation and decision-making process when, for example, creating a collection. This process begins with a critical analysis of fabrics, where designers must consider esthetic qualities, functionality, sustainability, and economic viability [39]. The selection of silhouettes requires a deep understanding of current trends, cultural contexts, and the target market's preferences and color palette decisions involve a nuanced appreciation of color theory, psychological impacts, and market trends [39]. These elements must be woven together to create a coherent, impactful esthetic that speaks to the designer's vision while meeting consumer needs.

Beyond the immediate realm of design, critical thinking in fashion extends to understanding the broader implications of fashion choices. This includes evaluating the economic impact of design decisions, from production costs to pricing strategies and market positioning. Social implications must also be considered, including cultural appropriation, body image issues, and representation in fashion. Environmental considerations have become increasingly crucial, requiring designers to think critically about sustainable materials, production methods, and the lifecycle of their creations. This holistic approach to fashion, rooted in critical thinking, enables graduates to create socially responsible and economically viable fashion lines [39]. To foster these critical thinking skills, fashion education programs should expand their learning outcomes and include learning that encourages questioning assumptions and underlying assumptions. By engaging students in industry projects and using real-world problem-solving, educators can simulate the complex challenges faced in the industry. The learning project should be designed to train students to identify problems, consider multiple solutions, and make decisions based on critical analysis of available information. This simulated practical approach to learning hones critical thinking skills while preparing students for the realities of the fashion industry.

Analysis and reflection serve as the backbone of critical thinking in fashion education. Many industry-related tasks involve analyzing data to make informed decisions, from interpreting sales figures to predicting future trends, making data analysis techniques an important contribution to a transformed curriculum. Moreover, encouraging reflection on design processes, buying decisions, and styling outcomes helps students develop a more nuanced understanding of their work and its impact. The development of these critical thinking skills should be integrated throughout the fashion education curriculum rather than being taught in a single module—from foundational modules in design principles to advanced classes in fashion business strategy, critical thinking should be a critical cross-field outcome integrated throughout the learning journey achieved through various pedagogical approaches, such as case studies, design critiques, and collaborative projects that mirror industry practices and are scaffolded across the curriculum.

2.1.6 Graduate employability

In the fashion industry, the importance of cross-functional skills cannot be overstated. These skills, which transcend traditional boundaries between disciplines, have become increasingly crucial for success in the dynamic and multifaceted world of fashion [30]. Cross-functional skills enable graduates to adapt to rapidly changing industry demands, collaborate effectively across various departments, and bring innovative perspectives to their work. As the fashion industry continues to evolve, integrating technology, sustainability, and global perspectives, professionals who can navigate multiple domains are increasingly valued.

At the heart of cross-functional skills in fashion lies effective communication and interpersonal skills [30]. In an industry that thrives on collaboration, the ability to articulate ideas clearly, negotiate effectively, and present concepts persuasively is a significant asset. Fashion professionals must be able to communicate with their immediate team as well as with stakeholders from diverse backgrounds – from designers and manufacturers to marketers and retailers [30]. This requires not just verbal and written communication skills but also the ability to adapt communication styles to different audiences and cultural contexts. For instance, a fashion designer must be able to convey their creative vision to pattern makers and manufacturers, translate it into marketable concepts for the sales team, and present it compellingly to buyers and the media. Problem-solving and creativity form another crucial set of cross-functional skills in fashion. The industry is endemic with challenges that require innovative thinking and adaptability—from addressing sustainability issues to meeting ever-changing consumer demands. Fashion professionals need to be able to think laterally, approaching problems from multiple angles and drawing inspiration from diverse sources. This might involve a marketing professional finding creative ways to promote sustainable fashion, or a supply chain manager devising innovative solutions to reduce waste in the production process. The ability to blend creative thinking with analytical problem-solving is a powerful combination in the fashion world.

In today's fashion landscape, sustainability imperatives have become another essential cross-functional skill. Understanding the environmental and social impacts of fashion is no longer the sole purview of specialized sustainability departments—it is a crucial competency for professionals across all areas of the industry. From designers considering the lifecycle of their creations to retail managers implementing circular fashion initiatives, a comprehensive understanding of sustainability principles is vital. This includes knowledge of sustainable materials, ethical production practices, and the ability to balance environmental considerations with commercial viability [33].

As digital technologies continue transforming the fashion industry—from 3D design software to AI-driven trend forecasting and virtual try-on experiences—professionals need to be comfortable working at the intersection of fashion and technology. This does not mean that every fashion graduate should be a programming expert, but graduates should have, at least, a reasonable working understanding of how various technologies impact different aspects of the industry. Moreover, in keeping with the commitment to sustainability, ethical technology adoption and deployment will always be an important responsibility of every user, irrespective of the industry. Global awareness and cultural sensitivity are also crucial cross-functional skills in today's interconnected fashion world. Fashion professionals often work with global supply chains, diverse consumer markets, and multicultural teams. The ability to navigate different cultural contexts, understand global market trends, and adapt strategies for different regions is priceless [30, 40]. This might involve understanding

how color symbolism varies across cultures for a global marketing campaign, or how to adapt designs for different body types and cultural preferences in various markets.

As the intersection of design and business becomes increasingly apparent, financial literacy is another important cross-functional skill that is often overlooked in the hard curricula of fashion education [5]. Again, while not every fashion professional needs to be a financial expert, a basic understanding of business principles, budgeting, and financial planning can be advantageous. This could involve a designer understanding the cost implications of their material choices, a buyer making data-driven purchasing decisions, or a brand manager analyzing the financial viability of a new product line. Finally, leadership and project management skills are important cross-functional abilities in the fashion industry. As professionals advance in their careers, they often take on roles that involve leading teams, overseeing projects, and making strategic decisions. Being able to lead diverse teams, manage timelines and resources efficiently, and steer projects from start to finish is valuable in all aspects of the fashion industry [30].

To develop these cross-functional skills effectively, fashion education programs must move beyond traditional siloed approaches [1, 3, 30]. Real-world projects that involve multiple aspects of the fashion industry—such as design, marketing, and technology—can provide students with valuable hands-on experience in cross-functional collaboration. For example, a project might task students with creating a sustainable fashion line, requiring them to consider design esthetics, material sourcing, production methods, marketing strategies, retail distribution—all while adhering to sustainability principles. Such projects, while developed for specific skills, also help students to understand the interconnectedness of various fashion industry roles.

Successfully developing the integrated framework for the identified critical cross-functional graduate attributes and employability skills for the fashion industry is not an academic exercise. Its relevance and responsiveness to industry is intrinsically predicated on real world experiences, case studies, and workplace simulations provided by industry partners. Engagement with real-world challenges is crucial in preparing students for the dynamic nature of the fashion industry.

Complementing the integration of employability skills into the curriculum, further exposure to industry professionals is vital in developing a real understanding and application of the various, often complex, required skills and attributes. By collaborating with industry professionals, students gain insight into different work styles, communication approaches, and professional expectations. This collaboration can take many forms, for example, guest lectures, internships, or industry-sponsored projects. Each interaction provides students with the opportunity to observe and practice professional communication, adapt to different leadership styles, and understand the nuances of industry etiquette. These experiences help students develop the flexibility and adaptability crucial for success in the diverse work environments which they will encounter in their world of work. Mentorship programs that pair students with professionals from diverse backgrounds can also play an important role in developing cross-functional skills. By learning from mentors who have navigated different aspects of the fashion industry, students gain insights into the importance of versatility and adaptability through hands-on learning. These mentorship relationships can expose students to different perspectives, working styles, and problem-solving approaches, broadening their understanding of the industry and helping them develop a more holistic skill set.

In addition to all the above—knowledge, skills, and attitude—work ethic is the fourth essential pillar of graduate employability. A strong work ethic is rooted in

professional values. In the fashion industry, a strong work ethic has become not just an admirable trait but a fundamental necessity for success. The industry's inherent need to adapt to constant disruptions, from rapidly changing consumer preferences to technological advancements and sustainability challenges, demands professionals who possess an unwavering commitment to their craft and an ability to persevere through challenges. As highlighted in Ref. [30], work ethic in the context of fashion encompasses a constellation of values and behaviors, including diligence, hard work, dedication, perseverance, commitment, and a strong sense of responsibility. In the fashion industry, work ethic transcends the traditional notion of simply putting in long hours and includes producing meaningful, creative, and impactful work that contributes to the broader goals of a brand or organization.

Individuals in fashion with a strong work ethic demonstrate several key characteristics that set them apart in this competitive field. They excel in prioritization and time management, both of which are crucial skills in an industry where trends can change overnight, and production deadlines are often tight. These professionals can balance the creative process of design with the practical aspects of production schedules, often managing multiple projects at different stages of development. Consistency in delivering high-quality results is another hallmark of a strong work ethic in fashion. Whether it is a couture gown or a fast-fashion line, maintaining high standards even under pressure is paramount, requiring meticulous attention to detail and a steadfast commitment to excellence. Encouraging self-reflection and continuous improvement is crucial in developing a strong work ethic. Regular self-assessment exercises, constructive feedback, and the creation of portfolios that document not just the final products but also the process and learning journey can foster the much-respected mindset of continuous growth and improvement.

2.2 Achieving graduate employability through interdisciplinary WIL pedagogy

2.2.1 Interdisciplinary pedagogy

Interdisciplinary pedagogy represents a transformative approach to education that is of specific relevance for exit-level fashion business students preparing to embark on their professional journeys [41–44]. Although, as presented earlier, in the rapidly evolving world of fashion, there is a sound case to be made for interdisciplinary pedagogy to be integrated from the inception of the learning journey with scaffolded activities over the learning pathway for deeper engagement. This pedagogy creates an immersive, real-world learning experience by integrating knowledge and methodologies from multiple disciplines, enhancing student learning outcomes and career readiness [41–44]. The advantages of interdisciplinary pedagogy in WIL environments are rooted in the idea that complex real-world problems rarely conform to the boundaries of a single academic discipline. Linking interdisciplinarity and WIL in the curriculum creates the opportunity for students to experience and explore the workplace, and scaffold their knowledge and skills through engagement, real-world practices, and reflection. Research confirms the benefits of interdisciplinary pedagogy, expanded work-integrated learning (EWIL), and constructivist approaches to community-enriched learning, yet many higher education institutions continue to operate within traditional disciplinary silos, reflecting existing institutional departmental and faculty structures. However, on the positive side, there is an emerging cadre of scholars whose voices are gaining credibility who promote the need for a more integrated approach to curriculum development that will equip graduates with the

relevant attributes and skills necessary for both initial and long-term career success in an increasingly complex and interconnected world [10, 42–44].

The fashion industry with its inter- and multidisciplinary connections stands to benefit greatly from graduates exposed to interdisciplinary pedagogy. Graduates emerge with a holistic understanding of the fashion ecosystem, encompassing areas such as supply chain management, consumer behavior, sustainable practices, and emerging technologies. This broad perspective enables them to identify opportunities, drive innovation, and effectively address complex problems that span multiple domains within the fashion business landscape.

2.2.2 Non-placement WIL

WIL is, without doubt, fundamental in the design of any curriculum that has graduate employability as a key critical outcome as it creates the learning bridge between the classroom and real-world experience. The challenge of WIL for many higher education institutions is implementing the traditional (placement) WIL model which requires that industries be identified, and students placed and assessed *in situ* for workplace learning engagement. Access to workplace placements became an equity concern especially when it became evident that equity-deserving students were most adversely impacted [45]. However, a growing understanding of non-placement/on-campus WIL has recalibrated WIL implementation and contributed to mitigating this challenge as institutions now incorporate industry relevance into the curriculum through authentic industry-based activities such as studios and laboratories, projects, and other similar industry-simulated experiences (so-called workplace-based learning). Non-placement WIL offers a variety of engaging options that can be implemented within the academic setting, driven by the creativity and expertise of lecturers [1, 22, 46].

While placement WIL undoubtedly offers unique benefits, such as direct exposure to professional work environments and the opportunity to build better industry networks, it also presents significant challenges [1, 22, 46]. This is particularly true in specialized fields like fashion, where entry-level positions often demand a high degree of skill and industry-specific knowledge. The fashion industry's fast-paced nature and the need for immediate productivity in many roles can make it challenging for students to fully integrate into short-term placements and derive maximum benefit from the experience [1, 22, 46]. Non-placement WIL addresses these challenges by creating a more controlled and supportive learning environment [1]. It allows educators to curate industry experiences that align closely with the curriculum, ensuring that students engage with relevant, industry-specific projects that build upon their theoretical knowledge. Non-placement WIL also offers greater flexibility in terms of project scope and duration. Educators can design experiences that range from short-term simulations to long-term collaborative projects with industry partners, all within the campus setting [1, 22, 46]. This flexibility allows for a more tailored approach to skills development, ensuring that students can progressively build their capabilities in a structured manner. Non-placement WIL represents an innovative approach to bridging the gap between academic theory and practical application while maintaining the structured environment of on-campus education. By adopting these non-placement WIL strategies, fashion education programs can offer students the opportunity to apply theoretical knowledge in practical settings and understand the relevance of academic concepts to the workplace [1, 22, 46]. This approach maintains the integrity of the academic program while still providing students with valuable industry insights and skills development opportunities.

Of the five broad clusters of WIL identified in Ref. [37], EWIL, and applied work-integrated learning (AWIL) are identified as having the best potential for fashion graduates.

3. Embedded work integrated learning (EWIL)

EWIL represents an innovative and dynamic approach to integrating practical, industry-relevant experiences into the academic curriculum [37]. This model of WIL is characterized by its consistent and incremental nature, incorporating short, regular work-based activities throughout a student's academic journey. EWIL stands out as a particularly effective framework for developing transferable knowledge and skills, ultimately fostering the graduate attributes necessary for success in the fast-paced and ever-evolving fashion industry. The EWIL approach offers a unique advantage in its ability to seamlessly blend theoretical knowledge with practical application [37]. By interweaving work-based activities directly into the curriculum, EWIL ensures that these experiences contribute meaningfully to course learning outcomes. This integration allows students to continuously apply their academic learning in practical contexts, reinforcing theoretical concepts and developing a more nuanced understanding of their field [42, 43].

One of EWIL's key assets is its potential to strengthen essential connections between various disciplines and skill sets crucial to the fashion industry. Students develop a more holistic and industry-aligned skill set by combining design thinking, communication, and work ethics within the EWIL framework [37, 42, 43]. This interdisciplinary approach prepares graduates who are knowledgeable not only in their specific area of study but are also versatile and adaptable to the multifaceted nature of the fashion business [42, 43]. EWIL thus offers a robust solution for fashion education programs seeking to enhance the employability and industry readiness of their graduates [37]. By consistently exposing students to industry-relevant experiences throughout their academic journey, EWIL prepares them to navigate the complexities of the fashion industry with confidence and competence.

3.1 Applied work integrated learning (AWIL)

AWIL represents a sophisticated evolution in the landscape of experiential education, offering a more intensive and purposeful integration of academic theory with practical application. This approach transcends the traditional boundaries of internships or cooperative education programs by demanding a higher level of engagement and problem-solving from students within authentic work environments [37]. At its core, AWIL is characterized by its emphasis on active problem-solving and project-based learning [44]. Students are not merely observers or assistants in a work setting or required to deal with workplace-based projects; but are tasked with addressing real, complex challenges facing organizations. This approach requires students to draw upon their academic knowledge, critical thinking skills, and creativity to develop solutions that have tangible impacts on the host organization. By doing so, AWIL creates a symbiotic relationship between academic learning objectives and organizational goals, ensuring that the experience is mutually beneficial for students, educational institutions, and industry partners [37].

The project-oriented nature of AWIL is a key distinguishing feature. Students engage in structured projects that are carefully designed to align with both their

academic curriculum and the strategic needs of the host organization. Unlike academic-based projects, where the solutions are known in advance, these projects are often of a longer duration, allowing for deep engagement with complex issues and the development of comprehensive solutions. This extended involvement enables students to witness the full lifecycle of their projects, from initial conceptualization through to implementation and evaluation, providing invaluable insights into professional project management and organizational dynamics [37]. AWIL's outcome-focused orientation sets it apart from more passive forms of WIL. There is a clear emphasis on producing tangible results that can be measured and evaluated. This focus not only motivates students to perform at their highest level but also provides them with concrete achievements to showcase to future employers [37]. The emphasis on measurable outcomes also allows for more effective assessment of student learning and skills development. As in Ref. [47], students are more motivated to work when the challenges are real. Continuing, reference [47] states "[Students] feel recognized and experience the real pressure of workplace and try their best to achieve the expectations of industrial experts because their solutions might be implemented by the industry."

Mentorship plays a crucial role in the AWIL model [37]. Experienced professionals guide students, providing industry insights, technical expertise, and career advice. This mentorship extends beyond task-specific guidance, often encompassing broader professional development aspects such as workplace etiquette, industry trends, and career path opportunities. The mentorship component of AWIL helps bridge the gap between academic theory and industry practice, providing students with a nuanced understanding of their chosen field. Non-placement WIL also advances opportunities for students to be mentored by industrial experts from different countries, which is very unlikely in work-based WIL [48].

One of the most transformative aspects of AWIL is its strong emphasis on student reflection [37]. Regular reflective practices are integrated into the learning process, encouraging students to analyze their experiences, challenges, and achievements critically. This reflective component deepens the learning experience, helping students to internalize lessons learned, identify areas for personal and professional growth, and make meaningful connections between their academic studies and real-world applications [37].

3.2 Integrated work-integrated learning

An IWIL model for fashion education represents a transformative approach to preparing students for the dynamic and demanding fashion industry. This proposed pedagogical model seamlessly blends academic study with practical, work-based experiences, addressing the unique challenges and opportunities present in the fashion sector. In the rapidly evolving world of fashion, IWIL offers a comprehensive solution to the persistent challenge of bridging the gap between theoretical knowledge and practical application. By embedding work-based learning experiences directly into the curriculum, fashion students gain exposure to real-world scenarios, industry practices, and emerging trends. This integration allows students to contextualize their academic learning, enhancing their problem-solving abilities, decision-making skills, and professional communication in ways that traditional classroom learning alone cannot achieve. The alignment of academic programs with industry needs through IWIL ensures that graduates are equipped with skills that are directly relevant and valuable to the South African fashion market, ensuring the increased employability of fashion graduates.

The fashion industry, characterized by its fast-paced nature and constant innovation, demands graduates who are not only well-versed in theoretical concepts but also adept at applying this knowledge in practical settings. As with EWIL, IWIL addresses this need by providing students with opportunities to engage with workplace-based projects and interact with fashion professionals, albeit limitedly. These experiences foster the development of critical thinking skills, adaptability, and creativity—all essential attributes for success in the fashion world. IWIL combines EWIL activities with AWIL industry projects thereby deepening the practical learning and enhancing the engagement with the interdisciplinary nature of the industry graduates will be entering. IWIL prepares students for the constant change characteristic of the fashion industry, with its focus on the element of adaptability. Students learn to adjust to different work cultures, tackle unforeseen challenges, and navigate the complexities of professional relationships—all skills that enhance their overall adaptability while developing critical skills of problem-solving, teamwork and creativity. To fully harness the potential of IWIL in fashion education, higher education institutions must prioritize the development of robust partnerships with industry stakeholders [26]. These partnerships should be mutually beneficial, providing students with rich learning experiences while offering businesses access to fresh perspectives and potential future talent. Institutions must also focus on developing comprehensive curricula that effectively integrate work-based learning with academic theory, ensuring a cohesive and meaningful educational experience.

4. The proposal for a responsive integrated non-placement WIL curriculum framework

Integrating and scaffolding AWIL and EWIL elements creates a holistic and effective WIL experience. This approach extends beyond technical skills, incorporating interdisciplinary learning and industry engagement to provide graduates with a well-rounded education. "The cooperation between industry, the lecturer, and the student is imperative for the quality of the learning and WBL programs" [10].

By broadening their perspectives and deepening their understanding of the fashion industry's complexities, graduates are better prepared to navigate and succeed in this dynamic field. The proposed conceptual IWIL framework is designed in concentric layers, with foundational skills at its core and industry integration as the outermost layer. Each layer represents a distinct aspect of the learning experience, developing cross-functional skills that mirror the multifaceted nature of the fashion industry. At the core, the framework emphasizes a student-centered approach, focusing on foundational skills, while the outer layers progressively introduce interdisciplinary learning and industry integration. This hybrid collaboration with relevant modules effectively simulates the teamwork and integration found within the fashion industry. The framework immerses students in a professional environment, emphasizing the importance of professionalism, accountability, and meeting expectations, as well as engaging in work-integrated projects that foster initiative and self-direction, which are key components of a strong work ethic **(Figure 1)**.

Layer 1 (Students): The core innermost layer appropriately places students at the heart of the learning experience. Focusing on the development of foundational skills, critical thinking, and creative problem-solving abilities ensures that students have a solid base upon which to build more specialized knowledge and skills. This student-centered approach aligns well with contemporary educational theories emphasizing active learning and student engagement **(Table 1)**.

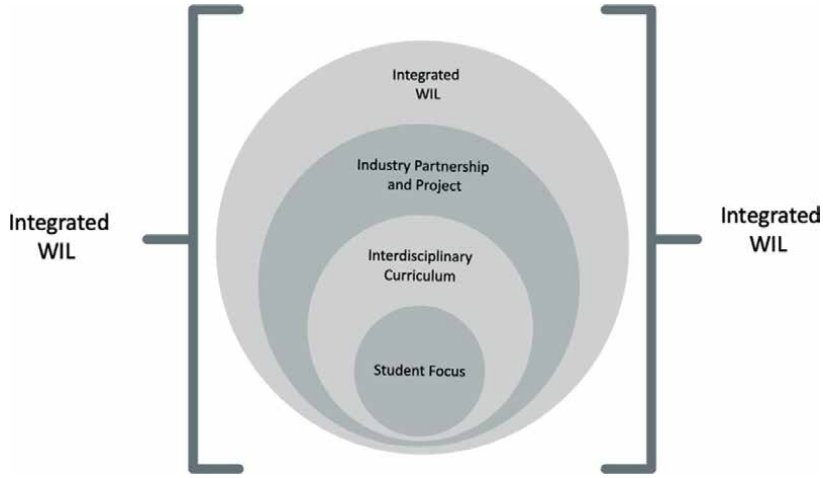

Figure 1.
An integrated WIL framework for fashion graduate success.

The key focus	Development of foundational skills, critical thinking, and creative problem-solving abilities.
Connection with curriculum	Programs and modules dedicated to building theoretical knowledge and basic practical skills relevant to the fashion industry. This core layer represents the essential competencies that all students must acquire.

Table 1.
Layer 1 – student focus.

Layer 2 (Interdisciplinary Curriculum): The inclusion of an interdisciplinary layer is crucial in the context of fashion education. The fashion industry is inherently multidisciplinary, requiring professionals to have knowledge spanning business, technology, design, and sustainability. By incorporating these diverse disciplines into the curriculum, the framework ensures that students develop a holistic understanding of the fashion ecosystem. This approach helps to break down silos that often exist in traditional curricula and prepares students for the cross-functional collaboration that they will encounter in their careers **(Table 2)**.

Layer 3 (Industry as the Overarching Element): Positioning industry engagement around the curriculum is a strategic choice that emphasizes the importance of aligning educational outcomes with industry needs. By involving industry partners in curriculum design, delivery, and assessment, the framework ensures that the education remains current and relevant. The provision of mentorship and live briefs from industry professionals offers students precious real-world insights and helps to bridge the gap between academic theory and industry practice **(Table 3)**.

The key focus	Providing a holistic education that integrates multiple disciplines relevant to the fashion industry.
Connection with the curriculum	Relevant interdisciplinary modules that connect concepts and practices that interlink to mirror the real world of work for the fashion industry.

Table 2.
Layer 2 – interdisciplinary curriculum.

The key focus	Ongoing industry engagement and mentorship.
Connection with curriculum	Industry partners play a crucial role in curriculum design, delivery, and assessment. They offer mentorship, live briefs, and provide feedback on student work. This outermost layer ensures that the entire framework remains aligned with current industry needs and trends, making the curriculum dynamic and relevant.

Table 3.
Layer 3 – industry partnerships and project-based learning.

The key focus	A holistic educational approach that integrates multiple disciplines crucial to the fashion industry. The application of the principles embodied in cognitive apprenticeship theory, defined as "learning through guided experience on cognitive and metacognitive, rather than physical, skills and processes" [48], are rooted in social learning theories and help students develop their deeper understanding of the employability skills identified in the curriculum.
Connection with curriculum	Interdisciplinary modules that incorporate elements of business, technology, design, and sustainability. This outer layer encompasses elements from both embedded and applied WIL, promoting opportunities for reflection and mentoring. It ensures that the learning experience is comprehensive and systematically prepares students for the diverse challenges of the fashion industry.

Table 4.
Layer 4 – integrated WIL.

Layer 4 (Integrated WIL): The combination of AWIL and EWIL to make up the into integrated WIL (IWIL) model is a novel approach that addresses the specific needs of higher education institutions offering fashion education (FHEIs). This integration allows for a more flexible and comprehensive WIL experience that can be tailored to the constraints and opportunities of different educational settings. Incorporating the principles of cognitive apprenticeship theory in this layer will be an added advantage, as it emphasizes the importance of guided experience and reflection in developing cognitive and metacognitive skills, which are crucial in the fast-paced and ever-evolving fashion industry **(Table 4)**.

5. Conclusion

The framework emphasizes professionalism, accountability, initiative, and self-direction which aligns meticulously with the demands of the fashion industry. These soft skills are often as important as technical skills in determining career success, and their inclusion in the framework responds to industry needs. The structure of the framework promotes the development of cross-functional skills, mirroring the collaborative nature of the fashion industry. It helps to prepare students for the reality of working in cross-functional teams and managing complex projects that span multiple disciplines.

As stated in Ref. [25].

> *To prepare graduates for this new professional landscape, fashion design education is undergoing a seismic overhaul. ... [Traditional curricula] are being eclipsed by broader interdisciplinary and theory-centric models.*

However, progress appears to be slower than ideal because there is consensus in the literature that the current system of fashion education seldom prepares students

for the challenges they will face. Too many programs still appear to maintain their insular perspective. "The skills we teach are too often related to processes and working methods of an age that has ended" [49]. Summarizing the position, it is pointed out in Ref. [26]:

> *... academic competence alone will no longer be sufficient in the eyes of employers for employing university graduates, and without proper competency and skills development, university graduates will fail to secure future employment ....*

There is no gainsaying the opinion that to remain relevant, higher education programs in fashion must produce graduates with strong soft skills, who are more competitive and industry ready [50]. Thus, the industry may need to take a more holistic approach to develop the soft skills required by the workforce:

> *... tertiary educational institutes should focus on developing employable individuals with comprehensive skills rather than producing highly educated graduates. ... [T] ertiary educational institutes must ... improve their curriculum, focussing on developing students' soft skills [8].*

Responding to this challenge, the IWIL framework introduces a comprehensive model designed to produce industry-ready fashion graduates. It reflects the industry's need for integrated interdisciplinary pedagogy, applied WIL, and collaborative, community-enriched reflexive learning to equip graduates with the essential knowledge, skills, and attributes necessary to thrive in the fashion industry. With its focus on non-placement WIL, the IWIL framework successfully bridges the gap between academia and industry, enhancing employability and supporting career advancement for graduates. Critically, this framework as the basis for fashion education represents a comprehensive approach to preparing students for the challenges of the fashion industry. By integrating interdisciplinary learning, industry engagement, and a combination of applied and embedded WIL experiences, the framework provides a robust model for developing well-rounded, industry-ready graduates. Its layered structure allows for progressive development of skills and knowledge, while the overarching industry element ensures ongoing significance and real-world applicability. This student-centered framework emphasizes the development of key graduate attributes and essential skills for graduate employability and success in the dynamic fashion industry. It integrates industry experiences to enrich the learning experience and ensure that graduates possess the technical proficiency and soft skills necessary to thrive in the fashion industry.

The success of the proposed framework will require a cooperative review of identified aspects of the curriculum ensuring that there are built-in opportunities for students to develop a comprehensive understanding of the content (knowledge) being presented through creative and critical thinking, theoretical and historical study, along with conceptual and experimental exploration [10]. This model has the potential to significantly enhance the quality and effectiveness of fashion education.

The proposed IWIL model is authenticated by the research which confirms the reality that to prepare future graduates programs in fashion must "move beyond teaching to the mere 'artifact'" [25], into a pedagogy that increasingly emphasizes the integrated curriculum, and the inter-relationship between the curriculum and the workplace, between traditional pedagogy and new world knowledge that underpin employability and workplace relevance. Introducing alternate perspectives to the

learning continuum must encourage students not just to present the artifact but to also reflect on their context and practice and the social environment in which the artifact is being developed [25].

Focusing on fashion graduates for the current and future workforce, the research presents an informed assessment of how higher education institutions offering fashion qualifications (FHEIs) may effectively implement an integrated WIL strategy to cultivate not only the technical skills required in the fashion industry but also the soft skills and attributes that are increasingly valued by employers. By doing so, the research establishes a platform for a more robust, adaptive, and industry-ready workforce in the South African fashion sector and world of work globally.

Author details

Divya Singh[1*] and Heidi Svendsen[2]

1 STADIO Higher Education, Cape Town, South Africa

2 STADIO Higher Education, Johannesburg, South Africa

*Address all correspondence to: divyas@stadio.co.za

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References

[1] Svendsen H, Sutherland M, Treurnicht F, Segal J. Exploring non-placement work-integrated-learning (WIL) through industry endorsed hybrid-curricular projects for fashion graduate success. In: Presented at the 17th National Design Education Forum of Southern Africa (DEFSA) Conference. South Africa; 21-22 September 2023

[2] Leiby NR. Cross-Functional Skills of the Fashion Industry Professional: T-Shaped Person Skills Conceptual Framework for the Fashion Professional. Columbia: University of Missouri Press; 2021

[3] Du Preez M, Van der Merwe LJ, Swart SB. Employability skills: What is required of consumer sciences graduates? Journal of Consumer Sciences. 2019;**47**(1):92-104

[4] Griffith D, Hopper J. Global marketing managers. International Marketing Review. 2013;**30**:21-41. DOI: 10.1108/02651331311298555

[5] Kamis A, Bakar A. Technical skills, knowledge competencies and expected changes in the clothing industry. International Journal of Humanities. 2024;**2**(1):1-12

[6] Zhao L, Leiby N. T-shaped person for the textile and apparel industry? Analysis of cross-functional skills. In: Proceedings of the International Textile and Apparel Association Annual Conference. Iowa State University Digital Repository; 2020. DOI: 10.31274/itaa.12057

[7] Alam MJ, Ogawa K, Bin IR. Importance of skills development for ensuring graduates employability: The case of Bangladesh. Social Sciences. 2022;**11**:360. DOI: 10.3390/socsci11080360

[8] Das S, Das D, Giorgi AJ. Soft skills: The key to success for textile and apparel graduates in Bangladesh. In: Proceedings of the Annual ITAA Conference, #80. 2024. Available from: https://iastatedigitalpress.com/itaa/article/id/17094/

[9] Islam S, Islam NB. Insights into the skill development issues of management jobs: A study on RMG and textile sectors of Bangladesh. Asian Social Science. 2018;**14**(12):56. DOI: 10.5539/ass.v14n12p56

[10] Appiah NA. Higher fashion education in perspective: The effects of work-based learning on industry requirements. British Journal of Multidisciplinary and Advanced Studies: Education, Learning, Training & Development. 2023;**4**(3):137-150

[11] South African Government. National Development Plan 2030. Available from: https://www.gov.za/sites/default/files/gcisdocument/201409/ndp-2030-our-future-make-it-workr.pdf

[12] Govender CM, Taylor S. A work integrated learning partnership model for higher education graduates to gain employment. South African Review of Sociology. 2015;**46**(2):43-59

[13] Masopha TA. Fashion revolution: Saving the world in style [Internet]. 2024. Available from: https://www.sagoodnews.co.za/a-fashion-revolution-saving-the-world-in-style-by-tshidiso-masopha/

[14] Bizcommunity. SA's fashion industry yields highest sales in sub-Saharan

Africa of $11bn. 2024. Available from: https://www.bizcommunity.com/article/sas-fashion-industry-yields-highest-sales-in-sub-saharan-africa-of-11bn-019335a#:~:text=Euromonitor%20International%20research%20has%20identified,rate%20of%206%25%20in%202023

[15] Darling-Hammond L, Flook L, Cook-Harvey C, Barron B, Osher D. Implications for educational practice of the science of learning and development. Applied Developmental Science. 2019;**24**(2):97-140

[16] Kahu ER. Framing student engagement in higher education. Studies in Higher Education. 2013;**38**(5):758-773

[17] Maxwell R, Armellini A. Identity, employability and entrepreneurship: The change framework of graduate attributes. Higher Education, Skills and Work-Based Learning. 2018;**9**:76-90. DOI: 10.1108/HESWBL-02-2018-0016

[18] Yorke M, Knight PT. Embedding Employability into the Curriculum. York: Learning and Teaching Support Network; 2006

[19] Dean B, Eady MJ, Yanamandram V. Editorial 17.4: Advancing non-placement work-integrated learning across the degree. Journal of University Teaching & Learning Practice. 2020;**17**(4):1

[20] Pirzada G. TVET trainers understanding of engaging instruction: Supportive learning environment for work integrated learning. UMT Education Review. 2022;**5**:1-27. DOI: 10.32350/uer:51.01

[21] Tezcan N, Durakovic I, Lloyd E, D'arcy S. Scaffolded, simulated work-integrated learning in design education: Beyond the live project. International Journal of Work-Integrated Learning. 2020;**21**(5):521-529

[22] Shin K. Work-integrated education in fashion design. Asian Journal on Education and Learning. 2012;**3**(1):10-20

[23] Stirling A, Kerr G, Banwell J, MacPherson E, Heran A. A Practical Guide for Work-Integrated Learning: Effective Practices to Enhance the Educational Quality of Structured Work Experiences Offered through Colleges and Universities. Ontario: Higher Education Quality Council of Ontario; 2016

[24] Billett S. Integrating Practice-Based Experiences with Higher Education. Dordrecht: Springer; 2015. pp. 1-26

[25] Faerm S. Building best practices for fashion design pedagogy: Meaning, preparation, and impact. Cuadernos del Centro de Estudios de Diseño y Comunicación. 2015;**16**(53):189-213. DOI: 10.18682/cdc.vi53,1636

[26] Arasinah K, Bakar AR, Ramlah H, Soaib A, Norhaily AH. Technical skills, knowledge competencies and expected changes in the clothing industry [Internet]. Researchgate; 2023. Available from: https://www.researchgate.net/publication/271273842

[27] Carol-Joy P, Deborah P, Catherine P, Fleur W, Marty F, Gabriella P. The WIL (work integrated learning) report: A national scoping study [Final Report]. 2008

[28] Nusrat M, Sultana N. Soft skills for sustainable employment of business graduates of Bangladesh. Higher Education Skills and Work-Based Learning. 2018;**9**(5):264-276. DOI: 1108/HESWBL-01-2018-0002

[29] Afroze R, Eva TP, Sarkar AR. Do soft skills matter? A study on employability of engineering graduates in Bangladesh. Journal of Intercultural Management. 2019;**11**(3):21-44. DOI: 10.2478/joim-2019-0016

[30] Leiby N, Ha-Brookshire J. Cross-functional skills: Defining its meaning. In: Proceedings of the International Textile and Apparel Association Annual Conference. Vol. 77, No. 1. USA: Iowa State University Digital Press; 2020. DOI: 10.31274/itaa.12059

[31] Aebissa M. Effective communication: The key to success. Journal of Organizational Culture Communications and Conflict. 2023;**27**(5):1-2

[32] Gazzola P, Pavione E, Pezzetti R, Grechi D. Trends in the fashion industry. The perception of sustainability and circular economy: A gender/generation quantitative approach. Sustainability. 2020;**12**(7):2809. DOI: 10.3390/su12072809

[33] Dana LP, Boardman R, Salamzadeh A, Pereira V, Brandstrup M. Fashion and Environmental Sustainability: Entrepreneurship, Innovation and Technology. Netherlands: De Gruyter; 2024. Available from: https://www.degruyter.com/isbn/9783110795431

[34] Moore T, Hough B. The perils of skills: Towards a model of integrating graduate attributes into the disciplines. Learning Discourses and the Discourses of Learning, 02-1. 2007

[35] Iannilli VM, Spagnoli A. Conscious fashion culture. Fashion Highlight Journal. 2024:8-15. DOI: 10.36253/fh-2875

[36] Bell J, Ternus K. Silent Selling: Best Practices and Effective Strategies in Visual Merchandising. 5th ed. London: Fairchild Books; 2017. pp. 18-20

[37] Dean SA, East JI. Soft skills needed for the 21st-century workforce. International Journal of Applied Management and Technology. 2024;**18**(1):17

[38] Helsdingen A, Bosch K, Van Gog T, Van Merrienboer JJG. The effects of critical thinking instruction on training complex decision making. Human Factors. 2010;**52**(4):537-545. DOI: 10.1177/0018720810377069

[39] Samuels J. The Dynamic Landscape of the Fashion Industry: Trends, Sourcing, and Material Innovations. 2024. DOI: 10.13140/RG.2.2.13484.85120 [Pre-print]

[40] Sahadevan P, Sumangala M. Effective cross-cultural communication for international business. Shanlax International Journal of Management. 2021;**8**(4):24-33. DOI: 10.34293/management.v8i4.3813

[41] Jacobs HH, Borland JH. The interdisciplinary concept model: Theory and practice. The Gifted Child Quarterly. 1986;**30**(4):159-163. DOI: 10.1177/001698628603000403

[42] Styron RA. Interdisciplinary education: A reflection of the real world. Journal of Systemics, Cybernetics and Informatics. 2013;**11**(9):47-52. Available from: https://www.iiisci.org/journal/pdv/sci/pdfs/iSA312DD.pdf

[43] Souppez JB. An interdisciplinary approach to education: Case study of an academic exchange. In: Proceedings of the Education & Professional Development of Engineers in the Maritime Industry Conference. Singapore: Solent University Press; 2016

[44] Chesley A, Parupudi T, Holtan A, Farrington S, Eden C, Baniya S, et al. Interdisciplinary pedagogy, integrated curriculum, and professional development. In: ASEE IL-IN Section Conference. West Lafayette, Indiana: Purdue University; 2018. Available from: https://docs.lib.purdue.edu/aseeil-insectionconference/2018/pedagogy/4

[45] Mackaway J, Goldman A, Zegwaard K. Practicing equity, access and inclusion in work-integrated learning. International Journal of Work-Integrated Learning. 2024;**25**(1):1-21

[46] Fleischman K. Developing on-campus work-integrated learning activities: The value of integrating community and industry partners into the creative arts curriculum. Asia-Pacific Journal of Cooperative Education. 2015;**16**:25-38

[47] Yong ST, Chemmangattuvalappil NG, Foo DCY. Students' perceptions of non-placement work-integrated learning in chemical engineering: Work-related skills towards the post-pandemic future. South African Journal of Chemical Engineering. 2024;**47**:322-332. Available from: https://www.sciencedirect.com/science/article/pii/S1026918523001270

[48] Collins A, Brown JS, Newman SE. Cognitive apprenticeship: Teaching the craft of reading, writing and mathematics. In: Resnick LB, editor. Knowing, Learning and Instruction: Essays in Honor of Robert Glaser. Hillsdale, NJ: Erlbaum Associates, Inc.; 1989. pp. 453-494

[49] Meyer MW, Norman D. Changing design education for the 21st century. She Ji: The Journal of Design, Economics, and Innovation. 2020;**6**(1):13-49. DOI: 10.1016/j.sheji.2019.12.002

[50] Sadachar A, Dance E, Teel J, Hubbard S. Are apparel design and merchandising programs curriculum building students' soft skills? In: Proceedings of the International Textile and Apparel Association Annual Conference. Iowa State University Digital Repository; 2019. DOI: 10.31274/ITAA.8804

Chapter 3

The Future of Work(ers) in the Age of Technological Revolution

Andrés César

Abstract

This chapter reviews key literature on the determinants and implications of technological change associated with the Third and Fourth Industrial Revolutions, which have spread globally since the late twentieth century, and presents descriptive evidence. The main conclusion is that while technological progress has not significantly threatened overall employment opportunities, it has clearly contributed to rising income inequality. Consequently, a future devoid of employment is not anticipated, although the prospects for equality remain uncertain. I argue that to maximize the benefits of technological advancement, education must evolve in tandem with technology, equipping individuals to work alongside new innovations throughout their lives. This would enable workers to fully leverage *automation* of routine tasks and *augmentation* of abstract and cognitive tasks, fostering teamwork, problem-solving, flexibility, creativity, and social intelligence. Furthermore, productivity growth driven by technological progress is likely to increase demand for both traditional and new goods and services, generate income gains that increase demand for quality, accelerate structural change, and exert pressure on resource utilization.

Keywords: technological revolution, jobs, new tasks, education, income distribution, resource utilization

1. Introduction

The Third and Fourth Industrial Revolutions offer vast opportunities for economic progress, while simultaneously posing significant challenges to the world of work. This phase is marked by emerging technological advances in a large number of fields, including information and communication technologies, the Internet, biotechnology, renewable energy, robotics, artificial intelligence, nanotechnology, quantum computing, the Internet of things, big data, and 3D printing, among others. Achieving shared prosperity will hinge on workers' ability to adapt to the evolving demands of the labor market and the equitable distribution of productivity gains from new technologies.

Some of these technologies, especially industrial robots, significantly expand production scale, resulting in price reductions, increased consumption, and greater demand for inputs and non-renewable raw materials. This calls for a reevaluation of resource management and environmental protection practices, particularly in weaker regulatory contexts like low- and middle-income countries, and in the face of severe climate change.

Figure 1 illustrates the recent evolution of two key technologies from the Third and Fourth Industrial Revolutions: (i) the Internet and (ii) industrial robots, in high-income and middle-income countries from 1993 to 2022. In high-income countries, Internet use expanded rapidly since 1993, reaching 61.2% of the population by 2007 and 90% by 2021. In middle-income countries, Internet adoption accelerated after 2000, growing steadily to 26.1% in 2012 and 60.2% by 2021. Meanwhile, robot adoption in high-income countries increased steadily throughout the period, accelerating in the 2010s from 1.1 robots per thousand workers in 1993 to 4.1 by 2022. In contrast, robot adoption in middle-income countries remained near zero until 2010, reaching 1.1 robots per thousand workers by 2022, still far below high-income countries. These trends highlight a lag in technology adoption in developing countries, though they are rapidly catching up globally.

Technological change profoundly impacts the economic and social structures of communities. It generates enormous opportunities to improve quality of life while posing significant challenges, especially for governments, to ensure a smooth transition that allows all members of society to benefit from technological progress. One key message of this chapter is that education must evolve alongside technology, echoing Tinbergen's ideas. Individuals should be prepared to work with new technologies throughout their lives. This involves taking full advantage of (i) the *automation* of routine, repetitive, manual, and time-consuming tasks and (ii) the *augmentation* of abstract and cognitive tasks, driven by AI, for instance, across all economic sectors. People should focus on new tasks and jobs that leverage human innate advantages such as teamwork, problem-solving, flexibility, creativity, and social intelligence. Examples include R&D, process and product design, and improving organizational practices, distribution channels, and customer services.

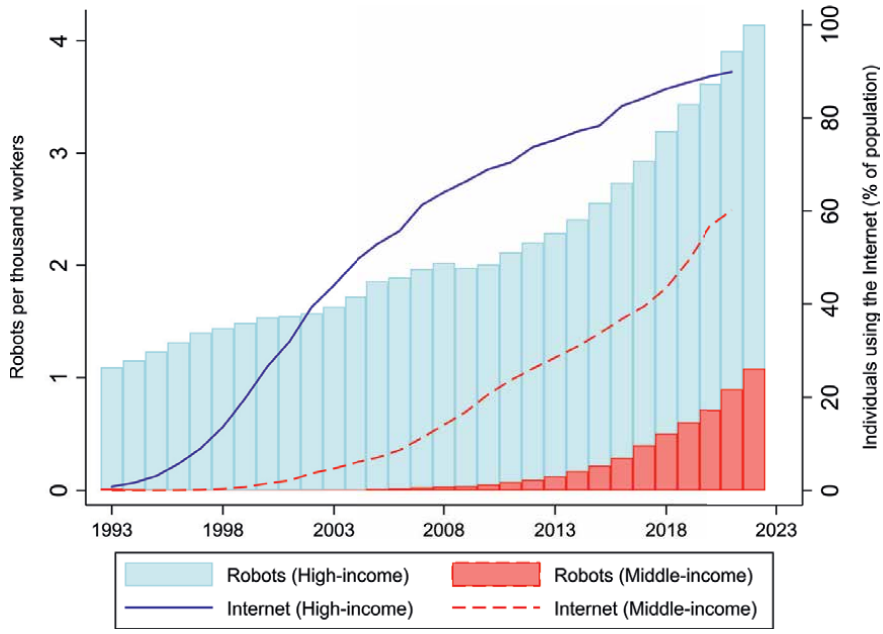

Figure 1.
Global adoption of Internet and robots. Notes. *Stock of robots per thousand workers calculated for all countries included in the International Federation of Robotics (IFR) dataset (45 high-income countries and 29 middle-income countries). Country's employment is fixed in 1995. Individuals using the Internet obtained from the World Developing Indicators (ICT Database) from The World Bank, including all countries worldwide.*

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Productivity growth from technological progress will increase demand for both traditional and new goods and services, leading to income gains and a higher *demand for quality*, as broadly defined. This will deepen *structural change*, with a growing fraction of workers providing services to society. In this context, it is desirable for communities to allocate more resources to investments in science and education. This will level the playing field and form highly educated global citizens capable of fully benefiting from technological progress while being aware of their carbon footprint for future generations.

This chapter is organized as follows. Section 2 provides a brief contextual discussion on the historical background of the Agrarian and the First and Second Industrial Revolutions, along with recent changes brought by the Technological Revolutions. Section 3 offers a non-exhaustive review of specialized literature in Economics, focusing on Labor, Growth, Development, and Trade, and examines the relationship between technological change and socioeconomic outcomes. Section 4 presents basic facts about the main determinants and likely consequences of industrial automation. Section 5 concludes.

2. Contextualization

2.1 Historical perspective

The origins of material accumulation, economic growth, and inequality date back to the Agricultural Revolution, approximately 10,000 years ago. During this period, humans transitioned from a nomadic lifestyle to a sedentary one, shifting from hunter-gatherers to producers. The ability to settle in fixed locations and accumulate grain and domesticated animals led to the formation of towns and eventually cities. These surpluses facilitated the emergence of religious, military, and administrative activities. Private property and the State, two fundamental institutions of the modern world, also have their roots in this era [1].

A fascinating study of 186 primitive communities, known as the standard cross-cultural sample, found that four out of five hunter-gatherer communities had no obvious leaders, while three-quarters of agricultural societies were organized around power relations, hierarchies, and material inequalities [2]. The development of agricultural economies led to increasingly complex hierarchical structures, evolving into hereditary domains, kingdoms, and empires. These entities developed various strategies to concentrate power and wealth, including pillage, wars, taxes, and tributes. In pre-modern societies, fortunes were primarily based on political power, coercion, and domination rather than economic activities.

Advancements in agriculture, currency, and trade multiplied material gains, increased the wealth of the nobility, and facilitated the rise of the middle classes—the *bourgeoisie*—who progressively gained economic power and political participation.

The First and Second Industrial Revolutions, commencing approximately 250 and 150 years ago respectively, introduced transformative technologies such as the steam engine, spinning machine, trains, and light bulbs. These innovations exponentially increased production and productivity, leading to significant socioeconomic changes, including large-scale migrations from rural to urban areas and transformations in transportation, communication, industry, and commerce. These changes were characterized by new forms of production, work, and organizational structures.

Deaton [3] identifies this period as the origin of inequality between nations, as the Revolutions dictated the pace of material progress and created disparities between advanced and lagging economies. Initially, the new production methods generated substantial profits for the bourgeoisie, who owned and controlled capital, without benefiting the broader population. The masses transitioned from rural deprivation to exploitation in large factories, living in poor conditions in industrial city suburbs. This environment fostered the emergence of union, anarchist, and socialist movements in mid-nineteenth century England.

Over time, material progress extended too much of society. Countries such as Germany, France, much of Western Europe, North America, and later Japan, which joined this combined process of technological transformation and modern capitalism, experienced a sustained increase in the standard of living for the average citizen over approximately two centuries. Today, this standard of living remains significantly higher than that of the average inhabitant of the developing world. The economic advantages gained by developed nations during this period enabled them to dominate and, in some cases, exploit much of the rest of the world.

2.2 Recent changes

The Third and Fourth Industrial Revolutions, also known as the Digital and Industry 4.0 Revolutions, respectively, began at the end of the twentieth century and continue into the twenty-first century. These revolutions primarily originated in the United States and Japan and are closely associated with advancements in information and communication technologies (ICTs), including the widespread use of computers, digital technologies, and the Internet. Additionally, they encompass significant progress in biotechnology, such as the manipulation of living cells for medical and nutritional purposes, and the adoption of renewable energy sources aimed at reducing dependence on fossil fuels and mitigating their substantial ecological impacts.

The Fourth Industrial Revolution is particularly characterized by the increasing significance of emerging technologies such as robotics, nanotechnology, quantum computing, 3D printing, and artificial intelligence, among other nascent technologies.

The adoption of ICTs has fostered globalization and facilitated the expansion of large multinational companies. The widespread use of computers, cell phones, and the Internet has promoted global connectivity and democratized access to knowledge. In this new context, while some jobs have disappeared, particularly those associated with automated routine tasks, many others have been created. These new jobs span professional occupations, low-skilled services, e-commerce, and digital working platforms.

Many scholars argue that control over the flow of information can sometimes favors disinformation, thereby enhancing the activities of radicalized groups. Others suggest that access to new technologies remains unequal, particularly in the least developed countries and among the lowest social strata.

3. Specialized literature in economics

Technological progress is often considered as the main determinant of economic progress and, simultaneously, a leading explanation for rising inequality. Early literature on skilled-biased technological change posits that technology complements skilled labor, therefore increasing the relative demand for and wages of skilled workers [4–6]. Recent theories argue that the complementarity or substitutability between technology

and labor occurs not at the worker skill level, but rather at the *task* level [7, 8]. This framework assumes that computers and automation technologies are more likely to substitute routine tasks performed by workers in the middle of the skill distribution, complement analytical and interactive tasks typically undertaken by skilled workers, and have no predictable impact on routine manual tasks commonly carried out by unskilled workers. These assumptions underpin the *polarization hypothesis*, which has effectively explained the evolving labor market pattern in developed countries since the 1980s, characterized by employment and wage gains at both ends of the skill distribution, primarily in service occupations, at the expense of middle-skill workers predominantly employed in manual, production, and clerical jobs [7, 9–13].

The story seems to have been different in the developing world, where evidence supporting the polarization hypothesis is either limited or absent [14–17]. Developing countries lag behind high-income countries in various dimensions, with the most evident being income per capita, investment, education, health, infrastructure, and institutional quality. The adoption of new technologies is no exception. For instance, PIAAC data indicates that, on average, 35 percent of workers in Latin America report using a computer at work, compared to 62 percent in OECD member countries [18]. In terms of typical automation technology, such as industrial robots, **Figure 1** illustrates that robot adoption in middle-income countries only began to rise in the 2010s. By 2022, it reached approximately one robot per thousand workers, significantly lower than the four robots per thousand workers in high-income countries. These statistics suggest that developing countries are still in the early stages of technology adoption, which may be a key factor explaining the absence of labor market polarization.

Many high-income countries, along with some developing economies, have also seen a narrowing gap between men and women in labor force participation, paid work hours, education, and earnings [19, 20]. In developed economies, the gender wage gap has been visibly narrowing since at least the 1970s. The leading explanations emphasize supply-side factors, such as improvements in education and work experience that benefited women relative to men, and the larger negative impact of de-unionization on male wages compared to female wages [21–23]. On the demand side, rising globalization and automation since the 1980s have driven a sharp decline in manufacturing employment and a shift toward sectors that are more education- and women-intensive, such as professional and personal services [4, 24, 25].

Several authors argue that computer adoption has changed the nature and conditions of work in ways that benefit women more than men. Weinberg [26] finds that computer adoption explains over half of the increased demand for female labor. Bacolod and Blum [27] attribute 20% of the narrowing gender wage gap to the rising value of cognitive and personal skills, which are more prevalent among women. Similarly, Borghans et al. [28] argue that technological and organizational changes increased the importance of interactive and interpersonal skills, improving outcomes for under-represented groups, including women. In the task-based framework of Autor et al. [7], computers substitute for routine tasks, so groups with higher routine task intensity initially experience faster adoption and a stronger shift toward non-routine tasks. Spitz-Oener [9] supports this hypothesis, noting that a declining price of computers lowers rewards for routine tasks, while complementing non-routine analytical and interactive tasks, increasing productivity. Black and Spitz-Oener [29] find that task changes explain half of the decline in the gender wage gap in West Germany between 1979 and 1999. They document that women experienced a larger shift from routine to non-routine tasks, especially in jobs more exposed to workplace computerization.

Recent theories extend the task-based model to predict the effects of industrial automation on employment and wages (e.g., [30, 31]). Robots displace low-skilled workers by taking over manual routine tasks, reducing labor demand and wages (*substitution* effect). Simultaneously, robots reduce production costs and increase total factor productivity, increasing labor demand and wages (*reinstatement* effect). These opposing forces depend on labor mobility and how the gains from automation are distributed [32]. Additionally, cross-industry input-output effects (via buyer-seller linkages) and between-industry shifts also play a role [33]. There might be aggregate demand effects through changes in wages, relative prices, and shifts in consumption patterns. Indirect effects may also arise from changes in competition and market structure [34].

Evidence suggests that robots have replaced and reduced wages of low-skilled workers engaged in routine manual tasks [35–39]. At the same time, robot adoption boosts value-added per worker and total factor productivity, lowers output prices, improves product quality, increases demand for skilled labor, and expands production, exports, and imports of intermediate inputs [40–45]. In the U.S. and Germany, displacement effects in manufacturing were offset by new jobs in services [46, 47]. In Germany, automation has been linked to more stable employment for incumbents and to higher quality new jobs, while younger cohorts have shifted from vocational training toward higher education.

Recent research shows that robot adoption is concentrated in the largest and most productive firms, which grow further and may gain market share at the expense of competitors, both domestically and internationally [34, 48, 49]. Studies using firm-level data from France [48–50], Spain [51], Denmark [38], Indonesia [52], and the U.S. [53, 54] show that robot adopters are typically large manufacturing firms highly involved in international trade. Furthermore, robots and exporting can be complementary to improve productivity [51]. Since these firms tend to have lower labor shares than the average firm, automation can lead to a sustained decline in labor's share of value added, increasing the concentration of economic activity among "superstar firms" [55–59]. Therefore, automation boosts incomes for capital owners, executives, managers, and skilled professionals in these companies, thus amplifying top income inequality through returns on wealth, human capital, and management skills [31, 60–62].

Most of this evidence comes from high-income countries, while studies on developing economies are scarcer and less conclusive. For instance, de Vries et al. [63] document that robot adoption has reduced the employment share of routine manual task-intensive jobs in high-income countries, but not in developing economies. On one hand, automation could diminish the significance of low labor costs as a driver of international competitiveness, potentially hindering industrialization, participation in global value chains (GVCs), and export-led growth in developing countries, as production reshores back to high-income countries [64–70]. On the other hand, robot adoption in high-income countries may increase imports from, and the number of affiliates in, low- and middle-income economies, aligning with the idea that offshoring and automation can be complementary [41, 44, 71]. Moreover, if automation technologies exhibit diminishing returns, marginal productivity gains in developing countries—being at earlier stages of automation—could exceed those in industrialized economies [53, 72–75]. Should these gains translate into higher wages and greater demand for goods and services, the result could be faster economic growth, job creation, and improved welfare. However, these benefits may take time to materialize. For example, Brambilla et al. [18] find that robot adoption in major Latin American

robot users (Mexico, Brazil, and Argentina) has displaced formal salaried jobs in the short run, particularly affecting young and middle-skilled workers, with informal employment acting as a buffer against rising unemployment.

Relatedly, evidence supports the notion that multinational companies (MNCs) promote technology diffusion and enhance the trade integration of host countries into the global economy [75–77]. MNC investment, typically through inward foreign direct investment (FDI), can expand the production possibility frontier of host countries due to their adoption of more advanced technologies, including *industrial robots* [78–80], and higher productivity levels [81–85]. Furthermore, MNCs have easier access to credit [86–88], greater product and process innovation [89], improved management practices [90], and greater reliance on high-skilled labor and capital than domestic firms [91–95].

Finally, recent evidence for the U.S. indicates that most current jobs have emerged from new specialties introduced since 1940, such as those in medicine and healthcare, personal care, recreation and entertainment, finance, software, and electronics, among others. Job creation initially focused on middle-income production and clerical occupations from 1940 to 1980 but has since shifted toward high-income professional jobs and, to a lesser extent, low-income service jobs since 1980 [96]. These new jobs stem from technological advances that complement specific occupations, alongside demand shocks that heighten occupational demand. *Augmentation* innovations boost occupational demand, while *automation* innovations often depresses it.[1] Notably, the authors find that while automation's demand-eroding effects have intensified over the past four decades, the demand-increasing effects of augmentation have not kept pace.

Importantly, new work typically (i) require expertise gained through formal education and/or practical experience, with the level of expertise varying across occupations, and (ii) represent the development of novel expertise or skills within existing jobs, rather than entirely new human endeavors.

4. Facts and discussion

4.1 Basic determinants of automation

Figure 2 presents four scatterplots illustrating cross-country correlations between key determinants of automation and robot adoption between 1993 and 2022. One of the primary determinants of automation is GDP per capita (top panel 1). On the supply side, richer countries are more likely to develop and adopt new technologies, while firms in these economies are also incentivized to adopt automation to replace workers who receive higher wages than their counterparts in poorer nations. Supporting evidence indicates that rising wages and labor costs can drive firms to invest in automation technologies [53, 97–100]. On the demand side, firms in richer countries are more prone to automate and improve product quality to meet preferences of wealthier consumers, who have a greater willingness to pay for higher quality products. Second, as shown by Acemoglu and Restrepo [40], population aging is linked to increased industrial automation (top panel 2), as it creates a shortage of younger

[1] *Augmentation* technologies increase capabilities, quality, variety or utility of the output of occupations, potentially leading to new demands for worker expertise and specialization; while *automation* technologies substitute for labor inputs in certain occupations, potentially replacing workers performing these tasks [96].

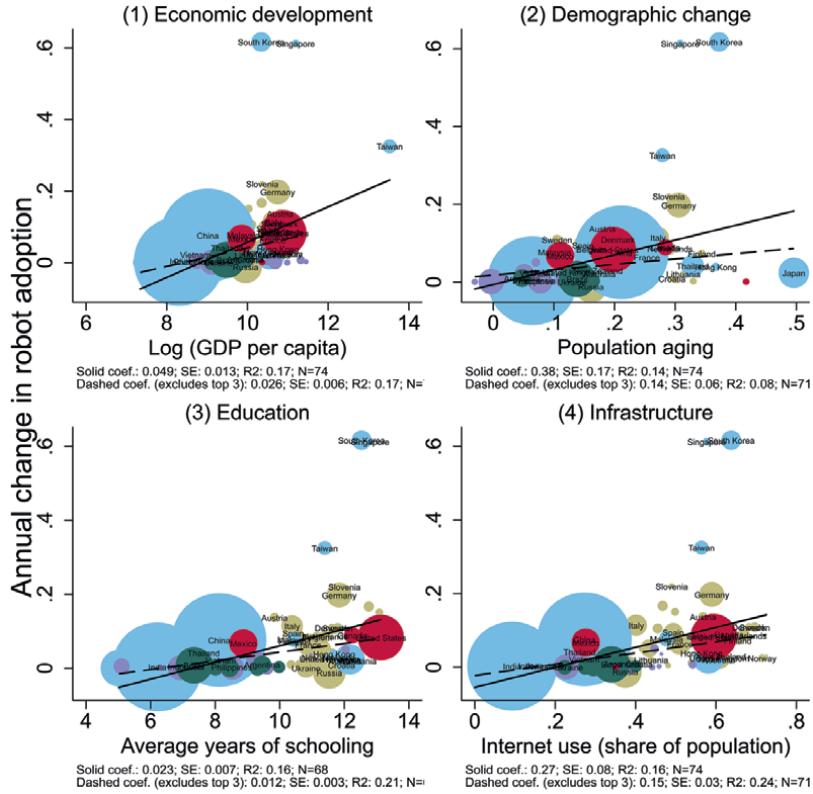

Figure 2.
Leading determinants of automation. Notes. *The y-axis measures the average annual change in the stock of robots per thousand workers in 1995 between 1993 and 2022. The x-axis correspond to (1) the log average real GDP at constant USD 2017 PPP prices during 1993–2022; (2) the change in the ratio of old-age (+56) to middle-age (21–55) population between 1990 and 2020; (3) the average years of education for adults (15–64) during 1993–2022; and (4) the average fraction of population with access to Internet connection during 1993–2022. The solid line depict the linear unweighted correlation between the y-axis and the x-axis; and the dashed line depicts the same correlation but excluding the top 5 percent countries with highest adoption of robots (i.e., Singapore, South Korea, and Taiwan). Sources: IFR, OECD Employment data, UN World Population Prospects, and WDI (World Bank).*

workers specialized in manual production tasks. Third, robot adoption is positively correlated with the average years of schooling within the labor force (bottom panel 3). A more educated population is more likely to innovate, adopt and work in complement with new technologies. Lastly, infrastructure, approximated by the percentage of the population with Internet access (bottom panel 4), enhances the likelihood of adopting industrial robots, not only because many new technologies complement one another but also because improved infrastructure boosts economic efficiency and market access.

Recent evidence suggests that greater integration into Global Value Chains (GVCs) is positively related to robot adoption, while rising automation simultaneously increases participation in GVCs, indicating bidirectional causality [101]. Notably, this study finds that employment gains from automation are linked to deeper integration—both backward and forward—into GVCs. Additionally, growing robot adoption in an industry's export destinations is associated with increased robot adoption domestically, supporting a demand-driven explanation for automation. On the import side, industrial automation raises the demand for raw materials and

standardized intermediate inputs, some of which are produced using industrial robots and traded via GVCs. On the export side, increased production at lower costs benefits from greater access to the global market, facilitated by deeper GVC integration. A related study finds that robotization in China spurred robot adoption in Europe through three main channels: an increased supply of intermediate inputs, rising market demand in China, and heightened import competition from Chinese firms [102].

On the microeconomic side, Acemoglu et al. [53] document that firms primarily invest in industrial robots to enhance process quality, upgrade existing operations, and automate tasks traditionally performed by labor, aligning with the evidence discussed in the previous section.

4.2 Likely consequences of automation

The previous section examined much of the literature focused on the effects of automation on the labor market. This section provides a summarizing argument to emphasize some of the main likely consequences of industrial automation. **Figure 3** presents four scatterplots illustrating cross-country correlations between robot

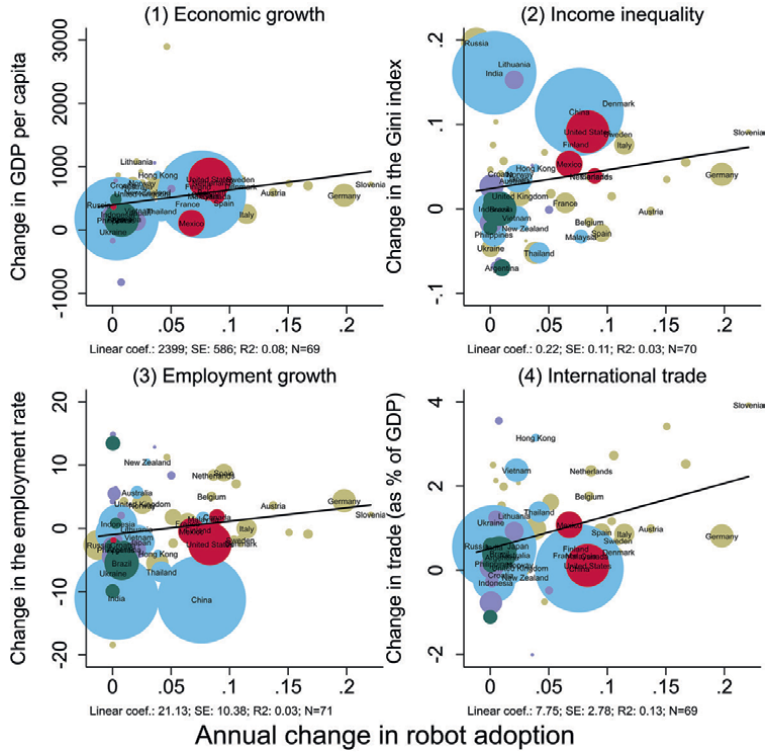

Figure 3.
Likely consequences of automation. Notes. *The x-axis measures the average annual change in the stock of robots per thousand workers in 1995 between 1993 and 2022. The y-axis correspond to (1) the average annual change in real GDP at constant USD 2017 PPP prices during 1993–2022; (2) the change in the Gini coefficient between 1990–1993 and 2018–2022; (3) the change in the employment to population ratio between 1990–1993 and 2018–2022; and (4) the average annual change in the trade to GDP ratio during 1993–2022. The solid line depict the linear unweighted correlation between the y-axis and the x-axis. Figures exclude the top 5 percent countries with highest adoption of robots (i.e., Singapore, South Korea and Taiwan). Sources: IFR, OECD Employment data, World Inequality Database, and WDI (World Bank).*

adoption during 1993–2022 and changes in relevant economic outcomes over the same period. Top panel 1 shows that countries with relatively higher robot adoption exhibit experienced a greater annual increase in GDP per capita, consistent with evidence linking automation to productivity gains and rising production. Additionally, top panel 2 shows that countries adopting more robots exhibit an increase in income inequality, as indicated by changes in the Gini index, aligning with findings that robots tend to replace (manual and routine) middle-wage occupations while complementing professional and high-wage roles such as engineers, executives, managers, and capital owners.

Interestingly, bottom panel 3 illustrates a positive correlation between robot adoption and long-run changes in employment rates, suggesting that productivity growth translates into employment gains, that is, reinstatement effects outweigh displacement effects. This indicates that the labor market adjusts to new working environments driven by advanced technologies, with most workers finding roles that complement new technologies. Lastly, bottom panel 4 shows that countries with higher robot adoption exhibit greater participation in international trade (as a share of GDP), consistent with the evidence that automating firms increase both their imports—mainly of intermediate inputs—and exports-mostly final products-, due to productivity gains and lower quality-adjusted prices, which enhance their competitiveness not only domestically but internationally.

5. Concluding remarks

The Third and Fourth Industrial Revolutions, primarily spanning from 1980 to the present, have fundamentally reshaped the global economic landscape. This new technological paradigm has introduced vast opportunities for economic progress while simultaneously presenting significant challenges, particularly regarding the future of work, income distribution, and potential environmental impacts.

This era is defined by breakthroughs in numerous fields, including information and communication technologies, the Internet, biotechnology, renewable energy, industrial robotics, artificial intelligence, nanotechnology, quantum computing, big data, and 3D printing. These advancements are reshaping industries and labor markets worldwide.

The main conclusion of this review is that, while technological progress has not posed a significant threat to overall employment levels, it has unequivocally contributed to rising income inequality. Consequently, while a future without jobs is unlikely, the prospect of widespread equality remains uncertain.

Achieving shared prosperity will depend on the workforce's ability to adapt to the evolving demands of the labor market and on the equitable distribution of productivity gains stemming from new technologies. This necessitates a transformation in education systems, ensuring that individuals are equipped with the skills to work alongside new technologies throughout their careers. Lifelong learning will enable workers to capitalize on automation in routine tasks and leverage cognitive and abstract tasks that emphasize teamwork, problem-solving, flexibility, creativity, and social intelligence.

Furthermore, productivity growth driven by technological advancements will likely increase demand for both traditional and new goods and services, leading to income gains and heightened demand for quality. This dynamic will contribute to deeper structural changes, with an increasing share of the workforce engaged in service provision.

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Importantly, the scale of production expansion enabled by certain technologies, particularly industrial robots, risks exacerbating resource depletion and environmental challenges by driving down prices, boosting consumption, and heightening demand for inputs and non-renewable raw materials. These developments necessitate a rethinking of resource management and environmental protection, especially in countries with weaker regulatory frameworks.

In light of these challenges, it is imperative for societies to allocate more resources to science and education. This investment will help create a more equitable global workforce, empowering individuals to harness the benefits of technological progress while remaining mindful of their environmental impact for the benefit of current and future generations.

Author details

Andrés César
CEDLAS-IIE-UNLP, La Plata, Argentina

*Address all correspondence to: andresmcesar@gmail.com

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References

[1] Gasparini L. Desiguales: Una Guía para Pensar la Desigualdad Económica. Argentina: Edhasa; 2022

[2] Murdock GP, White DR. Standard cross-cultural sample. Ethnology. 1969;**8**(4):329-369

[3] Deaton. The Great Escape: Health, Wealth, and the Origins of Inequality. United States: Princeton University Press; 2013

[4] Katz LF, Murphy KM. Changes in relative wages, 1963-1987: Supply and demand factors. Quarterly Journal of Economics. 1992;**107**(1):35-78

[5] Bound J, Johnson G. Changes in the structure of wages in the 1980s: An evaluation of alternative hypotheses. American Economic Review. 1992;**82**(3);371-392

[6] Card D, Lemieux T. Can falling supply explain the rising return to college for younger men? A cohort-based analysis. Quarterly Journal of Economics. 2001;**116**(2):705-746

[7] Autor DH, Levy F, Murnane RJ. The skill content of recent technological change: An empirical exploration. Quarterly Journal of Economics. 2003;**118**(4):1279-1333

[8] Acemoglu D, Autor D. Skills, tasks and technologies: Implications for employment and earnings. In: Handbook of Labor Economics. Vol. 4. Netherlands: Elsevier; 2011. pp. 1043-1171

[9] Spitz-Oener A. Technical change, job tasks, and rising educational demands: Looking outside the wage structure. Journal of Labor Economics. 2006;**24**(2):235-270

[10] Goos M, Manning A. Lousy and lovely jobs: The rising polarization of work in Britain. Review of Economics and Statistics. 2007;**89**(1):118-133

[11] Autor DH, Dorn D. The growth of low-skill service jobs and the polarization of the US labor market. American Economic Review. 2013;**103**(5):1553-1597

[12] Michaels G, Natraj A, Van Reenen J. Has ICT polarized skill demand? Evidence from eleven countries over twenty-five years. Review of Economics and Statistics. 2014;**96**(1):60-77

[13] Goos M, Manning A, Salomons A. Explaining job polarization: Routine biased technological change and offshoring. American Economic Review. 2014;**104**(8):2509-2526

[14] Maloney WF, Molina C. Are automation and trade polarizing developing country labor markets, too? In: Policy Research Working Paper 7922. Washington DC: World Bank; 2016

[15] Messina J, Silva J. Wage Inequality in Latin America: Understanding the Past to Prepare for the Future. Washington DC: The World Bank; 2017

[16] Das MM, Hilgenstock B. The Exposure to Routinization: Labor Market Implications for Developed and Developing Economies. Washington DC: International Monetary Fund; 2018

[17] Gasparini L, Brambilla I, César A, Falcone G, Lombardo C. Routinization and employment: Evidence for Latin America. Desarrollo y Sociedad. 2023;**95**:131-176

[18] Brambilla I, César A, Falcone G, Gasparini LC. Exploring gender

differences in labor markets from the perspective of the task based approach. Estudios de Economia. 2023;**50**(2):309-360

[19] Goldin C. A grand gender convergence: Its last chapter. American Economic Review. 2014;**104**(4):1091-1119

[20] Gasparini L, Marchionni M. Bridging Gender Gaps?: The Rise and Deceleration of Female Labor Force Participation in Latin America. Argentina: CEDLAS, Universidad Nacional de La Plata; 2015

[21] Blau F, Kahn L. Swimming upstream: Trends in the gender wage differential in the 1980s. Journal of Labor Economics. 1997;**15**:1-42

[22] Blau F, Kahn L. Understanding international differences in the gender pay gap. Journal of Labor Economics. 2003;**21**(1):106-144

[23] Blau F, Kahn LT, U.S. Gender pay gap in the 1990s: Slowing convergence. Industrial and Labor Relations Review. 2006;**60**(1):45-66

[24] Murphy KM, Welch F. The role of international trade in wage differentials. In: Kosters M, editor. Workers and Their Wages. Washington, DC: The AEI Press; 1991. pp. 39-69

[25] Welch F. Growth in women's relative wages and in inequality among men: One phenomenon or two? American Economic Review: Papers and Proceedings. 2000;**90**(2):444-449

[26] Weinberg BA. Computer use and the demand for female workers. Industrial and Labor Relations Review. 2000;**53**(2):290-308

[27] Bacolod M, Blum B. Two sides of the same coin: U.S. residual inequality and the gender gap. Journal of Human Resources. 2010;**45**(1):197-242

[28] Borghans L, Ter Weel B, Weinberg BA. People skills and the labor-market outcomes of underrepresented groups. Industrial and Labor Relations Review. 2014;**67**(2):287-334

[29] Black SE, Spitz-Oener A. Explaining women's success: technological change and the skill content of women's work. Review of Economics and Statistics. 2010;**92**(1):187-194

[30] Acemoglu D, Restrepo P. Automation and new tasks: How technology displaces and reinstates labor. Journal of Economic Perspectives. 2019;**33**(2):3-30

[31] Acemoglu D, Restrepo P. Tasks, automation, and the rise in US wage inequality. Econometrica. 2022;**90**(5):1973-2016

[32] Gregory T, Salomons A, Zierahn U. Racing with or against the machine? Evidence on the role of trade in Europe. Journal of the European Economic Association. 2021;**20**(2):869-906

[33] Autor D, Salomons A. Is automation labor-displacing? Productivity growth, employment, and the labor share. Brookings Papers on Economic Activity. 2018;**49**(1):1-87

[34] Acemoglu D, Lelarge C, Restrepo P. Competing with robots: Firm-level evidence from France. AEA Papers and Proceedings. 2020;**110**:383-388

[35] Graetz G, Michaels G. Robots at work. Review of Economics and Statistics. 2018;**100**(5):753-768

[36] Acemoglu D, Restrepo P. Robots and jobs: Evidence from US labor

markets. Journal of Political Economy. 2020;**128**(6):2188-2244

[37] Webb M. The impact of artificial intelligence on the labor market. In: Working Paper, Available at SSRN 3482150. 2019

[38] Humlum A. Robot Adoption and Labor Market Dynamics. United States: Princeton University; 2019

[39] Albinowski M, Lewandowski P. The impact of ICT and robots on labour market outcomes of demographic groups in Europe. Labour Economics. 2024;**87**:102481

[40] Acemoglu D, Restrepo P. Demographics and automation. Review of Economic Studies. 2022;**89**(1):1-44

[41] Stapleton K, Webb M. Automation, Trade and Multinational Activity: Micro Evidence from Spain. 2020. Available at SSRN 3681143

[42] Lin C, Xiao S, Yin Z. How do industrial robots applications affect the quality upgrade of Chinese export trade? Telecommunications Policy. 2022;**46**(10):102425

[43] Alguacil M, Turco AL, Martínez-Zarzoso I. Robot adoption and export performance: Firm-level evidence from Spain. Economic Modelling. 2022;**114**:105912

[44] Artuc E, Bastos P, Rijkers B. Robots, tasks, and trade. Journal of International Economics. 2023;**145**:103828

[45] DeStefano T, Timmis J. Robots and export quality. Journal of Development Economics. 2024;**168**:103248

[46] Mann K, Püttmann L. Benign effects of automation: New evidence from patent texts. Review of Economics and Statistics. 2023;**105**(3):562-579

[47] Dauth W, Findeisen S, Suedekum J, Woessner N. The adjustment of labor markets to robots. Journal of the European Economic Association. 2021;**19**(6):3104-3153

[48] Zhou H, Fan J, Gan T. The impact of industrial robots on export stability. The World Economy. 2024

[49] Aghion P, Antonin C, Bunel S, Jaravel X. Modern Manufacturing Capital, Labor Demand, and Product Market Dynamics: Evidence from France. 2022. Working Paper

[50] Bonfiglioli A, Crino R, Fadinger H, Gancia G. Robot imports and firm-level outcomes. The Economic Journal. 2024

[51] Koch M, Manuylov I, Smolka M. Robots and firms. The Economic Journal. 2021;**131**(638):2553-2584

[52] Ing LY, Zhang R. Automation in Indonesia: Productivity, quality, and employment. In: Robots and AI. United Kingdom: Routledge; 2022. pp. 275-309

[53] Acemoglu D, Anderson GW, Beede DN, Buffington C, Childress EE, Dinlersoz E, et al. Automation and the workforce: A firm-level view from the 2019 annual business survey. In: National Bureau of Economic Research N° 30659. 2022

[54] Dinlersoz E, Wolf Z. Automation, labor share, and productivity: Plant-level evidence from US manufacturing. Economics of Innovation and New Technology. 2024;**33**(4):604-626

[55] Autor D, Dorn D, Katz LF, Patterson C, Van Reenen J. The fall of the labor share and the rise of superstar

firms. Quarterly Journal of Economics. 2020;**135**(2):645-709

[56] Martinez J. Putty-clay automation. In: Working Paper DP16022. 2021

[57] Kehrig M, Vincent N. The micro-level anatomy of the labor share decline. Quarterly Journal of Economics. 2021;**136**(2):1031-1087

[58] Hubmer J, Restrepo P. Not a typical firm: The joint dynamics of firms, labor shares, and capital–labor substitution. In: National Bureau of Economic Research Working Paper N° w28579. 2021

[59] Stiebale J, Suedekum J, Woessner N. Robots and the rise of European superstar firms. International Journal of Industrial Organization. 2024;**97**:103085

[60] Moll B, Rachel L, Restrepo P. Uneven growth: automation's impact on income and wealth inequality. Econometrica. 2022;**90**(6):2645-2683

[61] Koru F. Automation and Top Income Inequality. 2023. Working Paper

[62] César A, Falcone G, Garriga P. Robots, exports and top income inequality: Evidence for the U.S. In: CEDLAS Working Paper N° 307. 2022

[63] De Vries GJ, Gentile E, Miroudot S, Wacker KM. The rise of robots and the fall of routine jobs. Labour Economics. 2020;**66**:101885

[64] Rodrik D. New technologies, global value chains, and developing economies. In: National Bureau of Economic Research Working Paper N° w25164. 2018

[65] Faber M. Robots and reshoring: Evidence from Mexican labor markets. Journal of International Economics. 2020;**127**:103384

[66] Stemmler H. Automated deindustrialization: How global robotization affects emerging economies—Evidence from Brazil. World Development. 2023;**171**:106349

[67] Krenz A, Prettner K, Strulik H. Robots, reshoring, and the lot of low-skilled workers. European Economic Review. 2021;**136**:103744

[68] Kugler AD, Kugler M, Ripani L, Rodrigo R. US robots and their impacts in the tropics: Evidence from Colombian labor markets. In: National Bureau of Economic Research Working Paper N° w28034. 2020

[69] Gravina AF, Pappalardo MR. Are robots in rich countries a threat for employment in emerging economies? Economics Letters. 2022;**221**:110888

[70] Díaz Pavez LR, Martínez-Zarzoso I. The impact of automation on labour market outcomes in emerging countries. The World Economy. 2024;**47**(1):298-331

[71] Faia E, Laffitte S, Mayer M, Ottaviano G. On the employment consequences of automation and offshoring: A labor market sorting view. In: Robots and AI. United Kingdom: Routledge; 2022. pp. 82-122

[72] Serrano JA. Essays in Labor Economics [doctoral dissertation]. United States: UCLA; 2024

[73] Cali M, Presidente G. Robots for Economic Development. 2022. Working Paper

[74] Arias O, César A, Fukuzawa D, Trung Le D. Vietnam's Industrial Automation: Drivers and Impacts on the Labor Market. 2024. Working Paper

[75] Hanson GH, Mataloni RJ Jr, Slaughter MJ. Vertical production networks in multinational firms. Review of Economics and Statistics. 2005;**87**(4):664-678

[76] Arnold JM, Javorcik BS. Gifted kids or pushy parents? Foreign direct investment and plant productivity in Indonesia. Journal of International Economics. 2009;**79**(1):42-53

[77] Conconi P, Leone F, Magerman G, Thomas C. Multinational Networks and Trade Participation. 2024. Working Paper

[78] Alfaro L, Areendam C, Sebnem K, Selin S. Does foreign direct investment promote growth? Exploring the role of financial markets on linkages. Journal of Development Economics. 2010;**91**(2):242-256

[79] Harrison A, Rodriguez-Clare AT. Foreign investment, and industrial policy. In: Handbook of Development Economics. Amsterdam: Elsevier; 2010. pp. 4039-4214

[80] Leone F. Multinationals, robots, and the labor share. In: Working Paper Available at SSRN 4334330. 2023

[81] Griffith R, Redding S, Simpson H. Technological catch-up and the role of multinationals. In: Revised Version of CEPR Discussion Paper N° 3765. 2006

[82] Harris R, Robinson C. Productivity impacts and spillovers from foreign ownership in the United Kingdom. National Institute Economic Review. 2004;**187**:58-75

[83] Alfaro L, Chen MX. Selection and market reallocation: Productivity gains from multinational production. American Economic Journal: Economic Policy. 2018;**10**(2):1-38

[84] Bircan Ç. Ownership structure and productivity of multinationals. Journal of International Economics. 2019;**116**:125-143

[85] Fons-Rosen C, Kalemli-Ozcan S, Sørensen BE, Villegas-Sanchez C, Volosovych V. Quantifying productivity gains from foreign investment. Journal of International Economics. 2021;**131**:103456

[86] Harrison A, McMillan M. Offshoring jobs? Multinationals and US manufacturing employment. Review of Economics and Statistics. 2011;**93**(3):857-875

[87] Desai MA, Foley CF, Hines JR Jr. Domestic effects of the foreign activities of US multinationals. American Economic Journal: Economic Policy. 2009;**1**(1):181-203

[88] Foley CF, Manova K. International trade, multinational activity, and corporate finance. Annual Review of Economics. 2015;**7**(1):119-146

[89] Guadalupe M, Kuzmina O, Thomas C. Innovation and foreign ownership. American Economic Review. 2012;**102**(7):3594-3627

[90] Bloom N, Sadun R, Reenen JV. Americans do IT better: US multinationals and the productivity miracle. American Economic Review. 2012;**102**(1):167-201

[91] Feenstra RC, Hanson GH. Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras. Journal of International Economics. 1997;**42**(3-4):371-393

[92] Aitken B, Harrison A, Lipsey RE. Wages and foreign ownership. A comparative study of Mexico, Venezuela, and the United States.

Journal of International Economics. 1996;**40**(3-4):345-371

[93] Koch M, Smolka M. Foreign ownership and skill-biased technological change. Journal of International Economics. 2019;**118**:84-104

[94] Setzler B, Tintelnot F. The effects of foreign multinationals on workers and firms in the United States. Quarterly Journal of Economics. 2021;**136**(3):1943-1991

[95] Sun C. Multinational production with non-neutral technologies. Journal of International Economics. 2020;**123**:103294

[96] Autor D, Chin C, Salomons A, Seegmiller B. New frontiers: The origins and content of new work, 1940-2018. Quarterly Journal of Economics. 2024

[97] Lordan G, Neumark D. People versus machines: The impact of minimum wages on automatable jobs. Labour Economics. 2018;**52**:40-53

[98] Cho J, Kim J. Identifying factors reinforcing robotization: Interactive forces of employment, working hour and wage. Sustainability. 2018;**10**(2):490

[99] Jung JH, Lim DG. Industrial robots, employment growth, and labor cost: A simultaneous equation analysis. Technological Forecasting and Social Change. 2020;**159**:120202

[100] Fan H, Hu Y, Tang L. Labor costs and the adoption of robots in China. Journal of Economic Behavior and Organization. 2021;**186**:608-631

[101] César A, Arias O, Fukuzawa D, Trung Le D. Industrial Automation as a Driver of Job Creation Through Greater Integration into GVCs. Working Paper; 2024

[102] Fontagné L, Reshef A, Santoni G, Vannelli G. Automation, global value chains and functional specialization. Review of International Economics. 2024;**32**(2):662-691

Chapter 4

Methodological Competence as a Success Factor for Apprenticeship

Silke Seyffer, Melanie Hochmuth, Angela Ulrich, Alina Nadine Geßler and Andreas Frey

Abstract

Transferable competences in vocational education and training are becoming increasingly important due to the highly dynamic labor market. They contribute to enabling apprentices to adapt quickly to new requirements. While previous studies have taken a deficit approach and examined reasons for dropouts, this study focuses on determinants of successful completion of apprenticeship. Using a German sample based on the self-assessment of 16,839 apprentices in vocational training programs from 2011 to 2018, this study examines the effect of transferable competences on subjective apprenticeship success with a particular focus on methodological competence. Besides the assessment of social competence, methodological competence also proves to be a relevant determinant for apprenticeship. Gender differences can be observed in this context. Recommendations for supporting transferable competences during vocational training are provided. Furthermore, innovative learning cultures in companies for the adaptation of training to the changed demands on the competences of apprentices will be addressed.

Keywords: apprenticeship, methodological competence, success factors, transferable competences, vocational education and training

1. Introduction

Apprentices who register for the final examination in Germany's dual vocational training system have had a high success rate for many years. In 2022, 90.9% of those who took the examination were successful in passing. It is notable that the cohort of graduates has been accompanied by a premature contract termination rate of 29.5% in 2022 which has increased in the past several years (2021: 26.7%, 2020: 25.1%, 2019: 26.9%, 2018: 26.5%) [1]. So there seem to be factors that contribute to this positive outcome. From the many possible factors, this chapter examines the contribution of individual competences to apprenticeship success and focuses on methodological competence.

Individual characteristics of the apprentices in particular appear to be one of the most important success factors for vocational training success [2]. The volatile labor

market increasingly demands a high degree of adaptability from employees, which is also reflected in vocational training [3, 4].

On the basis of competences, for example, training opportunities can be created that enable better adaptation to professional requirements, because employees need competences to do their jobs and companies expect graduates to have certain competences [5]. At the same time, there is a lack of a standardized definition and the possibility to measure and categorize competences [6].

In addition to social competence, methodological competence is of great importance in vocational education [7]. Methodological competence enables individuals to solve problems and tasks with targeted acquisition of knowledge [8, 9]. This competence to perform is relevant for the employability of apprentices [10] and enables them to deal with the constantly changing world of work and the associated demands [4, 11].

While there are some quantitative studies for social competence in general [12–16], there is also a gap in empirical research on the relationship between methodological competence and vocational training success. The importance of methodological and social competence as key factors for successful completion of apprenticeship has already been proven [17, 18]. However, there are still few studies that deal specifically with methodological competence and its effects and significance for success in education and professional careers. This chapter aims to close this gap.

2. Theoretical background

The online survey tool named smk (social and methodological competences assessment sheet) was constructed on the basis of theoretical findings in the areas of self-concept and transferable competences [19].

2.1 Self concept

The survey instrument assesses the competences of young people on the basis of their self-assessment. Self-assessments can be used validly to survey competences. Strictly speaking, self-assessment procedures measure the respondent's self-concept of competences [20]. The self-concept is to be understood as the self-perception of an individual [21]. It is a multidimensional [22] and hierarchical construct [23]. Additionally, it is based on the individual's subjective perception of their abilities, which may be perceived as either high or low in specific domains. Self-concept is based on the generalization of previously experienced situations [24]. This generalization influences the assessed ability to act in specific situations and, subsequently, the individual's expectations regarding their own competence [24].

2.2 Competences

It is still important to distinguish between subject-specific and transferable competences. While subject-specific competences include knowledge and skills that are directed at a certain discipline or company and are subject to change [25], transferable competences can be used independently and irrespective of context.

The concept of competence used in this chapter is based on Heinrich Roth's interpretation [26, 27]. In accordance with Roth's conceptualization, competences can be defined as individual resources that facilitate successful task performance, reflection

on the solutions afterward, and the further development of individual patterns of action [7]. Competences result from a complex set of skills and abilities, values, attitudes and beliefs [28].

Following on, Frey [26] defines competences as a dimension of an individual's personality. Competences enable individuals to draw upon the requisite knowledge, skills, or attitudes in a given situation to successfully complete the tasks at hand. A person is able to evaluate situations independently and develop or adapt their actions if they have the appropriate competences [17].

2.2.1 Transferable competences

Transferable competences can be differentiated into (a) social, (b) methodological and (c) personal competences. The (a) social competence makes it possible to maintain social relationships and to be able to deal with other people appropriately [29]. (b) Methodological competence includes skills by means of which suitable knowledge and solution strategies can be independently selected and applied to solve a task [7–9]. (c) Personal competence, in contrast, enables self-responsible and motivated action [30].

A number of studies have already shown that transferable competences can have an impact on professional success [31, 32].

2.2.2 Methodological and social competence

As such, methodological and social competence represent competence classes in which competences are combined. In this context, competences are to be understood as characteristics that the individual needs to complete a group of tasks. Several competences compose an ability. Competences comprise content-defined abilities that are necessary for the accomplishment of specific tasks [20, 26, 33]. **Figure 1** illustrates the structure of the upper competence classes, consisting of skills and abilities.

Within the construct of methodological competence, the (1) autonomy, (2) reflexiveness, (3) ability to analyze, (4) flexibility, (5) target-oriented behavior, and (6) working techniques are assigned. Social competence in turn includes skills such as (1) ability to cooperate, (2) social responsibility, (3) ability to deal with conflict, (4) ability to communicate, (5) situation-appropriate behavior, and (6) helpfulness and empathy, whereby the lists are not to be understood as exhaustive [20, 26, 33].

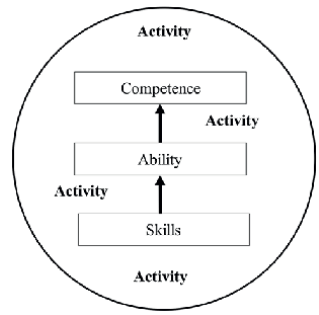

Figure 1.
Scheme of competence constructs. Following Frey [26].

3. This research

The objective of this research project is to investigate the extent to which methodological skills affect the successful completion of vocational training. In order to differentiate the impact of methodological skills from that of social skills, these are included in the regression model as control variables and presented in contrast. As the young people are still in training, this assessment is based on their self-reported interest and motivation to complete their training successfully. The actual completion of the apprenticeship could not be tracked within this research design due to the time period involved.

Research question 1: To what extent do men and women differ in their assessment of social and methodological competence?

Research question 2: How is methodological competence related to motivation and interest in completing the apprenticeship?

The following hypotheses are tested: Self-assessed social and methodological skills are higher in women than in men (H1). Higher methodological competence is related to higher interest and motivation among men (H2) and women (H3) to complete the apprenticeship.

3.1 Measures

The central explanatory variables of this work are social and methodological competence, which result from the model of transferable competences. They were measured using a self-assessment questionnaire (smk).

The self-assessment questionnaire consists of 72 items on individual skills, 6 of which can be assigned to an ability concept of the social competence class and 6 to the methodological competence class. The procedure is based on the assumption, as shown in **Table 1**, that competences can be structured and measured by ability concepts and ability concepts by skills [18].

For this research, the ability constructs of the methodological competence are taken completely from the model. Accordingly, the constructs autonomy, reflexivity, ability to analyze, flexibility and target-oriented behavior are used. The six items available for each ability construct are combined into the corresponding ability concepts by means of an additive-averaged sum score. Agreement with the items was rated on a six-point scale (0: strongly disagree to 5: strongly agree), whereby higher values for the ability concepts reflect a higher level of proficiency.

3.2 Data

The data was collected as part of a project (PraeLab) of the Federal Employment Agency between 2011 and 2018. The data set was cross-sectional, comprising one anonymous interview with young adults. The surveys were conducted at the participants' respective vocational schools throughout Germany (Convenience-Sample, [34]). The survey was embedded in an interview with the objective of uncovering and potentially advising on the tendency to drop out of vocational training. From the original data set comprising a total of 27,651 respondents, those engaged in a three-year vocational training course were selected for this research in order to enable a comparable degree of difficulty. After excluding cases from the list, a total of 16,893 cases (8960 women; 7879 men) remained. The data analysis was carried out using the statistical software SPSS 27.

Transferable Competences											
Social Competence					**Methodological Competence**						
Ability to cooperate	Social responsibility	Ability to deal with conflict	Ability to communicate	Helpfulness and empathy	Situation-appropriate behavior	Autonomy	Reflexivity	Ability to analyze	Flexibility	Target-oriented behavior	Working techniques
6 Items	6 Items	6 Items	6 Items	6 Items	6 Items	6 Items	6 Items	6 Items	6 Items	6 Items	6 Items

Table 1.
Structure of the online tool.

3.2.1 Self concepts

In order to compare the apprentices' assessments of their competences, a grouped boxplot was constructed for each of the two domains of competence: methodological and social. The resulting figures, presented in **Figure 2** for methodological competence and in **Figure 3** for social competence, respectively, depict the distribution of individual competence levels according to gender. Boxplots summarize a variety of descriptive statistics and provide an overview of the distribution of variables, in this case, the self-concepts. The box itself provides information on how the assessments of those variables are distributed across the scale. Longer boxes show a wider variance and greater heterogeneity in the information provided by the apprentices. The box range indicates the first and third quartiles, i.e. the values achieved by 25% and 75%, respectively. Outliers, i.e. single apprentices with a particularly low self-assessment that differs greatly from the rest of the sample, are indicated by dots. The whiskers represent the values that are typically observed outside the quartile limits. The median is indicated by a horizontal line within the box, while the mean value is represented by a cross so that a comprehensive overview of the self-concepts is provided by the graph.

With regard to the self-concepts of social and methodological competence, a comparable pattern can be observed graphically for both women and men. The boxplot illustrates that the apprentices rate their competences very well on average. A small number of outliers can be observed who have rated their self-concepts for the individual competences, particularly low (with mean values of self-concepts for social competence being higher than those for methodological competence).

The standard deviation for methodological competence, shown in **Table 2**, is slightly higher than for social competence across all variables, indicating large differences between the apprentices.

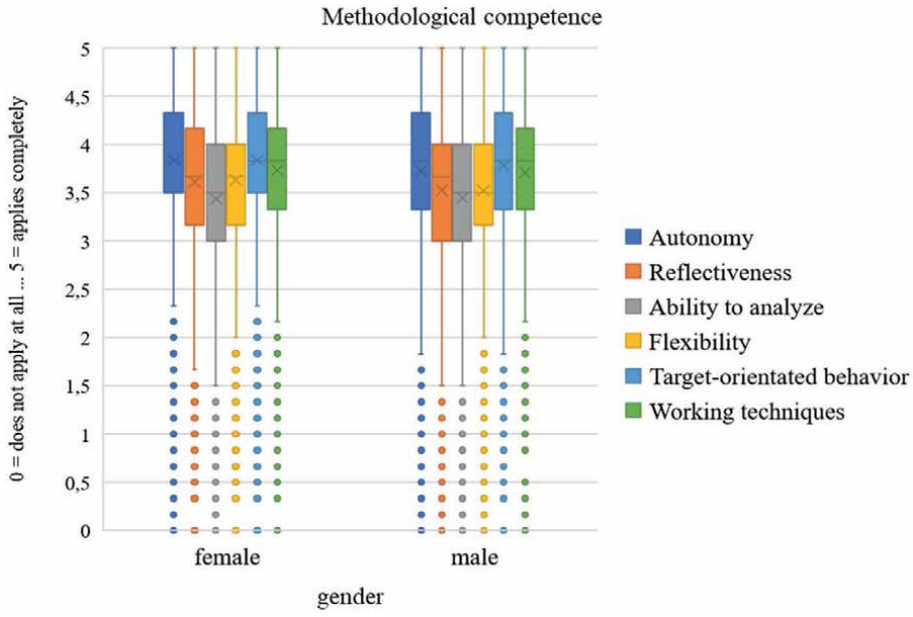

Figure 2.
Boxplot gender differences in methodological skills.

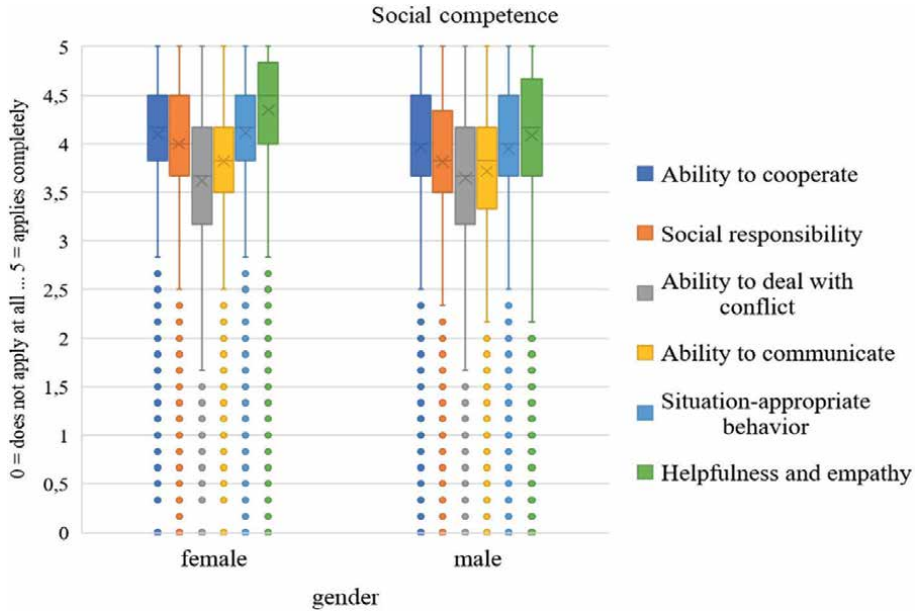

Figure 3.
Boxplot gender differences in social skills.

	Women N = 8960			Men N = 7879			Mean differences* Cohen's d
Variables (range)	**mean**	**SD**		**mean**	**SD**		
Expectation of successful apprenticeship							
Motivation and interest (0–3)	2.57	0.82		2.59	0.77		0.03
Assessment of social competence							
Ability to cooperate (0–5)	4.09	0.62		3.96	0.67		0.21
Social responsibility (0–5)	4.00	0.61		3.81	0.68		0.28
Ability to deal with conflict (0–5)	3.62	0.72		3.65	0.74		0.04
Ability to communicate (0–5)	3.82	0.59		3.71	0.66		0.17
Situation-appropriate behavior (0–5)	4.11	0.59		3.95	0.67		0.26
Helpfulness and empathy (0–5)	4.34	0.60		4.08	0.70		0.40
Assessment of methodological Competence							
Autonomy (0–5)	3.84	0.70		3.73	0.76		0.16
Reflectiveness (0–5)	3.61	0.73		3.53	0.77		0.11
Ability to analyze (0–5)	3.43	0.71		3.44	0.73		/
Flexibility (0–5)	3.63	0.65		3.52	0.70		0.16
Target-orientated behavior (0–5)	3.84	0.65		3.78	0.69		0.08
Working techniques (0–5)	3.74	0.65		3.71	0.69		0.04
Age	19.34	3.539		19.49	3.437		0.04
Year of apprenticeship (percentage)	**1st**	**2nd**	**3rd**	**1st**	**2nd**	**3rd**	
	93.9	5.1	1.0	92.0	6.9		1.1

**Two sample t-test significant at a value of 0.05, Cohen's d effect size.*

Table 2.
Descriptives.

3.2.2 Methodological competence

With the exception of flexibility, women achieve higher mean values compared to men for all abilities within the methodological competence. This difference in mean values is only not statistically significant with regard to the ability to analyze. The effect size indicates medium effects for autonomy and weak effects for the remaining methodological abilities. Cohen's d also indicates a medium effect size for the higher flexibility of men.

It is also noteworthy that both women and men consistently rate their methodological abilities with a scale value below 4 scale points. The standard deviation indicates greater differences between the apprentices. The apprentices rated their own autonomy (f = 3.84, m = 3.73), target-oriented behavior (f = 3.84, m = 3.78) and working techniques (f = 3.74, m = 3.71) best. The apprentices rate their ability to analyze the lowest (f = 3.43, m = 3.44) as shown in **Figure 2**.

3.2.3 Social competence

In terms of social competence, as shown in **Figure 3**, women achieve statistically significant higher mean values than men for all but one ability concept. With the exception of the ability to deal with conflict, the effect size indicates a pronounced gender difference in empathy (d = 0.40) and medium effects for the other gender differences within the social skills.

Empathy is also subjectively rated as the strongest social competence by the apprentices of both genders (f = 4.34, m = 4.08). Apprentices also rate their situation-appropriate behavior (f = 4.11, m = 3.95), their ability to cooperate (f = 4.09, m = 3.96) and their social responsibility (f = 4.00, m = 3.81) as good. The apprentices rated their ability to communicate (f = 3.82, m = 3.71) and their ability to deal with conflict (f = 3.62, m = 3.65) noticeably lower. Smk also surveyed motivational factors: "I have a lot of interest and motivation to complete my apprenticeship". The apprentices have a high level of subjective motivation and interest in successfully completing their vocational training (men M = 2.57; women M = 2.59). The gender difference is statistically significant (95% level), but the effect size (d = 0.03) is very low.

Socio-demographic information is also collected. The variable of gender, which is dichotomous (female and male), is specifically included in this research to analyze gender differences. The age of the apprentices is included in the analyses centered around the gender-specific mean (m: 19.49, SD = 3.44, f: 19.34, SD = 3.54). Additionally, the year in which the apprenticeship was completed at the time of the survey is also considered.

4. Results

A linear regression analysis using the Ordinary Least Squares (OLS) method is used to investigate the effect of methodological competence on successful vocational training. The dependent variable is the motivation/interest in successfully completing the apprenticeship.

Methodological and social competence are the central explanatory variables. Additionally, age and year of apprenticeship are also statistically controlled in order to reduce unobserved heterogeneity.

In each case, the reference category is a person who has a value of 0 for all remaining variables, i.e. has no other skills, corresponds to the average age and is in the first year of vocational training.

The results of the regression analysis are shown in **Table 3**.

For a better overview, the regression coefficients of the statistically significant effects are presented in **Figures 4** and **5** using a forest plot. The black dot shows the change in motivation when competence increases by one scale point. If the dots are on the left-hand side of the graph, this indicates a decrease in motivation; dots on the right-hand side indicate an increase. The gray whiskers show the confidence interval ($p < 0.05$).

"I have a lot of interest and motivation to successfully complete the apprenticeship."		
	Men	**Women**
Ability to analyze	−0.047** (0.022)	−0.073*** (0.022)
Working techniques	0.075*** (0.023)	0.080*** (0.023)
Flexibility	−0.011 (0.021)	−0.019 (0.022)
Reflectiveness	−0.062*** (0.018)	−0.030 (0.019)
Autonomy	0.110*** (0.019)	0.101*** (0.019)
Target-orientated behavior	0.020 (0.022)	0.057** (0.023)
Helpfulness and empathy	0.045*** (0.016)	0.036** (0.018)
Ability to communicate	−0.065*** (0.022)	−0.013 (0.023)
Ability to deal with conflict	0.033* (0.018)	0.001 (0.017)
Ability to cooperate	0.064*** (0.021)	−0.003 (0.022)
Situation-appropriate behavior	0.066*** (0.020)	0.089*** (0.022)
Social responsibility	0.057** (0.024)	0.052** (0.025)
Age centered around 19.34	0.008*** (0.002)	0.016*** (0.002)
Year of apprenticeship	−0.026 (0.026)	0.006 (0.029)
Constant	1.455*** (0.076)	1.422*** (0.090)
Observations	7,878	8,96
R^2	0.056	0.042

*Note:*p < 0.1; **p < 0.05; ***p < 0.01.*

Table 3.
Regression analysis gender differences in motivation.

4.1 Men

The constant model for men indicates that a male reference person already has 1.455 scale points for motivation and interest. The methodological competence is discussed first.

The ability to analyze shows a statistically negative effect for men, resulting in a reduction of interest in completing the apprenticeship by 0.047 ($p < 0.05$) scale points with an increase of one scale point. Furthermore, reflexivity (−0.062, $p < 0.01$) reduces the interest and motivation of men to complete their apprenticeship.

No statistically significant effect was observed for flexibility and target-oriented behavior.

All ability concepts in the social competence class, with the exception of the ability to communicate, have a statistically positive effect on the interest in completing the apprenticeship.

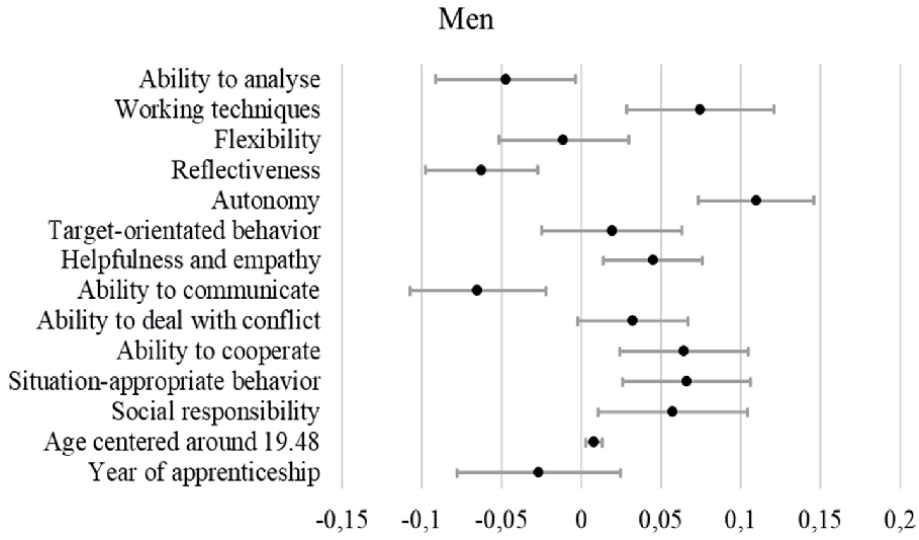

Figure 4.
Regression Analysis Men.

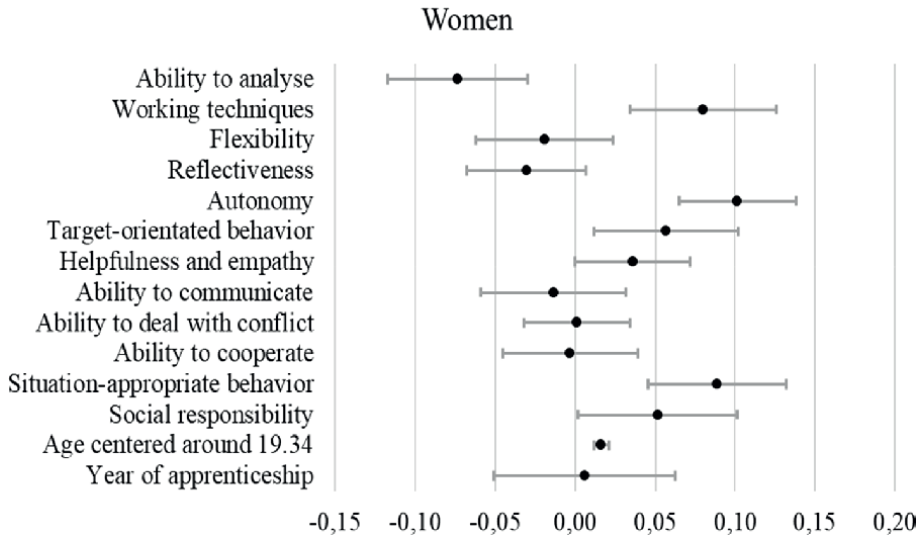

Figure 5.
Regression Analysis Women.

4.2 Women

Examining the model for women, the constant for a female reference person with 1.422 scale points for motivation and interest is below the initial level observed in the model for men.

The ability to analyze statistically significantly reduces the interest in completing the training by 0.073 scale points ($p < 0.01$). Working techniques (0.080, $p < 0.01$), autonomy (0.101, $p < 0.01$) and target-oriented behavior (0.057, $p < 0.05$) have been observed to increase the interest and motivation to complete the apprenticeship.

Flexibility and reflectiveness, as part of the methodological competence, show no significant effect.

In contrast to men, only empathy (0.036, $p < 0.05$), situation-appropriate behavior (0.089, $p < 0.01$) and social responsibility (0.052, $p < 0.05$) promote motivation in women. Other ability concepts of social competence are not statistically significant.

Within the socio-demographic factors, the same pattern emerges as for men. A higher age than the average age of all women surveyed increases motivation (0.016, $p < 0.01$). However, the year of apprenticeship has no significant effect.

With an R^2 of 0.056, the model explains a total of 5.6% of the variance of the dependent variable for men. For women, the model achieves 4.2% explained variance.

Accordingly, there are central gender-based differences in target-oriented behavior, which promotes interest in women but not in men. However, the results indicate that men derive greater benefit from the ability to deal with conflict and cooperate.

5. Summary

The analyses demonstrate that both methodological and social competence are important determinants for the interest and motivation to successfully complete the apprenticeship. In addition, the results indicate that the competence characteristics of men and women have different effects on apprenticeship success. It can be reported that hypothesis 1 is confirmed with regard to methodological competence and the ability to deal with conflict, with the exception of the ability to analyze: Women rate their social and methodological competence higher than men.

Hypothesis 2, that higher methodological competence promotes interest and motivation to complete the apprenticeship in men, is confirmed for working techniques and autonomy. For women, hypothesis 3 is also confirmed for target-oriented behavior, whereas the other skills show no significant or negative effect for either group.

6. Conclusions

Autonomy, target-oriented behavior and working techniques as a part of the methodological competence, which are statistically significant in promoting apprenticeship success, are also subjectively rated as the strongest skills by the apprentices. However, the descriptive results highlight the heterogeneity due to relatively large standard deviations and statistical outliers. The results indicate that male apprentices in particular benefit from higher social competence, specifically in the areas of the ability to deal with conflict and cooperate. Especially those apprentices who show deficits in these areas therefore need support geared towards these skills.

It must be considered that the operationalization of competences and ability concepts as well as their definitions vary in different studies. Both the survey procedure and the definition and operationalization of terms can lead to different results. This would be one possible explanation for the negative effect of the ability to communicate on the success of the apprenticeship in this study, although this ability represents a relevant success factor from the employer's perspective [32]. In addition, confounders that can influence competence and apprenticeship success must be considered. The literature shows that personality traits interact with each other in a complex way. As demonstrated by Schafer and Baeriswyl [35], the personality trait of extraversion has a negative impact on

educational success. Furthermore, Lang [15] posited that extraversion also significantly influences communication skills as measured by the smk items.

This, in turn, can be interpreted as a possible explanation for the negative effect of communication skills in men. In addition, both resilience and self-efficacy expectations are important determinants for a positive course of education, as a review study from Switzerland [36] shows.

At the same time, the interdependence of success factors in vocational education and training must be taken into account [36]. It is, therefore, important to offer support that compensates for a deficit in a specific area of the apprentice in order to ensure the success of the vocational training.

Various approaches are conceivable to promote the transferable competence development of apprentices. For example, companies can contribute to the sustainable promotion of transferable competences through innovative learning cultures and company structures, such as those implemented in a best practice example from Switzerland [37, 38]. Close involvement of apprentices in company projects fosters autonomy and reflectiveness as well as initiative, the ability to communicate and to work in a team, from which the management of one's own learning process can be derived as an important success factor for vocational training in an innovative learning environment. In this context, coaching can also be an effective approach to supporting apprentices in their development. This may be achieved by developing problem-solving strategies, addressing how to deal with their own mistakes, and promoting reflectiveness [38]. The study by Maag Merki [39] additionally suggests that the concept of a learning company is an important factor in the dissemination of transferable competences, depending upon the occupational field. The concept includes the opportunity to make autonomous decisions, cooperative behavior by supervisors and engaging activities as an integral part of the apprenticeship.

In conclusion, it is important to note that the provision of tailored support for apprentices in the dual system requires a comprehensive professionalization of the teaching staff at both learning venues so that both school teachers and contact persons in companies have the appropriate knowledge and skills to adequately address both social and methodological skills. The systematic development of transferable competence is a key factor in supporting motivation and interest in successfully completing an apprenticeship within the framework of the above-mentioned approaches.

Conflict of interest

The authors declare no conflict of interest.

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Author details

Silke Seyffer[1*], Melanie Hochmuth[2], Angela Ulrich[3], Alina Nadine Geßler[4] and Andreas Frey[1]

1 University of Applied Labour Studies, Mannheim, Germany

2 University of Bamberg, Bamberg, Germany

3 Institute for Employment Research, Nuremberg, Germany

4 Neu-Ulm University of Applied Sciences, Neu-Ulm, Germany

*Address all correspondence to: silke.seyffer@arbeitsagentur.de

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References

[1] Bundesinstitut für Berufsbildung [Federal Institute for Vocational Education and Training], editor. Datenreport Zum Berufsbildungsbericht 2024 [Data Report on the Vocational Education and Training Report 2024]: Informationen Und Analysen Zur Entwicklung der Beruflichen Bildung [Information and Analyses on the Development of Vocational Education and Training]. Bonn; 2024. Available from: https://www.bibb.de/datenreport/de/189191.php

[2] Nägele C, Stalder BE. Competence and the need for transferable skills. In: Mulder M, editor. Competence-Based Vocational and Professional Education: Bridging the Worlds of Work and Education. Cham: Springer; 2017. pp. 739-753. DOI: 10.1007/978-3-319-41713-4_34

[3] Cournoyer L, Fournier G, Masdonati J. Going Back-to-School in Vocational Education and Training: Introduction. IJRVET. 2017;**4**(3):196-205

[4] del Carmen Aguilar Rivera M, Gallego LV, Álvarez MÁ, Inchaurtieta ÁM, Albizuri IE, CYÁd E. Perceived employability and competence development. Procedia-Social and Behavioral Sciences. 2012;**69**:1191-1197

[5] Bennett R. Employers' demands for personal transferable skills in graduates: A content analysis of 1000 job advertisements and an associated empirical study. Journal of Vocational Education & Training. 2002;**54**(4):457-476

[6] Garavan TN, McGuire D. Competencies and workplace learning: Some reflections on the rhetoric and the reality. Journal of Workplace Learning. 2001;**13**(4):144-164. Available from: https://www.emerald.com/insight/content/doi/10.1108/13665620110391097/full/pdf

[7] Frey A, Balzer L. Einschätzungsbogen zu sozialen und methodischen Kompetenzen – smk72 [social and methodological competences assessment sheet - smk72]. In: Erpenbeck J, Rosenstiel L, Grote S, Sauter W, editors. Handbuch Kompetenzmessung [Competence Measurement Manual]: Erkennen, Verstehen Und Bewerten von Kompetenzen in der Betrieblichen, pädagogischen Und Psychologischen Praxis [Competences in Business, Pedagogical and Psychological Practice]. 3rd ed. Stuttgart: Schäffer-Poeschel; 2017. pp. 149-160. DOI: 10.34156/9783791035123-149

[8] Gessler M. Areas of learning: The shift towards work and competence orientation within the school-based vocational education in the German dual apprenticeship system. In: Mulder M, editor. Competence-Based Vocational and Professional Education. Cham: Springer International Publishing; 2017. pp. 695-717. DOI: 10.1007/978-3-319-41713-4_32

[9] Pastoors S. Berufliche Methodenkompetenzen [professional methodological competences]. In: Becker JH, Ebert H, Pastoors S, editors. Praxishandbuch Berufliche Schlüsselkompetenzen [Practical Handbook of Key Professional Competences]. Berlin, Heidelberg: Springer; 2018. pp. 71-80. DOI: 10.1007/978-3-622-54925-4_9

[10] Vom KK. Beruf Zur Employability? [from Profession to Employability?]: Zur Theorie Einer Pädagogik Des Erwerbs [on the Theory of a Pedagogy of

Acquisition]. Wiesbaden: VS Verlag für Sozialwissenschaften; 2006

[11] Frey A, Ertelt B-J, Balzer L. Erfassung und Prävention von Ausbildungsabbrüchen in der beruflichen Grundbildung in Europa: Aktueller stand und Perspektiven [identification and prevention of dropouts from apprenticeships in europe: Current status and perspectives]. In: Baumeler C, Ertelt B-J, Frey A, editors. Diagnostik Und Prävention von Ausbildungsabbrüchen in der Berufsbildung [Assessment and Prevention of Dropouts in Apprenticeships]. Landau: Empirische Pädagogik eV; 2012. pp. 11-60

[12] Gerli F, Bonesso S, Pizzi C. Boundaryless career and career success: The impact of emotional and social competencies. Frontiers in Psychology. 2015;**6**:1304

[13] Kinman G, Grant L. Exploring stress resilience in trainee social workers: The role of emotional and social competencies. British Journal of Social Work. 2011;**41**(2):261-275

[14] König M. Gesprächskompetenzen Auszubildender fördern [Promoting apprentices' Communication Skills]: Konzeption Und Wirkung Eines Lernarrangements in Einer Gewerblich-Technischen Berufsausbildung [Design and Impact of a Learning Arrangement in an Industrial-Technical Apprenticeship]. Vol. 54. Bielefeld: wbv; 2019. (Berufsbildung, Arbeit und Innovation)

[15] Lang D. Soziale Kompetenz Und Persönlichkeit: Zusammenhänge Zwischen Sozialer Kompetenz Und den Big Five der Persönlichkeit Bei Jungen Erwachsenen [Social Competence and Personality: Associations between Social Competence and the Big Five of Personality in Adolescents]. Landau: Empirische Pädagogik e.V; 2009. (PsychologieBd. 61)

[16] Rothland M. Soziale Kompetenz: Angehende Lehrkräfte, Ärzte und Juristen im Vergleich. Empirische Befunde zur Kompetenzausprägung und Kompetenzentwicklung im Rahmen des Studiums [social competence: Future teachers, physicians and lawyers in comparison. Empirical findings on the competences and competence development in the course of university studies]. Zeitschrift für Pädagogik. 2010;**56**(4):582-603

[17] Ulrich A, Wiench N, Frey A, Ruppert J-J. Gelingenskompetenzen in der dualen Berufsausbildung [success competencies in apprenticeships]. In: Freiling T, Conrads R, Müller-Osten A, Porath J, editors. Zukünftige Arbeitswelten [Future working environments]. Wiesbaden: Springer Fachmedien Wiesbaden; 2020. pp. 179-203. DOI: 10.1007/978-3-658-28263-9_9

[18] Frey A, Balzer L, Ruppert J-J. Transferable competences of young people with a high dropout risk in vocational training in Germany. International Journal for Educational and Vocational Guidance. 2014;**14**(1):119-134

[19] Frey A, Balzer L. Der Beurteilungsbogen smk: Ein Messverfahren für die Diagnose von sozialen und methodischen Fähigkeitskonzepten. In: Frey A, Jäger RS, Renold U, editors. Der Beurteilungsbogen smk: Ein Messverfahren für die Diagnose von sozialen und methodischen Fähigkeitskonzepten. Landau: Verlag Empirische Pädagogik; 2005. pp. 31-56

[20] Frey A. Methoden und Instrumente zur diagnose beruflicher Kompetenzen von Lehrkräften. Eine erste Standortbestimmung zu bereits

publizierten Instrumenten [methods and instruments for the diagnostic of teachers' professional competences. A first assessment of already published instruments]. In: Allemann-Ghionda C, Terhart E, editors. Kompetenzen und Kompetenzentwicklung von Lehrerinnen und Lehrern [Competences and competence development of teachers]. Weinheim u.a: Beltz; 2006. pp. 30-46

[21] Shavelson RJ, Hubner JJ, Stanton GC. Self-concept: Validation of construct interpretations. Review of Educational Research. 1976;**46**(3):407-441

[22] Das JW, Selbst. Das Mich und das Ich. In: James W, editor. Psychologie. Leipzig: Quelle & Meyer; 1909. pp. 174-216

[23] Möller J, Trautwein U. Selbstkonzept [Self Concept]. In: Wild E, Möller J, editors. Pädagogische Psychologie [Educational psychology]. 2. Aufl. 2015. vollst. überarb. u. aktualisierte. Berlin, Heidelberg, s.l.: Springer Berlin Heidelberg; 2015. pp. 177-199

[24] Krampen G. Fragebogen zu Kompetenz-und Kontrollüberzeugungen: (FKK) [Questionnaire on competence and control beliefs: (FKK)]. Göttingen: Hogrefe; 1991

[25] Gnahs D, Erwerb K, Erfassung I. 2. Auflage. Bielefeld: W. Bertelsmann Verlag GmbH & Co. KG; 2010. (Studientexte für Erwachsenenbildung). Available from: https://ebookcentral.proquest.com/lib/kxp/detail.action?docID=646988

[26] Frey A. Kompetenzstrukturen von Studierenden in der Ersten Und Zweiten Phase der Lehrerbildung [Competence Structures of Students in the First and Second Phase of Teacher Education]: Eine Nationale Und Internationale Standortbestimmung [a National and International Site Survey]. Landau: Verl. Empirische Pädagogik; 2008. (Erziehungswissenschaft; vol 23)

[27] Roth H. Pädagogische Anthropologie/Bd. 2 Entwicklung und Erziehung: Grundlagen einer Entwicklungspädagogik. Hannover: Hermann Schroedel Verlag KG; 1971

[28] Buckingham Shum S, Deakin CR. Learning dispositions and transferable competencies. In: Proceedings of the 2nd International Conference on Learning Analytics and Knowledge. New York, NY: ACM; 2012. pp. 92-101

[29] Hensge K, Lorig B, Schreiber D. Kompetenzstandards in der Berufsausbildung [Competence Standards in Vocational Training]. Bonn: Bundesinstitut für Berufsbildung (BIBB); 2009

[30] Erpenbeck J, Heyse V, Meynhardt T, Weinberg J. Die Kompetenzbiographie: Wege der Kompetenzentwicklung. 3. durchgesehene Auflage. Münster, New York: Waxmann; 2021. Available from: https://elibrary.utb.de/doi/book/10.31244/9783830989271

[31] Löfgren S, Ilomäki L, Toom A. Employer views on upper-secondary vocational graduate competences. Journal of Vocational Education & Training. 2020;**72**(3):435-460

[32] Marterer M, Härtel P. Anforderungen an EinsteigerInnen in Die Berufliche Bildung: Gefragte Kompetenzen Und Qualifikationen Zu Ausbildungsbeginn Aus Sicht Steirischer Unternehmen [Challenges for Apprenticeship Starters: Skills and Qualifications in Demand at the Start of the Apprenticeship from the Perspective of Styrian Companies]. Graz; 2017. Industriellenvereinigung Steiermark, WKO Steiermark, editors. Available

from: https://www.wko.at/stmk/bildung-lehre/anforderungen-einsteigerinnen-bildung-.pdf

[33] Krumm S, Mertin I, Dries C. Kompetenzmodelle [Competence models]. Göttingen: Hogrefe; 2012

[34] Lavrakas PJ. Encyclopedia of Survey Research Methods. Thousand Oaks, Calif: SAGE Publications; 2008. Available from: http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=474384

[35] Schafer Y, Baeriswyl F. Erfolg in der Berufsbildung [success in vocational training]. In: Häfeli K, Neuenschwander MP, Schumann S, editors. Berufliche Passagen Im Lebenslauf. Berufsbildungs- Und Transitionsforschung in der Schweiz [Vocational Trajectories in the Life Course. Vocational Education and Transition Research in Switzerland]. Wiesbaden: Springer VS; 2015. pp. 127-160. DOI: 10.1007/978-3-658-10094-0_6

[36] Häfeli K, Schellenberg C. Erfolgsfaktoren in der Berufsausbildung bei gefährdeten Jugendlichen [Success factors in apprenticeship for adolescents identified as being at risk]. Bern: Studien + Berichte 29 A; 2009. Available from: https://www.hfh.ch/fileadmin/files/documents/Dokumente_FE/B.12_Haefeli_Schellenberg_2009_Bericht_Erfolgsfaktoren_d.pdf [Accessed: October 21, 2020]

[37] Barabasch A, Keller A. Innovative learning cultures in VET – 'I generate my own projects'. Journal of Vocational Education & Training. 2020;**72**(4):536-554

[38] Barabasch A, Caldart D, Keller A. 'What can I already do well today?' Competence development in innovative learning cultures. Journal of Vocational, Adult and Continuing Education and Training. 2019;**2**(2):1-22

[39] Maag MK. Überfachliche Kompetenzen als Ziele beruflicher Bildung im betrieblichen Alltag [transferable competences as objectives of vocational education in day-to-day work]. Zeitschrift für Pädagogik. 2004;**50**(2):202-222

Section 2

Practical Skills and Work Experience

Chapter 5

Industry Placements: Planning, Practice, Performance

Mary T. Grant

Abstract

Presenting one's capability to prospective employers can be daunting and unfamiliar to new graduates. Employers' perceptions of graduate requirements for the workplace and how they influence course discipline provision in higher education should be a major consideration of graduate transition to the workplace. Development of employability for pre-qualified students should be gradual, offer a mix of related activities, tools and support, and be delivered across each year level of a course discipline. Industry placements are best positioned centrally in the quest to developing employability, following extensive planning and an exploration of industry and the individual. As such, the practice that occurs throughout industry placements will allow students to gain experiential learning and a strong foundation from which to self-market their performance and signal their employability to prospective workplace employers.

Keywords: industry placement, experiential learning, higher education, employers, graduate employability, employability signalling

1. Introduction

The term 'employable graduate' is synonymous with an awareness of industry requirements, self-awareness, adaptability, practice and self-marketing [1]. In higher education, graduate attributes or capabilities are the skills and knowledge that are necessary for students to demonstrate confidence, competition and work readiness within respective industry disciplines [2]. Industry experiences, which involve applied learning in the workplace related to a course discipline, are instrumental in providing the foundation from which to foster the transfer of knowledge, skills, and attributes, and to strengthen graduate capability [3]. Not surprising is that experiential learning becomes an assumed outcome of all industry experiences from which students can convert to employability signalling.

This chapter explores industry placements with a focus on planning, practice and performance following a cyclical approach to applying discipline theory into practice while developing graduate employability [4]. In doing so, a promotion of how higher education and industry can align their perceptions of industry requirements, is shared. Guidance is presented, in reference to these phases, that identify the individual constituents essential to working within specific industry disciplines and to developing and signalling employability from experiential

learning [4]. To conclude, a range of suggested tools and activities are assigned to individualise and enhance learning and collaborative efforts.

2. Industry placements

It is not an uncommon assumption by industry employers to expect graduates from their discipline to have the requisite skills, knowledge, attributes and related competencies to undertake a strong organisational fit. Often, the expectation stems from the belief that a university education will equip prospective graduate employees with employability skills essential to performing their jobs [5]. Despite these assumptions, the reality is that many employers find that graduates lack the requirements for employment in their industry discipline. Knowledge relating to the tasks and roles and industry standards are often not clearly and consistently defined which can affect the shaping of a student's expectation of the industry with reality and potentially influence occupational choice [6]. Influential is the experiential learning from practical experiences whereby knowledge is created from an ability to understand an experience, and to demonstrate learning through application.

In this chapter, industry placements/internships are referred to as "linking theory with practice by providing regular, structured and supervised opportunities for students to apply and test knowledge, skills and attitudes, developed largely in campus-based studies, to the real world" [7]. Placements undertaken in the workplace that provide informal, relative, and interactive (social) learning environments, make significant contributions to the individual learning process and professional development. The Graduate Employability Cycle of Learning [4] framework (**Figure 1**)

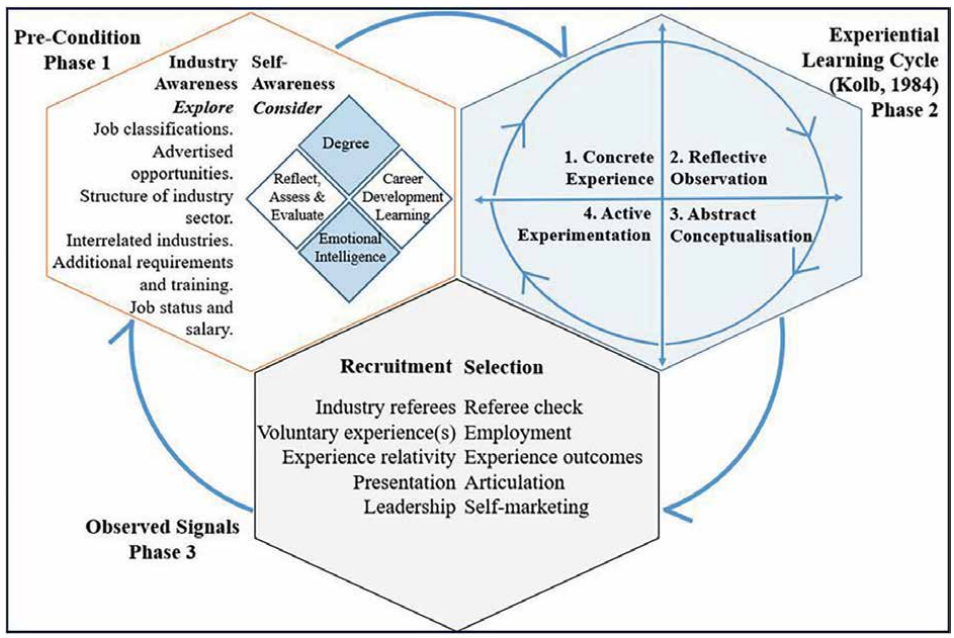

Figure 1.
Graduate employability cycle of learning [4].

focuses on the continuous learning about the industry, self and the workplace, while centralising practical experience as the foundation from which experiential learning occurs and can be transformed into graduate employability. Embedding industry placements into the learning process provides an investment to develop graduate employability across all year levels of a course discipline through planning, practice and performance.

2.1 Planning: A pre-condition to industry placement

Planning for industry placements is not unlike the preparation that is required to complete examinations and assessments. Students must understand and apply theoretical concepts and discipline knowledge; for industry placements these are applied in a workplace/practical setting. The workplace setting naturally introduces a new set of informal, contextual, and social factors relating to communication, navigation of workplace systems and processes, operations, and codes of ethics, to name a few [8]. Complementing an awareness of these factors is an understanding by students of who they are as individuals, what they are good at, where their interests lie and their point of difference. Each is fundamental when applying discipline knowledge in a practical setting. Essentially, having an industry and self-awareness are principal, pre-condition components to preparing for an industry placement [6].

2.1.1 Industry awareness

Distinct factors characterise the complexities of each industry discipline. How these are depicted by students relies on the transparency of an industry and how it may influence a student's expected career satisfaction and ability to make sound career decisions. The following identifies the six Industry Awareness Factors that have been recognised as significant to distinguish in terms of an industry discipline and how they can assist students to prepare for an industry placement [6]. The Industry Awareness Factors are job classifications; advertised employment; structure of industry sector; interrelated industries; additional requirements and training; and job status and salary [6].

Job classifications: The associated role functions that are characteristically implemented within an industry discipline, would be the best definition for job classifications. Many industry disciplines have their own set of job classifications to identify the broad functions of related industry roles. In the discipline of sport management, there is no formal set of job classifications, however, from research, the following six job classifications represent the sport management discipline: Administration/Finance/Operations; Coaching/High Performance; Customer/Membership/Athlete Services; Development/Participation/Programs; Events/Competitions; and Marketing/Media/PR/Communications [6], and the skill sets related to the specific roles that typify the industry discipline. These six job classifications represent broad role functions that relate to most industry disciplines and enable students to gauge the breadth and range of role opportunities within an industry discipline [6]. For example, the Events/Competitions classification could refer to any industry which conducts events including conferences and brand launches, and 'competitions' could relate to awards, from which applicants competing against one another, are selected to be 'crowned' a winner.

Advertised opportunities: Attracting suitable job candidates is the purpose of job advertisements in any industry discipline. It takes multiple staff to identify the gaps in skills, experience, knowledge and the mix of personalities that are present in a workplace. Job advertisements typically provide a generous mix of information about the organisation, demographics, clients, specific tasks, line of reporting, and the essential and desirable selection criteria to attract the ideal applicant. The job advertisement, coupled with an organisation website search, provides an ideal base for students to not only prepare for prospective employment, but for industry placements where the student will interact within the workplace. In addition, the advertisement content and the title of the role will provide an indication of whether the position is an 'entry-level' position, often the most suitable for new graduates [6].

Structure of industry sector: Characterising the structure of any industry sector requires consideration of a number of elements. Typically, identification of the range of job roles offered, services provided, facilities and resources available, target groups, and group demographics, are basic considerations. These are important when breaking down industry sectors and determining good student 'fit'. For example, "a desire to work in the construction industry sector" is a very broad statement considering the number of sectors within construction, not limited to, residential housing, commercial, specialised industrial, and heavy construction. Each covers an extensive range of services and corresponding job roles, from planning (project manager) and design (architect) to physical structure construction (builder), then to the finishing touches (painter and decorator). The illustration of workplace context variations in respective industry disciplines is important to shaping the industry landscape from which students can consider when making career choices. Essentially, practical experience undertaken through industry placements is the vehicle that can foster an awareness of the structure of an industry sector from the experiential learning that occurs outside the classroom [1].

Interrelated industries: Every experience contains a learning element, no matter how small. Student recognition of interrelated industry experiences that develop relative, transferable skills and attributes, often become a point of difference [6]. For example, a health promotions officer role in the health sector, would assume skills and attributes that can be transferred to a sports development role. Employers seek potential graduates who have a mix of values, behaviours, and who can develop and transform their capabilities from a basic to proficient level while contributing to the workplace. The combination of generic and specific competencies strengthens graduate employability, particularly given the rapid transformation of industries to address technological advancements [9].

Additional requirements and training: In a similar vein to interrelated industries, having additional qualifications, requirements or training are elements that can indicate a point of difference to employers. More specifically, job candidates who have obtained additional qualifications or workplace requirements and/or training, will often demonstrate that they understand their role, clients and stakeholders by recognising and addressing industry and workplace training requirements [6]. For example, in physical sporting contexts, designated staff (coaches, event managers) may be required to have basic first aid and cardiopulmonary resuscitation (CPR). Additional training in this context may be a Level 1 or a Level 2 Sports Trainer certificate which are training courses that have been specifically designed for application in sporting contexts in the management of sporting injuries. As such, the significance of basic and additional training and certifications such as these in sporting contexts that attract large groups of people, contribute to addressing occupational health and safety policies and to reducing workplace safety risk [10].

Job status and salary: There are many factors that can influence a graduate's career choice and attraction to work in a specific industry discipline. Job status, in terms of job time fractions (e.g. part time), and expected salary range, are two such factors, typically referred to in job descriptions for advertised roles. The attraction to available time fractions can vary depending on the circumstances of the individual, while earning potential and opportunities for job advancement are long term considerations [6]. Both are important factors that are influential on the career pathway choices and perceived expected satisfaction of graduates strengthening the importance of knowing the structure of an industry discipline.

2.1.2 Self-awareness

The process of navigating the distinguishing factors of an industry discipline will innately identify how well we are suited to the workplace and to various, associated roles. It's the thinking, feeling and 'being' components of an individual that sets them apart from others within the workplace. The following identifies the four Self-Awareness Factors that have been recognised as essential to preparing for an industry placement in terms of performance. The Self-Awareness Factors are degree knowledge, skills, and application; emotional intelligence; career development learning; and reflect, assess, and evaluate [6].

Degree, knowledge, skills and application: Gaining the technical knowledge and skills associated with a degree are essential to gaining employment in respective workplaces. Equally important is the self-awareness required to apply the knowledge and skills in a practical setting to heighten an awareness of workplace operations and the requisite knowledge and skills to allow students to contribute to the workplace [6]. Having the degree knowledge is an employer expectation; having the ability to spontaneously apply while engaging clients and colleagues in the workplace is a necessity.

Career development learning: Learning, in relation to an individual's career development is subjective and not targeted to a specific industry discipline. Notably, career development learning requires self-awareness to navigate the working environment, establish the requisite skills to transition into the workplace, and essentially, to fulfil a satisfying career. Experiential learning from industry placements promotes a connection between subjective learning and an ability to create career opportunities through decision-making and the application of experiential learning beyond the degree [11].

Emotional intelligence: A strong connection exists between emotional intelligence and employability. Emotional intelligence is a type of social intelligence that allows an individual to monitor their own and others' emotions while transferring the information to guide their thinking and actions [12]. Emotion is evident in the learning process and is presented in multiple contexts, when completing examinations, homework, and meeting deadlines, shaping each unique, learning experience. It is important for the learner [students] to recognise the association of emotion to learning and how they can become attuned to their emotion to strengthen their individual learning experiences and the notion of what it means to be employable.

Reflect, assess and evaluate: Learning from lived experiences in work, study or life, and applying improvements or generating new ideas, are outcomes of reflection, assessment and evaluation. In preparation for industry placements, these actions are significant for students to navigate the workplace and to recognise workplace requirements and potential 'fit' to an industry discipline. When implemented in a practical workplace setting, these actions are instrumental in assisting students to develop social awareness in organisational contexts involving an ability to gauge situations

accurately, free from bias, emotion or assumption [8]. Essentially, through reflection, assessment and evaluation, students will be equipped to make informed career choices.

2.2 Practice: Experiential learning

It is no surprise that practical experiences are highly sought by employers of all applicants including new graduates. In particular, of the notion that practice promotes experiential learning which occurs when knowledge is created through the transformation of practice or an experience [13]. Naturally, a positive association between industry placement and employability exists and is fostered when the learning environment allows practice to be informal, relative and interactive (social) [8]. The Experiential Learning Cycle (Kolb 1984) [13] is illustrated by a four-stage cycle of experiencing (Concrete Experience), reflecting (Reflective Observation), thinking (Abstract Conceptualisation), and acting (Active Experimentation) to promote the best learning and student outcomes. As recognised by the Graduate Employability Cycle of Learning [4], preparation is key to 'practice' to generate optimal learning from industry placements. In terms of employability, a number of industry placement considerations are outlined according to where they would occur or develop within the four stages of the Experiential Learning Cycle [4]. Demonstrating these considerations to prospective employers during job recruitment and selection would occur through presentation: signalling employability and will be outlined in the next section of this chapter.

Experiencing ("doing"): Practical experiences gained from industry placements are likely to produce work-ready, motivated and committed students who can apply their course discipline knowledge, skills and attributes to the workplace. Of note, are student considerations relating to potential referees, application of theory to practice, their performance, and a demonstrated commitment to industry [1]. Each relate to a student's prospective employability and overt demonstration of capability, which is why a student's preparation and approach to practical experience is significant. Preparation for industry placements (or general practical experience) is outlined in the preparation section above. Fundamentally, treating every experience as an extended job interview is a sensible approach. More specifically, providing workplace supervisors and prospective referees a forum to observe students in the workplace and to recognise the individual skills and attributes that are not assessable during job recruitment and selection.

Reflecting: Prior to reflecting, goal setting should technically occur in the preparation phase before undertaking an industry placement to enable specific achievement of desired placement outcomes. Having set industry placement goals encourages evaluative thinking through reflective practice; both are essential to fostering individual growth and development. Industry placement reflection is an ongoing practice that should occur throughout the experience to capture experiential learning as it occurs, to provide examples of evidence of capability when preparing and performing in a job interview. Typical reflective considerations include relating industry experiences with a job's requirements and to recognising industry placement [goal] outcomes [1].

Thinking: Interpreting practical experiences to address the requirements of an advertised job role highlights the process of making sense or translating an experience to articulate the learning that has occurred and its relevance to industry roles. Communicating that learning has occurred requires an ability to relate and to

articulate the learning. In other words, providing relatable examples in a job interview, for example, and verbally and visually articulating information through written job applications and in job interviews [1]. Attention to building a bank of examples on an ongoing basis throughout an industry placement would follow reflection of an experience.

Acting: The final part of the practice cycle is for the individual to actively exhibit an ability to adopt new knowledge and skills to make decisions and solve problems to enhance their employability. These actions involve demonstration of leadership in being able to take accountability and make decisions; and to self-market and present a point of difference through exhibiting a commitment to solve problems [1]. These considerations must occur throughout an industry placement to ensure that the result or outcome from making decisions and taking action to solve problems are procured before placement completion, to enhance a point of difference.

2.3 Presentation: Signalling employability

Basic employability skills are the fundamental criteria sought by industry employers of job applicants [5]. Attracting suitable applicants through job recruitment and selection processes provides employers with a basis from which to navigate the talent pool of graduate applicants. While many organisations rely on their business reputation or professional brand to recruit strong applicants, graduate applicants may base their work-related motivations and an awareness of industry employment opportunities to determine their interest and best job fit.

Assessing a job applicant against job criteria to determine whether they are employable or the best candidate for the role is not an easy task. The knowledge, skills and attributes of job applicants are not directly observable from evidence provided in a written job application or from an interview during job recruitment and selection. Hence, the experiential learning and professional development gained from industry placements can be identified within the various stages of each practical experience and presented as observable employability signals.

2.3.1 Signalling employability: Indicators

It takes a combination of indicators to present as an employable graduate. How these indicators are presented can determine the transparency of the message received by prospective employers. The following 10 Observed [employability] Signals [4] have been identified from employability research and recognises how these can assist students to transparently signal their employability to prospective employers during job recruitment and selection. Each Observed Signal is comprised of multiple indicators [4] to add depth to why each signal is so significant and how they relate to practical experiences in general and through industry placements. In addition, each address one or more of the eight basic skills to employability: basic literacy and numeracy; critical thinking; leadership; management; interpersonal; information technology; systems thinking; and work ethic [5].

The 10 Observed Signals and Indicators [1] are as follows:

1. *Experienced industry referees:* In preparation for job applications, careful forethought of industry referee selection is crucial. It is obvious that referee choices should include individuals who have worked with the graduate applicant, in a paid or voluntary capacity, in either a managerial or higher position level

[than the applicant] and is someone who will speak positively of the applicant. Essentially, considerations of industry referees should delve deeper than simply putting down a referee name. Explicitly, the signal indicators include experienced referees with a positive industry reputation, and ultimately, are individuals who recognise applicant [employability] capabilities [1]. Selecting experienced referees who have had years of working experience in a respective industry discipline would suggest that in the workplace, the referee has mentored the applicant throughout their practical experience. Such industry referees who have established a positive industry reputation over a number of years would not likely act as a referee for applicants they would not recommend for a job. It is also a common occurrence for a hiring employer familiar with the experienced referee, to call them ahead of shortlisting applicants to find out more about the applicant than their written application divulges.

2. *Referee check: alignment of applicant and referee:* The referee check is a sound process whereby a referee can directly relay a graduate applicant's capability to the hiring employer. Indicators of the referee check signal include, the direct observations made by referees of the applicant over an extended period, to determine the applicant's motivations, work ethic, skills and ability, and the guidance a referee provides throughout the experience [1]. Referee observations of the applicant over an extended period allows the depth of an applicant's capability to be relayed in the referee check to provide context to the application and against required job criteria. In addition, information from these checks can increase the accuracy of applicant assessments by the hiring employer than the comparatively short job recruitment and selection process would allow. Equally beneficial is the selection of referees who undertake a similar role than that of the hiring manager, signalling the working relationship and alignment of the referee and the applicant, in terms of mentored discussions and preparation for the industry workplace.

3. *Voluntary experience(s):* Multiple benefits are associated with undertaking voluntary experiences. The indicators that comprise this signal are related to the motivations and commitment of the graduate applicant to these experiences; an understanding of how volunteering contributes to communities; and an established understanding of how organisations operate [1]. For example, an applicant who has been committed to volunteering at an organisation for a long period of time is likely to suggest that the applicant can commit to working in an organisation for the long term. Voluntary experiences provide optimal opportunities for an applicant to develop an understanding of workplace operations, structure, and an application of systems thinking (understand and operate within social, organisational, and technological systems). Such experiences also produce a wealth of examples as evidence for applicants to showcase their capabilities.

4. *Unpaid experience: pathway to employment:* The learning associated with unpaid experiences extends to paving a pathway to prospective employment. The signal indicators relate to graduate applicants who can demonstrate, from their practical experiences, their understanding of the industry discipline; realistic expectations of industry associated roles and workplaces; their work ethic, criti-

cal thinking, and overall performance [1]. Gaining realistic expectations of an industry discipline typically form from exposure to a variety of practical experiences where industry discipline knowledge and critical thinking can be applied, and informed career decisions made. Gained experiences act as a pathway to employment in terms of a graduate's ability to recognise their own skills, performance and capabilities and their potential job suitability, based on their experiential learning in a given industry discipline.

5. *Practical experience related to an advertised role:* Opportunities to engage in practical experiences that relate to an advertised industry produces multiple benefits. Specifically, indicators associated with a graduate applicant's recognition and articulation of transferable skills from prior experiences from any industry; related skills, attributes and knowledge; and ability to showcase these using all forms of communication and critical thinking [1]. All indicators present a sense of familiarity to advertised roles, in the sense that the applicant has performed a similar role in the past in the same industry discipline, or within a different industry discipline but have applied the same skills.

6. *Practical experience outcomes:* Realising practical experience outcomes is as significant as recognising when goals have been achieved. The outcomes from practical experiences contribute to the experiential learning process. The indictors that comprise this signal include an applicant's ability to stipulate the outcomes that have occurred; demonstrate an appreciation of the industry workplace and a confirmed desire to work within the industry discipline; and an attraction to specific job roles [1]. Demonstration of the above indicators suggest that graduate applicants who recognise practical experience learning outcomes and their contributions to those involved, have the capacity to think critically. Subsequently, critical thinking forms part of an applicant's learning, reflection and evaluation and are key to developing self-awareness and employability. An ability to capture how far the individual has come from commencing and finishing an industry placement or practical experience, to achieving outcomes, is enabled through self-reflection. Ultimately, realising practical experience outcomes can highlight job satisfaction and a provide confirmation to pursuing a career within the industry discipline.

7. *Presentation:* Showcasing the experiential learning that has occurred from practical experiences must be apparent to a prospective employer. Indicators of this signal include graduate applicants who can use all forms of communication to enunciate their capability; engage through visually appealing written documentation; and through verbal presentation delivery [1]. Each demand an ability to generate a positive first impression to the hiring employer. Accuracy of written documentation and visual appeal typically suggest that the applicant pays attention to detail, and through a cohesive structure can highlight, upfront, that the advertisement criteria has been addressed. Not only does organised and structured written documentation provide a tool for self-promotion, but it can enable a swift assessment by employers on whether to shortlist the applicant. Strong verbal presentations can portray applicants with intrapersonal skills and leadership traits, such as an ability to maintain and nurture business relationships [1].

8. *Articulation (content):* Distinguishing an applicant's point of difference is a significant outcome of articulation (content). The indicators that define the signal articulation, include communication shared via experience stories that relate to the advertised role; highlighting the extent of the applicant's participation and contribution within the organisation; and associated confidence [1]. Storytelling provides a powerful approach to connecting an experience with an advertised role, and when executed effectively, can highlight graduate applicant contributions to the workplace, level of responsibility, and evidence of their working relationships. Clear articulation of previous roles including how an applicant worked in a team, whether they managed volunteers, or their level of involvement in project outcomes, can provide prospective employers with a perspective of applicant performance and working confidence. Typically, these capabilities cannot be learned in the classroom and without articulation, are difficult to assess.

9. *Leadership attributes:* Development of leadership attributes can occur in a range of settings. Typically for higher education students, these are developed at university and community social events, through voluntary opportunities, from paid work, and from extra-curricular activity including sport. The indicators of this signal relate to the applicant seeking and gaining voluntary experiences and building new networks; workplace situations which highlight displays of initiative, motivation and decision-making; and responsibility to undertake basic and higher level tasks [1]. For example, graduate applicants who are motivated and proactive to seek new opportunities and tasks to adopt their skills and make decisions to assist others, display leadership attributes. Emotional intelligence and leadership are evident in workplace scenarios where the applicant motivates others, contributes to a team, listens to others and attempt to resolve conflicts; each are highly desirable in any workplace discipline.

10. *Self-marketing:* Industry placements and other industry-based practical experiences provide individuals with opportunities to gain knowledge, skills, attributes via hands-on experiences. Sharing the experiential learning gains requires an ability to self-market. The indicators relating to this signal include using examples as evidence of ability; highlighting outcomes gained for the organisation and clients; translating applicant ability using various communication methods; matching ability to the role; knowing their point of difference and personal brand [1]. Self-marketing is evident in a number of ways. Using examples to evidence ability are critical to marketing the depth, range, individual performance, and outcomes of the practical experiences undertaken. Accompanying attributes to strengthen these examples are demonstrating motivations to participate in extra-curricular activities and the level of commitment and leadership in doing so. An ability to critically reflect is essential to transform gained experience and knowledge into new learning and an exploration of outcomes for the organisation and clients. Developing the link between professional knowledge and skill application within workplace contexts produces insight into a graduate's fit within an organisation and to performing tasks. The crescendo of self-marketing is establishing a point of difference and the foundations of a personal brand that,

when translated by a potential employer, demonstrates why the applicant is the best person for the job and the organisation.

3. Where to from here: Tools and activities

Planning, practice and performance provide a foundation from which to build graduate employability throughout a higher education course discipline. Industry placements provide significance in terms of the experiential learning and professional development that can be used to signal graduate employability. In addition, increased collaborations and connectedness between higher education and industry discipline employers can inspire innovative program development, achieve mutual goals, address respective perceived skill requirements and their alignment across the relevant higher education and industry disciplines.

In this section, suggested tools and activities are recommended to assist higher education faculties and industry to collaboratively build graduate employability across industry disciplines. Such tools and activities can be used to prepare students to undertake industry placement, gain practical experiences, from which they transfer their experiential learning and professional practice into observable employability signals.

3.1 Planning: Tools and activities

Preparing students to undertake an industry placement requires much planning, exploration and consideration to ensure that they can make the most of their experience to foster their own professional development. The following tools and activities in **Table 1** are suggestions for higher education faculty staff to guide their student cohort to explore the respective industry discipline and their individual

Planning/preparation for industry placements (industry awareness & self-awareness)	
Tools (access):	Activities (conduct/create):
• Job descriptions	• Informational Interviews (industry professionals)
• Job search sites	• Case studies – alumni success stories
• Job skills reports	• Industry guest speakers (including alumni)
• Market research reports	• Research projects with industry collaboration
• Business reports	• Student events with Industry representatives
• Organisation websites	• Assessments with, or involving industry
• Industry/Governing body websites	• Competency assessment/evaluations
• Self-assessment tools e.g. card sorts	• LinkedIn Learning modules
	• Career development learning modules
	• Career development portfolios
	• Personal Branding portfolios

Table 1.
Tools and activities: Pre-Condition Phase 1.

self-awareness. These tools and activities aim to support the preparation of students to undertake industry practical experiences and address the Pre-Condition Phase 1 from the Graduate Employability Cycle of Learning [4].

3.2 Practice: Tools and activities

Industry placements provide opportunities for students to apply theory into practice and to exercise their professional skills. Quality industry placements are those which foster collaborations and connectedness between higher education and industry discipline employers to build graduate employability throughout a course of study. **Table 2** lists tools and activities suggestions for faculties and industry to collaboratively build the professionalism and employability of student cohorts while addressing the Experiential Learning Phase 2 from the Graduate Employability Cycle of Learning [4].

Practice during industry placements (experiential learning)	
Tools (access):	Activities (conduct/create):
• Industry placement supervision guidelines • Supervisor feedback surveys • Competence assessments [projects and placements] • Job/projects board (industry opportunities) • Industry profession videos [pathways] • Data on student employment outcomes [placement/ projects] • Industry report on placement/ project outcomes • Student employment/voluntary role gains (data) • Career and skills strengths portfolio	• Placement visits [feedback] • Identification of suitable supervisors/mentors [placements/ projects] • Industry network events • Speed networking activity • Information relating to referee roles, ongoing correspondence with, and maintaining referees • Industry seminars • Career sessions/forums • Alumni presentations • Informational interviews • Critical reflection tasks including student placement and project outcomes and Graduate employability attainment • Job description dissection/Writing job application tasks • Mock job interviews; Preparation of STAR responses • Case studies – application of knowledge, skills and attributes • Competency assessment tasks including workplace technologies and systems • Classroom discussion/exploration of workplace leadership examples • Personal brand activity

Table 2.
Tools and activities: Experiential Learning Cycle Phase 2.

3.3 Performance: Tools and activities

The experiential learning gained from industry placements provide students with an opportunity to apply their theoretical knowledge into practice and to exercise their professional skills. The following tools and activities in **Table 3** are suggestions for faculties and industry to enable students to convert their experiential learning into

Performance outcomes from industry placements (signalling)	
Tools (access):	Activities (conduct/create):
• Job descriptions – thorough, distinguish function, indicate appropriate job classification, salary, and specify additional requirements and training, including length of prior experience • Conduct inductions and OHS training • Supervisor feedback surveys • Competence assessments [projects and placements] • Industry profession videos interviews [pathways] • Collect and share data on student employment outcomes [placement/ projects] • Industry report on placement/project outcomes	• Host students for practical experiences and identify suitable supervisors/mentors [placements/projects] • Provide students with a range of practical experiences to explore and exercise the multitude of employability skills applied in the workplace • Align practical experience opportunities with employment outcomes • Attendance at industry network events • Attendance/presentation at industry seminars or career sessions/forums • Alumni presentations/stay connected • Participation in informational interviews • Preparation of case studies • Competency assessment tasks including workplace technologies and systems • Provision of workplace leadership example

Table 3.
Tools and activities: Observed Signals Phase 3.

observable employability signals. Prompting students to build examples as evidence of their ability and knowing how to self-market their capabilities are fundamental to signalling employability to prospective employers and address the Observed Signals Phase 3 from the Graduate Employability Cycle of Learning [4].

4. Conclusion

Course discipline learning occurs in a range of contexts with varying effects on student expectations of the respective industry discipline. Industry placements, completed in the workplace and outside of the classroom, provide an opportunity to apply theory to practice while facilitating learning within a specific industry discipline. The theme planning, practice and performance promotes industry placements as central to disciplinary learning and focuses on these to building graduate employability. In doing so, it promotes how higher education and industry can align their perceptions of industry requirements and work together to ensure that industry placements can produce the foundation from which students can build and signal their employability.

Conflict of interest

The author declares no conflict of interest.

Author details

Mary T. Grant
La Trobe University, Melbourne, Australia

*Address all correspondence to: m.grant@latrobe.edu.au

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References

[1] Grant MT, Hanlon C, Young JA. Transforming the experiential learning of sport management graduates into transferable employability signals. Journal of Education and Work. 2024;**37**:1-18. DOI: 10.1080/13639080.2024.2335474

[2] de St J, Jorre T, Oliver B. Want students to engage? Contextualise graduate learning outcomes and assess for employability. Higher Education Research & Development. 2018;**37**(1):44-57. DOI: 10.1080/07294360.2017.1339183

[3] Brown C, Willett J, Goldfine R, Goldfine B. Sport management internships: Recommendations for improving upon experiential learning. Journal of Hospitality, Leisure, Sport & Tourism Education. 2018;**22**:75-81. DOI: 10.1016/j.jhlste.2018.02.001

[4] Grant M, Hanlon C, Young JA. The graduate employability cycle of learning: Preparation, practice, and presentation. Journal of Teaching and Learning for Graduate Employability. 2024;**15**(1): 255-275. Available from: https://ojs.deakin.edu.au/index.php/jtlge/article/view/1944

[5] Rosenberg S, Heimler R, Morote ES. Basic employability skills: A triangular design approach. Education + Training. 2012;**54**(1):7-20. DOI: 10.1108/00400911211198869

[6] Grant MT, Hanlon C, Young JA. An employable graduate: Essential awareness factors to the preparation of sport management practical experiences. Industry and Higher Education. 2023;**37**(4):574-586. DOI: 10.1177/09504222221147129

[7] Gardner P, Bartkus KR. What's in a name? A reference guide to work-education experiences. Asia-Pacific Journal of Cooperative Education. 2014;**15**(1):37-54. (p. 109)

[8] de Schepper J, Sotiriadou P. A framework for critical reflection in sport management education and graduate employability. Annals of Leisure Research. 2018;**21**(2):227-245. DOI: 10.1080/11745398.2017.1336107

[9] Dinning T. Preparing sports graduates for employment: Satisfying employers' expectations. Higher Education, Skills and Work-Based Learning. 2017;**7**(4):354-368. DOI: 10.1108/HESWBL-02-2017-0017

[10] Donaldson A, Borys D, Finch CF. Understanding safety management system applicability in community sport. Safety Science. 2013;**60**:95-104. DOI: 10.1016/j.ssci.2013.06.007

[11] Jackson D, Wilton N. Career choice status among undergraduates and the influence of career management competencies and perceived employability. Journal of Education and Work. 2017;**30**(5):552-569. DOI: 10.1080/13639080.2016.1255314

[12] Salovey P, Mayer J. In: Salovey P, Sluyter JD, editors. What Is Emotional Intelligence? Emotional Development and Emotional Intelligence. New York: Basic Book; 1997. pp. 3-31

[13] Kolb D. Experiential Learning: Turning Experience into Learning. Englwood Cliffs: Prentice Hall; 1984

Chapter 6

Practical Guide for Teaching Coaching: Essential Tools and Methodologies for Instructors

Lourdes Susaeta

Abstract

This chapter outlines the essential tools for a new instructor to successfully develop a coaching course, drawing on the author's experience teaching this course to undergraduate students. The focus is on providing a practical guide and implementing effective methodologies to ensure a comprehensive learning experience. Critical methodologies, such as practical sessions, debates, and case studies, are discussed to explore essential coaching skills. Additionally, strategies for fostering student engagement and enthusiasm are analyzed. The chapter also highlights the importance of developing critical competencies in students, including active listening, empathy, effective communication, self-esteem, motivation, emotional intelligence, and career development. By following this practical guide, future instructors are expected to be well-prepared to confidently and effectively tackle the challenges of teaching coaching, ensuring that students experience professional and personal growth. This approach not only equips instructors with the necessary tools but also emphasizes the holistic development of students, fostering a learning environment where they can thrive. The chapter serves as a comprehensive resource for instructors aiming to deliver a successful coaching course that nurtures essential skills and competencies in their students, ultimately contributing to their long-term success in both their professional and personal lives.

Keywords: coaching methodologies, student engagement, competency development, effective communication, emotional intelligence

1. Introduction

The study of coaching can transform students' university experience and guide them toward their professional future. By providing guidance, support, and a structured framework for personal development, coaching empowers students to clarify their goals, overcome challenges, improve self-awareness and their relationship with others, enhance their capabilities, and prepare for the future. This course provides the space and structure necessary for reflection, which is essential for learning and growth. It helps students understand their values, strengths, and weaknesses and identify where their actions diverge from those values or stated goals. A good

coaching instructor can help students reconnect with what they love about their lives and work and project themselves into the future. As Whitmore notes, "coaching unlocks a person's potential to maximize performance. It is helping them to learn rather than teaching them" [1].

The skills gap discussion is highly complex, with significant efforts to improve students' employability to ensure they have the best career start. In our world, where there is high pressure for instant results, students focus on critical thinking and problem-solving. However, how are we cultivating self-awareness and developing soft skills for long-term happiness?

Our ability to connect and work with others develops throughout our careers rather than being formally taught, which can be challenging for some. According to Forbes, 1 in 5 people are looking to switch jobs, with poor management being one of the reasons. Therefore, how can we teach practical "Coaching" skills early in our careers to encourage long-term success and better team management? Clutterbuck highlights, "Effective coaching in education helps students to take responsibility for their learning and development, leading to improved self-awareness and better outcomes" [2].

Coaching in higher education addresses technical competencies and significantly impacts students' personal and emotional development. Grant states, "Academic coaching can significantly enhance student resilience, self-regulation, and motivation, leading to better academic performance and personal growth" [3]. Dr. Paddy Pampallis, in her presentation at the Higher Education Leadership and Management (HELM) ENGAGE session, emphasized that coaching can change our mindsets and open our hearts, allowing for deeper and more meaningful connections with others. This holistic approach improves professional skills and transforms how individuals relate to the world. According to Starr, "coaching in educational settings fosters an environment of continuous improvement and supports the development of key life skills such as empathy, communication, and emotional intelligence" [4].

This chapter provides a practical guide for novice instructors in teaching coaching. It will highlight the importance of self-awareness, empathy, and emotional intelligence. Through effective methodologies such as practical sessions, debates, case studies, and strategies to foster student engagement, instructors will be better prepared to tackle the challenges of teaching coaching, ensuring that students grow professionally and personally. Van Nieuwerburgh suggests, "coaching in education facilitates a reflective space where students can explore their own goals and challenges, leading to greater self-efficacy and academic success" [5].

2. What is coaching?

Coaching is a facilitative process conducted through a conversation or dialog between a tutor (coach) and a pupil (coachee) to optimize results, whether in a personal or business context. This cheerful and effective communication system emphasizes open-ended questioning, active listening, and raising awareness, allowing the coachee to set action plans with new and better expectations. Coaching promotes learning to improve performance and stimulates the ongoing development of skills. It is characterized by an adult-to-adult relationship, where the coach accepts the best in each person and encourages them to overcome self-imposed limitations. Unlike directive approaches, coaching is typically non-directive and focuses on achieving specific outcomes through self-regulation and effective action [1, 3]. Whitmore states, "Coaching unlocks a person's potential to maximize their performance, helping them

to learn rather than teaching them directly" [1]. Additionally, Grant describes it as a collaborative, results-oriented process that facilitates enhancing life experience and goal attainment in both personal and professional lives [3].

Coaching is a key tool in professional and organizational development that is applicable in various workplace situations. For example, when employees struggle with time management and meeting deadlines, a coach can help improve their productivity by developing time management skills. Coaching facilitates the rapid acquisition of new skills in career-change situations, helping employees integrate effectively into their new roles. Additionally, coaching is essential for improving job performance, where a coach can offer techniques to increase efficiency and meet goals. It is also valuable for fostering a positive attitude at work and teaching relaxation and visualization techniques that enhance well-being and productivity. Finally, in the context of problem-solving, coaching equips employees with tools such as brainstorming and mind mapping, promoting autonomy and informed decision-making. Furthermore, coaching can help achieve other vital goals outside the workplace, such as personal growth, improving relationships, or achieving a better work-life balance.

2.1 Historical evolution and typology of Coaching

The term "coaching" originates from the sixteenth century in the Hungarian village of Kocs, where the "Kocs carriage" was invented to transport people from one place to another. This concept of transportation translates into Coaching as a vehicle to take people from their current state to their desired state.

2.2 The process of coaching

The coaching process is divided into several key phases:

- Context generation: Create a framework of mutual trust [6].
- Observation and inquiry: Gather information about the coachee's situation to understand it and detect beliefs [7].
- Feedback: Increase the coachee's awareness of their situation [8].
- Action plans: Design, evaluate, and implement alternatives to achieve set goals [1].
- Follow-up feedback: Evaluate what worked well and recommend improvements [3].

2.2.1 GROW model

The GROW process is an effective structure to guide the client through four phases:

- Goal (objective)
- Reality (current reality)
- Options (options)
- Will (what will you do?/commitment) [1].

2.2.2 Example of the GROW model in time management

Goal (objective): The employee wants to consistently improve time management to meet deadlines.

Reality (current reality): They miss deadlines due to poor planning and distractions.

Options (options): They could use prioritized task lists, the Pomodoro technique, or attend a time management workshop.

Will (commitment): They choose to create daily task lists and use the Pomodoro technique, committing to reviewing these daily and evaluating progress weekly.

2.3 Mindfulness in Coaching

Mindfulness is a psychological technique that refers to total mental concentration and can be translated as "full awareness" or "full attention." In coaching, mindfulness helps reduce stress, increase self-awareness, and improve overall well-being [9].

Activities:

1. *Observer change*: Observer change is an essential practical activity in coaching (see **Figure 1**). It involves putting the person in a different position to give them a new perspective on reality, allowing them to rethink whether they were right and opening new doors for a better interpretation of facts.

    - The instructor will help students place themselves in a different position (e.g., from the perspective of another person involved in the situation).
    - Reflect on how their interpretation of the situation changes from this new perspective.
    - Share experiences and new perceptions obtained.
    - Discuss how this change of perspective can influence decision-making and conflict resolution.

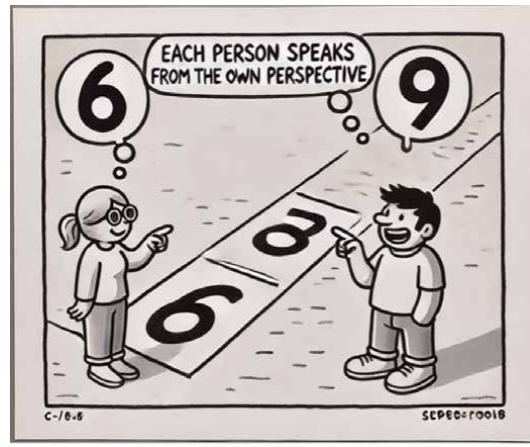

Figure 1.
The observer changes. Source: Own elaboration with ChatGPT.

2. Reflection exercise:

   - Students should identify a personal or professional situation that causes conflict or challenge.

   - Describe their current interpretation of the situation.

3. Goals and objectives

3.1 Understanding goals in coaching

Goals are fundamental to the coaching process. They provide direction and purpose, helping individuals to channel their efforts and resources effectively. In the context of Coaching, goals should be measurable, achievable, relevant, specific, and trackable (SMART). This fulfillment ensures the goals are clear and attainable, providing a structured pathway for personal and professional growth [6].

The concept of goals in coaching encompasses various dimensions. Goals direct attention and regulate the effort individuals put into their tasks. By setting goals, individuals can increase their persistence, as the goals constantly remind them of what they aim to achieve. Moreover, goals promote the development of strategies and action plans, facilitating a structured approach to reaching desired outcomes. Additionally, achieving set goals can significantly boost self-confidence, reinforcing individuals' belief in their capabilities [7].

3.2 The process of setting goals

To set practical goals, follow these steps:

1. Ensure comprehensive goals:

   - Ensure your goals cover all critical areas of your life, not just one aspect like business or finance. Use tools like the "Wheel of Life" to evaluate different areas [8].

2. Set goals in key categories:

   - Personal development goals: are related to self-improvement, such as learning new skills, developing character traits, or improving physical well-being.

   - Professional/financial goals: These are related to career advancements and financial aspirations, such as achieving leadership positions, increasing financial abundance, or growing a business.

   - Adventure/object goals: These are related to leisure and personal desires, such as owning a house by the beach, traveling to dream destinations, or experiencing new adventures.

- Contribution goals: These goals are about making a difference in the community or the world. They involve actions that benefit others, such as volunteering, supporting non-profits, or creating initiatives that positively impact society.

3.3 Steps to setting effective goals

- *Detailed goal list*: Begin by making a detailed list of the goals you want to achieve. Clarity is essential; vague goals are difficult to pursue and measure.
- *Set deadlines*: Assign a timeline for each goal, categorizing them into short-term (1 year), medium-term (3–5 years), and long-term (10 years) goals. These deadlines help create a sense of urgency and prioritize tasks [9].
- *Identify purpose*: Understand the underlying reasons for each goal. Knowing why a goal is essential provides motivation and a sense of purpose. For example, wanting to double your income to provide better education for your children gives the goal a meaningful context.
- *Break down goals*: Divide each goal into smaller, manageable tasks. This approach makes the goals more manageable and helps in tracking progress. For instance, if the goal is to learn a new language, tasks include enrolling in a course, practicing daily, and immersing oneself in the language through media.
- *Immediate action*: Start acting immediately. Procrastination is a significant barrier to achieving goals. Small initial steps can create momentum and set the stage for continued progress.
- *Daily actions*: Commit to doing something every day that moves you closer to your goals. Consistent daily actions build momentum and reinforce commitment.
- *Regular review*: Review your goals and progress regularly. Adjust your plans as needed to stay on track and overcome any obstacles.

3.4 Brief example of goal setting in coaching

Goal: Become a marketing director in 10 years.
SMART Breakdown:

- *Specific*: Achieve the position of marketing director.
- *Measurable*: Obtain three promotions within 10 years.
- *Achievable*: Based on current experience and skills.
- *Relevant*: Aligned with their passion for marketing.
- *Time-bound*: Accomplish this within 10 years.

Immediate actions:
Enroll in a digital marketing course and start studying for 30 minutes daily.
Regular review:
Evaluate progress monthly with the coach and adjust strategies as needed.

3.5 Analytical tools for goal setting

Analytical tools are invaluable in goal setting. They provide structured methods for evaluating and refining goals. Some essential tools include the Johari Window, SWOT analysis, and the Wheel of Life.

- *Johari Window*: This tool helps understand self-awareness and mutual understanding between individuals. It is beneficial in identifying areas for personal development and enhancing interpersonal relationships [10].

Example: Using the Johari Window for goal setting. Imagine you have just joined a new team at work. Initially, the open area (what both you and others know about you) is small, while the hidden area (what you know but others do not), blind area (what others see in you but you do not), and unknown area (what neither you nor others know) are significant. As you share more about yourself and receive feedback from your colleagues, the open area expands, reducing the hidden and blind areas. This behavior leads to greater trust and better collaboration within the team. Using the Johari Window, you can set goals to increase self-awareness and improve team dynamics.

- *SWOT analysis*: A SWOT analysis identifies strengths, weaknesses, opportunities, and threats. This analysis provides a comprehensive view of internal and external factors impacting goal achievement. By understanding these factors, individuals can leverage their strengths, address their weaknesses, capitalize on opportunities, and mitigate threats.

Example: Using SWOT analysis to define goals. A marketing professional uses SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) to assess their current situation before setting career goals. They identify creativity as a strength, growth in digital marketing as an opportunity, time management as a weakness, and rising competition as a threat. Based on this evaluation, they set clear goals to improve time management and leverage digital marketing growth, better positioning themselves in their career.

- *Wheel of Life*: The Wheel of Life is a visual tool that helps individuals evaluate different areas of their lives, such as career, finances, health, relationships, and personal growth. By rating each area, individuals can identify imbalances and set goals to create a more harmonious life [8].

Perseverance vs. procrastination: Perseverance and procrastination are critical factors influencing goal achievement. Perseverance involves consistent effort and determination to achieve goals despite challenges and setbacks. It is characterized by resilience and a solid commitment to one's objectives.

In contrast, procrastination is the act of delaying or postponing tasks. It often stems from stress, anxiety, perfectionism, fear of failure, or feeling overwhelmed. Procrastination can significantly hinder progress and lead to missed opportunities.

Strategies to overcome procrastination:

1. Self-awareness: Understand your procrastination triggers and develop strategies to address them.

2. Effective time management: Prioritize tasks and allocate time effectively.

3. Change perspective: Reframe tasks positively to make them more appealing.

4. Commitment: Make a firm commitment to your goals.

5. Productive environment: Work in an environment that minimizes distractions.

6. Eliminate distractions: Identify and remove sources of distraction.

7. Overcome obstacles: Develop strategies to tackle obstacles.

8. Continuous learning: Keep improving your skills and knowledge to stay motivated.

Activities:
Goal setting and analysis: Utilize the following activities to aid in goal setting and analysis:

1. *Personal SWOT analysis*: Perform a SWOT analysis to identify personal strengths, weaknesses, opportunities, and threats. This analysis will provide a comprehensive understanding of areas for improvement and potential opportunities (see **Figure 2**).

2. *Wheel of Life assessment*: Complete a "Wheel of Life" assessment to evaluate different areas of life and set balanced goals (see https://www.thecoachingtoolscompany.com/wheel-of-life-complete-guide-everything-you-need-to-know/). This tool helps identify imbalances and prioritize goals across various life domains.

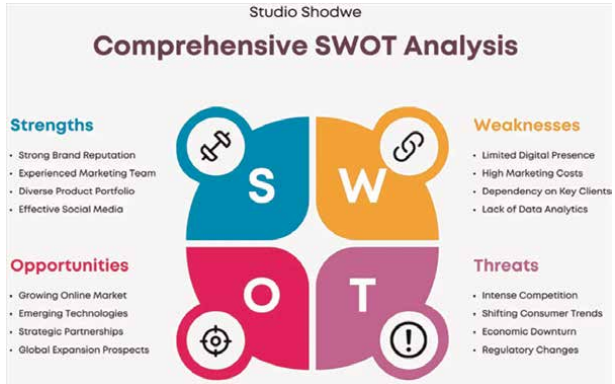

Figure 2.
SWOT analysis. Source: https://www.canva.com/p/templates/EAF2Q9WrHO4-orange-modern-business-swot-analysis-graph/

3. *Mandala Personal Goals*: Use the "Mandala Personal Goals" exercise to visualize and articulate your goals. This activity involves answering critical questions about your future, motivations, and actions needed to achieve your objectives (see: https://www.creativeoutletsac.com/post/goal-setting-mandalas).

4. Emotional intelligence

4.1 Understanding emotional intelligence

Emotional intelligence (E.I.) is the capacity to recognize our feelings and those of others, to motivate ourselves, and to manage emotions effectively in our relationships. Daniel Goleman states, "People with well-developed emotional skills are more likely to be content and effective in their lives, mastering the habits of mind that foster their productivity" [11].

E.I. is composed of several key components (see **Figure 3**):

- *Self-awareness*: Recognizing one's emotions and their effects.

Example self-awareness at work: A project manager realizes his frustration with missed deadlines stems from his perfectionism. By being aware of this, he improves delegation and communication, boosting team efficiency.

- *Self-regulation*: Managing one's emotions to facilitate rather than hinder the task.

Example of self-regulation under stress: An employee receives an unexpected complaint from a client. He takes a moment to calm down before responding, which allows him to handle the situation effectively and maintain the client relationship.

Figure 3.
Emotional intelligence skills. Source: https://commons.wikimedia.org/wiki/File:EQi-2.0-Model.jpg

- *Motivation*: Using emotional factors to achieve goals, enjoy the learning process, and persevere in the face of obstacles.

Example of motivation to overcome challenges: A saleswoman faces a tough quarter with few closed deals. She sets daily goals and improves her skills, maintaining motivation and eventually increasing sales and recognition within the team

- *Empathy*: Sensing the emotions of others.

Example of empathy to support a colleague: A team leader notices a member is demotivated. By having a conversation, he discovers personal issues and offers flexibility, which improves the employee's well-being and performance.

- *Social skills*: Managing relationships to move people in desired directions [12].

Example of social skills in conflict resolution: In a work team, two colleagues disagree on how to approach a project. A third team member with strong social skills organizes a meeting where he actively listens to both sides, helps each other express their concerns, and ultimately suggests a combined approach that both agree on. This process resolves the conflict and enhances collaboration and harmony within the team.

4.2 The importance of emotional intelligence

Emotional intelligence is fundamental in navigating the complexities of social interactions and professional environments. It helps understand and manage emotions, leading to better decision-making, reduced stress, and improved relationships. Goleman highlights that while I.Q. is important, it accounts for only 20% of success in life, with the remaining 80% being determined by E.I.

Individuals with high E.I. are more adaptable, resilient, and effective leaders. They can innovate and handle change better, which is essential in today's fast-paced world. Higher E.I. is linked to greater productivity, job performance, and improved personal well-being.

Activities:

1. *Identifying and defining emotions*: This practice involves recognizing and articulating emotions to understand their impact on behavior and decision-making.

    a. Exercise:

        - Step 1: Choose an emotion from the "universe of emotions."
        - Step 2: Define this emotion and describe a personal experience where you felt it.
        - Step 3: Discuss with a partner how this emotion influences your current state and explore ways to manage it.
        - Questions:
            - How do you feel now?

- What can I do to help you?
- What can you do to help yourself?

2. *Practicing self-awareness*: This activity involves recalling and analyzing a positive emotional experience to foster self-awareness and positivity.

b. Exercise:

- Step 1: Recall "the best moment of your life."
- Step 2: Identify and describe the emotion it evokes.
- Step 3: Share this experience with a partner to verbalize and enhance the emotional impact.
- Benefits: This exercise helps improve physical health, foster trust and compassion, and mitigate depressive symptoms.

5. Intrapersonal skills

5.1 Understanding intrapersonal skills

As Howard Gardner defines, intrapersonal intelligence is the capacity to understand oneself, including emotions, motivations, strengths, and weaknesses. It involves introspection and self-reflection, allowing individuals to navigate their internal landscape effectively [13].

Intrapersonal intelligence includes several key components:

- *Self-awareness*: The ability to recognize one's emotions, thoughts, and effects [11].
- *Self-regulation*: Managing one's emotions and impulses to facilitate rather than hinder personal growth [12].
- *Motivation*: The drive to achieve goals and pursue self-improvement [14].
- *Resilience*: The capacity to recover from setbacks and adapt to challenging situations [15].

5.2 The role of self-awareness

Self-awareness is the cornerstone of intrapersonal skills. It involves being conscious of different aspects of the self, including traits, behaviors, and feelings. Self-awareness allows individuals to accurately evaluate their strengths and weaknesses accurately, leading to better decision-making and personal growth [16].

Phases of Self-Awareness:

1. *Early detection*: Recognizing early signs of unwanted emotions through physical signals or subjective thoughts.

2. *Moderation*: If a strong emotion has already been triggered, becoming aware of it can help moderate its intensity.

3. *Registration and limitation*: If moderation fails, acknowledging and recording the emotion can help limit its duration and impact.

Enhancing Intrapersonal Skills Through Activities:

1. *Self-esteem test*: Understanding one's level of self-esteem is crucial for personal development. The Rosenberg Self-Esteem Scale is a widely used tool for this purpose.
    - *Activity*:
        - Take the Rosenberg Self-Esteem Test to assess your self-esteem (see: https://wwnorton.com/college/psych/psychsci/media/rosenberg.htm?ref=thoughtful-inc.ghost.io).
        - Reflect on the results and identify areas for improvement.
2. *Reflective exercise: Mirror and letter to childhood self*: This activity helps individuals reflect on their self-worth and personal growth by engaging with their past and present selves.
    - *Activity*:
        - *Mirror exercise*: Stand before a mirror and acknowledge your current self, focusing on positive attributes.
        - *Letter to childhood self*: Write a letter to your younger self, offering advice and affirmations based on your understanding.
        - *Reflection*: Summarize the insights gained from these exercises in a reflective commentary.
3. *The Lifeline*: This exercise involves mapping out significant life events to understand their impact on personal development (see **Figure 4**).
    - *Activity*:
        - *Phase 1*: Define and mark vital events such as births, deaths, relationships, and other personal milestones using different colors for clarity.
        - *Phase 2*: Highlight significant moments or changes, such as moving houses or starting/finishing studies.
        - *Phase 3*: Identify inflection points that marked turning points or crises, noting how they contributed to personal growth.

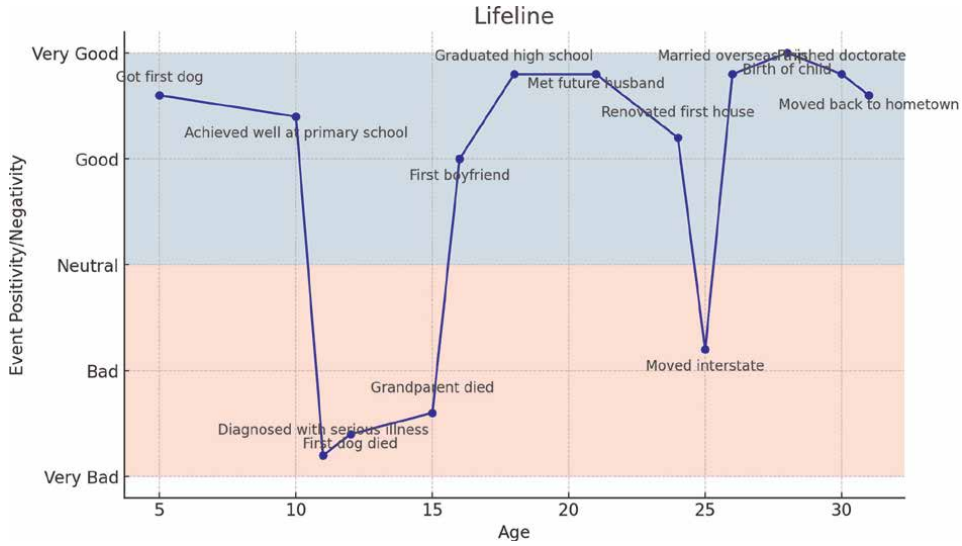

Figure 4.
The Lifeline. Source: Own elaboration by Chat GPT based on https://www.linkedin.com/pulse/high-performance-team-building-trust-worklife-dr-pete- stebbins/

- *Phase 4*: Mark moments of rupture that signified profound changes or trauma.
- *Analysis*: Reflect on these events with guided questions to understand their impact on your life and how they shaped who you are today.

Business Case Study: In 2017, *Google* conducted the "*Project Oxygen*" study to identify the essential qualities of a good leader. They discovered that intrapersonal skills such as self-awareness and self-regulation were more important than technical skills. Sundar Pichai, CEO of Google, is a prominent example of this approach, known for his calm demeanor and ability to manage his emotions. This finding led Google to redesign its leadership program, emphasizing developing intrapersonal skills, which improved decision-making and organizational culture. This project was widely reported in the press (see https://hbr.org/2013/12/how-google-sold-its-engineers-on-management).

6. Interpersonal skills

6.1 Understanding interpersonal skills

Interpersonal skills, also known as people skills, are required to interact effectively and harmoniously with others. These skills are essential for creating and maintaining healthy relationships in both personal and professional contexts. The term "interpersonal" is derived from the prefix "inter," meaning "between," emphasizing interactions between people [17].

Essential Interpersonal Skills Include:

- *Empathy*: The ability to understand and share the feelings of another [11, 12].
- *Social skills*: A set of behaviors that allow individuals to interact effectively and harmoniously with others [12, 15].
- *Communication skills*: Verbal and non-verbal abilities to accurately convey information and emotions [14].
- *Listening skills*: The capacity to accurately receive and interpret messages during communication [16].
- *Negotiation skills*: Discussing and reaching a mutually agreeable solution [15].
- *Social awareness*: It is being aware of and sensitive to the emotions and needs of others [11, 17].
- *Problem-solving skills*: The ability to constructively solve conflicts or issues [12].
- *Decision-making skills*: Making choices by identifying options and assessing possible outcomes [14].
- *Assertiveness*: The ability to express oneself confidently and stand up for one's rights while respecting others [16].
- *Inclusivity*: Promoting an environment where diverse opinions and contributions are valued [13].

6.2 The role of empathy

Empathy is a crucial interpersonal skill that involves understanding and sharing the feelings of others. It can be divided into three types: cognitive empathy, emotional empathy, and compassionate empathy (see **Figure 5**).

- *Cognitive empathy*: The ability to understand another person's perspective or mental state. It is helpful in organizational settings, where understanding different viewpoints can lead to better decision-making and communication [11, 15].
- *Emotional empathy*: Defined as the ability to feel what another person feels physically. This type of empathy helps form emotional connections and is vital in roles that require strong interpersonal relationships, such as counseling and teaching [12, 14].
- *Compassionate empathy*: Going beyond understanding and feeling to taking action to help. This form of empathy is associated with compassionate actions to alleviate another person's distress [12, 15].

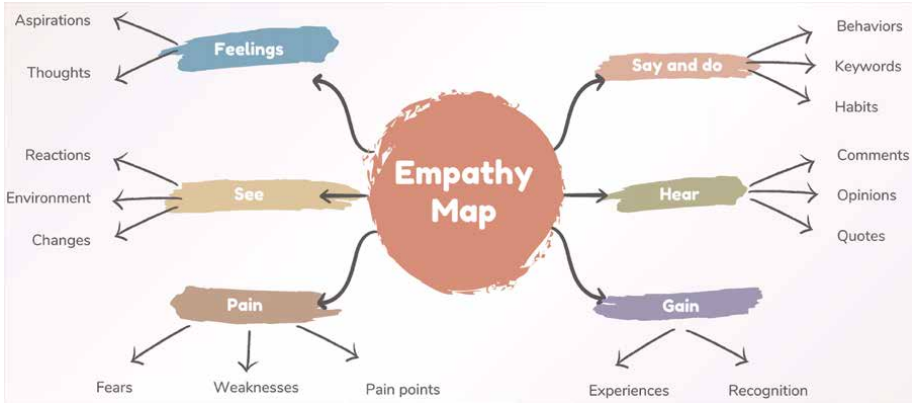

Figure 5.
Empathy map. Source: https://www.canva.com/templates/EAFlKOBK7tM-empathy-map-mind-map/

Business case study: An example of the importance of these types of skills can be found in *Starbucks*. In 2008, during the financial crisis, Starbucks closed all its U.S. stores for several hours to train its baristas to create meaningful connections with customers. Starbucks CEO Howard Schultz emphasized the importance of employees understanding and empathizing with customers' experiences. This focus on empathy helped Starbucks strengthen its relationship with customers during a challenging time, ultimately contributing to the company's recovery and growth [18].

Practical Activities to Enhance Interpersonal Skills:

1. *Facial decoding practice*: Understanding facial expressions is essential for effective communication and empathy. This activity involves recognizing and interpreting the seven universal emotions.
    - *Activity*:
        - *Step 1*: Visit the website to understand facial expressions and their meanings.
        - *Step 2*: Take photos of your face representing the seven universal emotions (happiness, sadness, fear, disgust, anger, surprise, and contempt).
        - *Step 3*: Create a slide with these photos, mimicking the examples provided in the presentation.
        - *Step 4*: Upload the slide to the campus for review and include it in your dossier.
2. *Empathy mapping exercise*: This exercise helps individuals develop cognitive and emotional empathy by mapping out different perspectives and emotional responses.

- *Activity*:
  - *Step 1*: Choose a scenario involving a conflict or emotional situation.
  - *Step 2*: Map out each person's perspective, focusing on their thoughts, feelings, and motivations.
  - *Step 3*: Discuss with a partner how understanding these perspectives can lead to better communication and resolution.

3. *Self-esteem test and reflection*: Understanding one's level of self-esteem is crucial for personal development and effective interpersonal interactions.
   - *Activity*:
     - *Step 1*: Take the Rosenberg Self-Esteem Test to assess your self-esteem level.
     - *Step 2*: Reflect on the results and identify areas for improvement.
     - *Step 3*: Summarize the insights gained and the impact on your interpersonal interactions in a reflective commentary.

7. Leadership skills

7.1 Understanding leadership skills

Leadership skills are essential for guiding teams and organizations toward achieving goals. Effective leadership involves understanding various leadership styles, adapting to different situations, and inspiring others to perform at their best. This chapter explores the evolution of leadership concepts and styles and provides practical activities to enhance leadership skills.

7.2 Evolution of leadership concepts

Leadership has evolved significantly from traditional hierarchical models to more dynamic and flexible approaches. Early theories focused on inherent traits that distinguished leaders from followers. Modern theories emphasize situational factors and the behaviors required to lead effectively in different contexts [19].

Key Concepts in Leadership Evolution:

- *Trait theory*: Suggests that leaders possess inherent traits that make them effective [20].
- *Behavioral theory*: Focuses on the behaviors and actions of leaders rather than their traits [21].
- *Situational theory*: Proposes that the effectiveness of a leadership style depends on the situation [22].

- *Transformational leadership*: Emphasizes inspiring and motivating followers to perform better [23].

- *Transactional leadership*: Focuses on the exchanges between leaders and followers, such as rewards for performance [24].

- *Laissez-Faire leadership*: This style is characterized by a hands-off approach, allowing team members to make decisions [25].

7.3 Understanding leadership styles

Different leadership styles are suited to different situations and can significantly impact team performance and morale (see **Figure 6**).

The most common styles include:

1. *Autocratic leadership*: Leaders make decisions unilaterally, without much input from team members. This style can be effective in crises but may lead to low morale over time [26]. *Example*: Steve Jobs, co-founder of Apple, is often cited as an autocratic leader. He made unilateral decisions about products and strategies, relying on his personal vision. This style was particularly effective during the development of the iPhone, where his focus on absolute control allowed for rapid and precise execution. However, this approach also created internal tensions and a challenging work environment [27].

2. *Democratic leadership*: Leaders encourage team members to participate in decision-making. This style fosters collaboration and innovation but can be time-consuming [28]. *Example*: Sundar Pichai, Google's CEO, is known for his democratic leadership style. Pichai encourages team participation in decision-making, allowing ideas to flow from all levels of the organization. This approach

Figure 6.
What is leadership? Source: https://commons.wikimedia.org/wiki/File:Leadership_skills_-_illustration.jpg

has helped Google maintain a culture of innovation and collaboration, although it can sometimes slow down the decision-making process [29].

3. *Transformational leadership*: Leaders inspire and motivate their team to exceed expectations. This style effectively drives change and achieves high performance [23]. *Example*: Nelson Mandela is an iconic example of transformational leadership. He inspired a nation to overcome apartheid, motivating people to unite around a common cause. His ability to inspire and transform South Africa from a divided state into a multiracial democracy is a clear example of how transformational leadership can change the course of history [30].

4. *Transactional leadership*: Leaders use rewards and punishments to manage team performance. This style can be effective for routine tasks but may not inspire long-term commitment [24]. *Example*: In many military organizations, transactional leadership is shared. Leaders set clear expectations and use rewards and punishments to manage performance. An example is leadership in the U.S. military, where officers use reward systems such as promotions, recognitions, and sanctions to maintain discipline and achieve objectives [31].

5. *Laissez-Faire leadership*: Leaders take a hands-off approach, providing minimal guidance. This style can empower team members but may lead to a lack of direction and accountability [25]. *Example*: Warren Buffett, CEO of Berkshire Hathaway, is known for his Laissez-Faire leadership style. He trusts his managers to run their respective companies with minimal intervention, allowing them to operate autonomously. While this style empowers its leaders, it also requires them to be highly competent and accountable [32].

6. *Situational leadership*: Leaders adapt their style based on the team's needs and the task. This flexible approach can be highly effective in dynamic environments [22]. Dwight D. Eisenhower, during World War II, demonstrated situational leadership by adapting his approach based on the needs of the moment and the capabilities of his subordinates. He was more autocratic in battle, but in strategic planning, he allowed for participation and collaboration from his officers. This flexible approach was critical to the Allies' success [33].

Practical Activities to Enhance Leadership Skills:

1. *Case study analysis*: Studying real-life leadership scenarios helps understand the application of different leadership styles and their impact on team performance.
    - *Activity*:
        - *Case Study*: Antonio Romero and His Team.
            - *Scenario*: Antonio Romero is a self-made team leader in a manufacturing company. Despite achieving good results, his team experiences low morale and quality issues. Antonio plans to address these by setting strict objectives and closely monitoring performance, with potential disciplinary actions for non-compliance.

- *Questions*:
    1. What leadership style is Antonio applying with his team?
    2. What leadership style is Antonio's boss applying to him?
    3. What would be the most effective leadership style from a situational leadership perspective?
    4. Was Antonio's method of setting goals appropriate?

2. *Identifying leadership in media*: This activity involves identifying and analyzing leadership styles portrayed by characters in popular media.
    - *Activity*:
        - *Step 1*: Choose a character from a TV series that exemplifies one of the leadership styles discussed.
        - *Step 2*: Identify the character's leadership style and justify your choice with specific examples from the series.
        - *Step 3*: Present your findings creatively, such as through a presentation, video, or storyboard.

8. Personal and professional development plan

8.1 Understanding the development plan

A personal and professional development plan is a strategic outline that details the steps an individual will take to achieve specific career objectives. This plan includes identifying career goals, required skills and experiences, potential obstacles, and strategies to overcome these challenges. The plan should be specific, measurable, achievable, relevant, and time-bound (SMART) [9].

8.2 Components of a development plan

- *Career goals*: Clearly defined professional aspirations.
- *Current skills and experiences*: An assessment of current capabilities and experiences.
- *Required skills and experiences*: Identify the skills and experiences needed to achieve career goals.
- *Action plan*: A detailed plan outlining the steps to acquire the required skills and experiences [19].
- *Timeline*: Specific timeframes for achieving each goal.
- *Obstacles and solutions*: Potential challenges and strategies to overcome them.

8.3 Creating your development plan

To create an effective personal and professional development plan, follow these steps:

1. *Define career goals*: Start by defining your long-term career goals. What position do you aspire to hold in 3–5 years? What are your desired annual earnings? Ensure that your goals are specific and aligned with your personal and professional aspirations [20].

2. *Assess current skills and experiences*: Evaluate your skills, qualifications, and experiences. Identify your strengths and areas for improvement. Use tools like the SWOT analysis to understand your current position comprehensively [21].

3. *Identify required skills and experiences*: Determine the skills, qualifications, and experiences needed to achieve your career goals. Research the requirements of your desired position and identify gaps in your current skillset [22].

4. *Develop an action plan*: Outline the steps you need to take to acquire the necessary skills and experiences. This plan may include pursuing additional education, gaining relevant work experience, or developing specific competencies. Break each goal into manageable tasks and set deadlines for each step [23].

5. *Set a timeline*: Create a timeline for achieving your goals. Establish short-term, medium-term, and long-term milestones to track your progress and motivate yourself [24].

6. *Identify obstacles and solutions*: Consider potential obstacles hindering your progress and develop strategies to overcome them. This process may involve seeking mentorship, applying for scholarships, or finding work-life balance strategies [25].

Basketball star case study: Michael Jordan exemplifies how relentless personal and professional development can lead to extraordinary success. His goal was clear: becoming the best NBA player and winning multiple championships. Jordan's dedication to improving every aspect of his game, from shooting to leadership, was unmatched. Despite early playoff challenges and criticism, he used these setbacks as motivation, eventually leading the Chicago Bulls to six NBA championships. Jordan's journey shows how commitment to self-improvement can result in lasting greatness [34].

Example of a Professional Development Plan in a Strategic Consulting Career:
Context: John is a junior consultant at a consulting firm who aims to become a partner within the next 10 years.

1. *Career goals*:
    - *10-year goal*: Become a partner at the firm.
    - *Desired income*: $200,000 annually.

2. *Current skills and experience*:
    - *Skills*: Data analysis, managing small projects, client communication.
    - *Experience*: 2 years as a junior consultant, involved in several consulting projects.
3. *Required skills and experience*:
    - *Skills needed*: Business development, strategic leadership, managing large projects, advanced negotiation skills.
    - *Experience needed*: Leading consulting teams, building and managing key client relationships, and contributing to firm growth.
4. *Action plan*:
    - *Further education*: Pursue an MBA within the next 3 years to gain leadership and business development knowledge.
    - *Skill development*: Seek opportunities to lead more significant projects and engage in business development activities.
    - *Practical experience*: Actively participate in client acquisition and management.
5. *Timeline*:
    - *Short term (2 years)*: Lead a significant project and start an MBA program.
    - *Medium term (5 years)*: Complete the MBA, lead significant projects, and build strong client relationships.
    - *Long term (10 years)*: Contribute to the firm's growth and achieve partner status.
6. *Obstacles and solutions*:
    - *Obstacle*: Limited experience in business development.
    - *Solution*: Work closely with current partners to learn and participate in client acquisition.

Outcome: This plan provides John with a clear path to progress from junior consultant to partner, ensuring he acquires the necessary skills and experience.

8.4 Practical activities

Video and reading resources:
Before creating your development plan, watch "Creating Your Personal Career Development Plan" (see the video at: https://www.youtube.com/watch?v=vL35yAXmeOc). These resources provide valuable insights and guidelines for effective career planning.

Development Plan Exercise:

- *Step 1*: Use the Personal Development Plan template to outline your career goals, current skills, required skills, action plan, and timeline.
- *Step 2*: For guidance, refer to examples such as the "[Free] Professional Development Plan Template and Guide for 2024" (available at: https://www.aihr.com/blog/professional-development-plan-template/)
- *Step 3*: Fill out the template with specific details about your career aspirations, skills assessment, and planned actions.
- *Step 4*: Submit your completed development plan to your coaching professor for review and feedback.

Reflective commentary:
After completing your development plan, write a reflective commentary summarizing your insights and the impact of this exercise on your career planning. Reflect on how this plan aligns with your values and long-term aspirations.

9. Practical conclusions for the instructor

As an instructor tasked with developing and delivering a coaching course, it is essential to integrate theoretical knowledge and practical activities to foster a comprehensive learning experience for your students. Here are some practical conclusions and recommendations to guide you in successfully implementing the course:

1. *Emphasize the Importance of Self-Awareness*
    - *Application*: To deepen their self-awareness, encourage students to engage in self-reflective practices, such as the Mirror and Letter to Childhood Self exercises. This activity will form a solid foundation for personal and professional growth.
    - *Integration*: Regularly include self-assessment tools, such as the Rosenberg Self-Esteem Test and Personal SWOT Analysis, in your curriculum to help students identify their strengths and areas for improvement.
2. *Incorporate Goal-Setting Techniques*
    - *Application*: Teach students the SMART criteria for goal setting and guide them through creating detailed action plans. Utilize tools like the Wheel of Life and Mandala Personal Goals exercises to ensure their goals are comprehensive and balanced.
    - *Integration*: Include goal-setting activities at the beginning of the course and encourage students to review and adjust their goals as they progress regularly.

3. *Develop Emotional Intelligence*

   - *Application*: Facilitate activities that help students recognize and manage their emotions, such as the Identifying and Defining Emotions exercise. Foster an environment where students feel comfortable sharing their experiences and reflections.

   - *Integration*: Use empathy mapping and role-playing scenarios to enhance students' emotional intelligence and ability to understand and connect with others.

4. *Enhance Interpersonal Skills*

   - *Application*: Provide practical exercises like Facial Decoding Practice and Empathy Mapping to help students improve their communication and empathy skills. Encourage peer-to-peer feedback and group discussions to reinforce these skills.

   - *Integration*: Regularly assign group projects and collaborative tasks that require students to apply their interpersonal skills in real-world scenarios.

5. *Cultivate Leadership Abilities*

   - *Application*: Utilize case studies and media analysis to illustrate various leadership styles and their effectiveness in different situations. Please encourage students to identify and analyze examples of leadership from their favorite TV series or movies.

   - *Integration*: Offer opportunities for students to take on leadership roles within the classroom, such as leading discussions or coordinating group projects, to practice and refine their leadership skills.

6. *Create a Personal and Professional Development Plan*

   - *Application*: Guide students through creating a comprehensive development plan, incorporating insights from the course. Use the Personal Development Plan template and provide examples to assist them in structuring their plans.

   - *Integration*: Schedule periodic check-ins to review students' progress on their development plans, offering feedback and support to help them stay on track.

7. *Foster a Supportive Learning Environment*

   - *Application*: Establish a classroom culture that values open communication, mutual respect, and continuous improvement. Please encourage students to support each other's growth and celebrate their achievements.

   - *Integration*: Implement regular reflection sessions where students can share their experiences, challenges, and successes, fostering a sense of community and collective learning.

8. *Utilize Technology and Resources*

   - *Application*: Leverage online resources, such as videos, articles, and interactive tools, to enhance the learning experience. Please encourage students to explore additional materials to supplement their understanding.

   - *Integration*: Provide students access to various digital platforms and resources, ensuring they can easily access and utilize them for their learning and development.

Following these practical conclusions, you will be well-equipped to deliver an impactful coaching course that imparts essential knowledge and develops crucial skills. Your students will be better prepared to navigate their personal and professional lives with confidence, resilience, and purpose.

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Author details

Lourdes Susaeta
Faculty of Commerce and Tourism, University Complutense of Madrid,
Madrid, Spain

*Address all correspondence to: lsusaeta@ucm.es

References

[1] Whitmore J. Coaching for Performance: GROWING Human Potential and Purpose. 4th ed. London: Nicholas Brealey Publishing; 2009

[2] Bachkirova T, Jackson P, Clutterbuck D. Coaching and Mentoring Supervision: Theory and Practice, 2e. UK: McGraw-Hill Education; 2021

[3] Grant AM. The impact of life coaching on goal attainment, metacognition, and mental health. Social Behavior and Personality: An International Journal. 2003;**31**(3):253-263

[4] Starr J. The Coaching Manual: The Definitive Guide to the Process, Principles, and Skills of Personal Coaching. London, UK: Pearson Education; 2016

[5] Van Nieuwerburgh C. Coaching in Education: Getting Better Results for Students, Educators, and Parents. London, UK: Routledge; 2012

[6] Locke EA, Latham GP. A Theory of Goal Setting and Task Performance. Upper Saddle River, NJ, USA: Prentice-Hall; 1990

[7] Deci EL, Ryan RM. Intrinsic Motivation and Self-Determination in Human Behavior. US: Springer; 1985

[8] Passmore J, Peterson DB, Freire T. The Wiley Blackwell Handbook of the Psychology of Coaching and Mentoring. Hoboken, NJ, USA: John Wiley & Sons; 2016

[9] Doran GT. There is a S.M.A.R.T. way to write management's goals and objectives. Management Review. 1981;**70** (11):35-36

[10] Luft J, Ingham H. The Johari window, a graphic model of interpersonal awareness. In: Proceedings of the Western Training Laboratory in Group Development. Los Angeles: U.C. L.A.; 1955

[11] Goleman D. Emotional Intelligence: Why it Can Matter More than IQ. New York, NY, USA: Bantam Books; 1996

[12] Goleman D. Working with Emotional Intelligence. New York, NY, USA: Bantam Books; 1998

[13] Gardner H. Frames of Mind: The Theory of Multiple Intelligences. New York, NY, USA: Basic Books; 1983

[14] Kamphaus RW. Clinical Assessment of Child and Adolescent Intelligence. Berlin, Germany: Springer Science & Business Media; 2005

[15] Gardner H. Intelligence Reframed: Multiple Intelligences for the 21st Century. Madrid, Spain: Basic Books; 1999

[16] Vallès A, Vallès C. Inteligencia emocional: Aplicaciones educativas. New York, NY, USA: Editorial E.O.S.; 2000

[17] Triglia A, Regader B, García-Allen J. ¿Qué es la inteligencia? Del CI a las inteligencias múltiples. Milan, Italy: E.M. S.E. Publishing; 2018

[18] Schultz H. Onward: How Starbucks Fought for its Life without Losing its Soul. Emmaus, PA, USA: Rodale Books; 2011

[19] Chiavenato I, Administración de Recursos Humanos. El capital humano en las organizaciones. 8ª edición ed. Mexico City, Mexico: McGraw-Hill Interamericana; 2007

[20] Nieves ZI. Planes de carrera: ¿mito o realidad? Observatorio Laboral Revista Venezolana; 2010

[21] Ucero OJ. Planes de carrera. Madrid, Spain: ESIC Editorial; 2012

[22] Womenalia. Modelo de Plan de Carrera Profesional. Venezuela: Womenalia; 2014. Available from: https://www.womenalia.com/articulo/las-etapas-que-son

[23] Petriglieri G. Developing the Next Generation of Leaders. Boston, MA, USA: Harvard Business Review; 2011

[24] Zaccaro SJ. Trait-based perspectives of leadership. American Psychologist. 2007;**62**(1):6-16

[25] Blake RR, Mouton JS. The Managerial Grid: The Key to Leadership Excellence. Houston, TX, USA: Gulf Publishing Company; 1964

[26] Hersey P, Blanchard KH. Management of Organizational Behavior: Utilizing Human Resources. Upper Saddle River, NJ, USA: Prentice-Hall; 1969

[27] Isaacson W. Steve Jobs. New York, NY, USA: Simon & Schuster; 2011

[28] Burns JM. Leadership. New York, NY, USA: Harper & Row; 1978

[29] Carlson N. How Sundar Pichai Became C.E.O. of Google. New York, NY, USA: Business Insider; 2015

[30] Mandela N. Long Walk to Freedom: The Autobiography of Nelson Mandela. New York, NY, USA: Little, Brown and Company; 1994

[31] Bass BM, Bass R. The Bass Handbook of Leadership: Theory, Research, and Managerial Applications. 4th ed. New York, NY, USA: Free Press; 2008

[32] Schroeder A. The Snowball: Warren Buffett and the Business of Life. New York, NY, USA: Bantam; 2008

[33] Ambrose SE. Eisenhower: Soldier and President. New York, NY, USA: Simon & Schuster; 1990

[34] Jordan M. For the Love of the Game: My Story. New York, NY, USA: Crown Publishers; 1998

Chapter 7

Perspective Chapter: Supporting Newly Graduated Nurses Transition to Practice

Diane D. Kret

Abstract

Newly graduated nurses (NGN)s experience the Duchscher's Stages of Transition and experience shock throughout these stages. Understanding the doing, knowing and being stages, allows key stake holders, like NPD specialists, preceptors, and nursing leadership have the knowledge they need to provide the proper support as the NGNs' needs change with each stage. Simulation and standardized checklists provide preceptors and NPD specialists documentation and tracking of the NGNs progress and provides maintenance of these skills off orientation. A good mentorship that is fully supported by the organizations, provides emotional and clinical support to NGNs when needed to help them gain confidence as independent practitioners. The NPD specialist's value extends beyond orientation with the support they provide in education of quality indicators that improve patient outcomes and thereby help to maintain the excellent practice of NGNs and current staff. Providing these resources to the NGNs, help them transition into independent practitioners.

Keywords: transition, newly graduated nurses, mentoring, preceptor, nurse retention, nursing professional development

1. Introduction

Newly graduated nurses (NGN)s are investments in our nursing's future. They need to be supported and nurtured to become independent healthcare providers. They are the largest group of nurses of the nursing workforce and a big part of nursing retention [1]. Developing their critical thinking skills, acclimating to their nursing environments, and supporting them through this transition are vital in nurse retention. Organizations and educational institutions can help them transition the new graduate nurses through applying Duchscher's [2] Stages of Transition Theory and Transition Shock model, simulation, using a standardized method for clinical staff training and competency, developing a mentoring program, nurse leader support of the preceptor model, and the value of a nursing professional development practice.

2. Duchscher's Stages of Transition Theory and Transition Shock model

Duchscher [2] developed the Transition theory over 25 years of research using qualitative and mixed method studies in new graduate nurse transition. Through her research, she discovered the positive impact of nurse residency programs and mentorship have on the socialization of new graduate nurses in their transition into practice. As stated by Duchscher and Corneau [2], "NGN engaging in a professional practice role for the first time is confronted with abroad range and scope of physical, intellectual, emotional, developmental and sociocultural changes that are both expressions of and mitigating factors within the experience of transition" (p. 46). These factors fluctuate when roles and relationships shift, and responsibilities and accountabilities are discovered once their education is completed and their role as an independent professional nurse begins. It was the "voices" of these NGNs from her qualitative research that gave Duchscher the richness of their experience, true stories of their transition, and the purpose of her life's work [2]. Another study by Feeg et al. [3] analyzed the "voices" of the NGNs.

3. Workplace stressors for NGNs

Feeg et al. [3] completed a qualitative analysis of the workplace stressors for NGNs. The purpose of this study was to understand the experiences of NGNs in their work environment and the perceived stressors as they transition into their new roles as independent practitioners. The researchers used the inductive process of qualitative analysis by analyzing written narratives to aggregate common themes. The sample was taken from a NSNA membership database who graduated in 2017. The survey included an 18-item survey that reported workplace stressors was the quantitative section of the data, and the open-ended question "describe what is stressful in your job" [4] was the qualitative section. The secondary analysis examines the responses to the open-ended question. In this analysis, it was found that the NGNs struggled to find balance between their personal and professional growth. The themes found were: "stress of the environment, stress of self-expectations, and stress of interpersonal interactions" [3]. With each theme, a statement from the NGN will follow. With the theme of "stress of the environment," NGN had difficulty managing the acuity of the patients, the fast pace of the healthcare environment, and their abilities. "[Patients] are very sick and I feel like I have a lot of responsibility for their lives and it is a stressor on me. Also, my schedule in the new grad program has a ton of classes on top of working three 12-hour shifts a week and it is a lot to try to balance." The second theme of "stress of self-expectation" is related to the high expectations the NGNs impose on themselves. "There are many moving parts. It is stressful to be learning how to do tasks correctly while still looking at the big picture and evaluating how the constant change impacts my workflow and ensuring I do not overlook/forget anything." The last theme is "stress of interpersonal interactions" is regarding the relationships that the NGNs form with fellow nurses or other members of the interdisciplinary team, which unfortunately involves bullying. "Nurses are extremely rude and condescending during report, which is scary…I'm not perfect. People have worked together for years — and if you are not friends you get the worst assignments." Aggregating the data and hearing the voices of the NGNs gives the reader insight on the struggles that the NGNs go through daily and gives richness to the data that is collected. Understanding the workplace stressors for these NGNs, further research is needed to provide the support these NGNs need to retain them [3].

4. Stages of Transition Theory

As Newly Graduated Nurses (NGN)s begin their journey in their nursing career, they experience three Stages of Transition Theory: doing, being, and knowing. In the first stage of "doing" occurs in the initial 3–4 months of clinical orientation, NGNs are task-oriented trying to adapt to the realization that they will eventually have the full responsibility of taking care of their patients. These NGNs appear to be "getting through" this experience, trying not to have their anxiety of their incompetence overwhelm them. In the next 4–5 months of the NGNs' journey is the second stage of "being," in which, the NGNs are taken off orientation. In this stage, the NGNs learn at a rapid pace, improving their critical thinking, knowledge of the clinical setting, and developing their skill competencies. They develop an awareness of their roles as nurses, how they relate to other health care professionals, and the balance of their professional and personal lives, which Duchscher defined as transition crisis. The final stage of the NGNs' journey of "knowing," occurs in the first year of their nursing careers. This is where the NGNs learn to personify their role as independent practitioners, distinguishing themselves as separate but still united to their larger nursing community. In this stage, the NGNs can see the reality of their sociocultural and political environments and their role in improving them. In these stages, these NGNs are too self-centered and full of pride to ask for help. To support these nurses through their transition, external support needs to be offered to the NGNs [2].

5. Nursing the Future

In response to providing support for NGNs, a Canadian registered nonprofit organization created Nursing the Future (NTF) [2]. This organization was successful in providing a peer support resources for NGNs throughout Canada, creating a website that provided evidence-based knowledge regarding transition and NGNs, and offering North America's only nursing conference built on transition and NGNs. NTF as an organization grew quickly in the beginning from 2003 and was sustained by becoming consultants by discovering and supporting networks of NGN transition support [2].

As NTF continued to flourish, Duchscher created a regional New Graduate Transition Facilitation Networks (NGTFN) that consisted of senior nursing students and NGNs from across Canada and mentored groups of student or NGN with senior nursing leadership. These networks were based on a standardized mentorship program between regional NGN-emerging leaders, nursing leadership committed to nurturing the NGNs, and members of the NTF leadership team. NTF received financial support from the Saskatchewan Ministry of Health and many members of their healthcare community to continue its national influence by developing NGN initiatives already growing in each province. From September 2008, this financial support from local and regional leadership allowed the NTF support network to expand throughout every province in Canada. Further expansion of the NTF support network led to the creation of Bridge Clubs, which gave NGNs in person meetings with other NGNs and nursing leadership to discuss healthcare issues, find resources/mentors to help NGNs through their transition, and ongoing professional educational development interacting with local nurses and leaders. This knowledge sharing continued and expanded to collaborative conference called the Workplace Integration for New Nurses/Nursing the Future (WINN-NTF). This annual conference was offered for 10 consecutive years that expanded throughout Canada. This platform provided

NGNs the support and exploration of issues related to transition with other new or recently graduated nurses. Evidence-based topics related to transition were presented in this first conference, such as anticipating stages of transition, threats to self-confidence, creating a healthy self-concept, and resolving conflict in the workplace. Over the next few years, it received international attention and international keynote speakers supported this endeavor. As a guide to standardize and frame the conference, Duchscher's Transition Shock and Stages of Transition were used [2].

NTF lasted from 2014 to 2020. In the organization's absence, Canada's transition support declined significantly. During this time, nurses were challenged with the global pandemic, exposure to toxic workplace environments, and high nursing turnover of experienced nurses leaving the profession. The healthcare climate did not allow for the NTF to continue due to the depletion of resources during the pandemic. This decline in transition support gives evidence to reinvigorate the NTF, expand it to the United States, and worldwide. Retention of NGNs is healthcare's future and supporting and implementing programs like the NTF and using Duchscher's Transition Shock and Stages of Transition as a model may be the answers to this growing problem [2].

6. Simulation

Simulation has become a vital tool within nursing curriculum and continued training for nurses. This platform provides nurses exposure to standardized procedures and processes, testing their clinical judgment, enhance their critical thinking skills, exposure to clinical interactions with patients all in the safe environment of simulation, before their exposure to real-life patients. As stated by Fabry and Casteel [5], "students can treat simulated patients in scenarios that promote realism, collaborative learning, active participation, and clinical reasoning, but with the freedom to make mistakes and learn from them without fear of harming a patient" (p. 21). In this safe environment, instructors can correct mistakes in real-time through debriefing and remediate the nurses until they are safe to take care of real patients.

The preparation for this program is conducted the same way preparing the new nurses with real patients. They get assigned patients, are provided objectives for the day, have a pre-conference to discuss the objectives, take care of their simulated patients, have a mid-day conference/briefing, and are given post-clinical assignments. The incorporation of the National Council of State Boards of Nursing (NCSBN) Clinical Judgment Measurement Model helps nurses develop their critical thinking skills by helping them organize and prioritize the data collected from report and from the EMR. This standardized approach to learning allows nurses to bridge knowledge gaps and accomplish clinical goals vital in their transition to practice [5].

Simulation is also important to reinforce nursing practice during emergency situations like staff resuscitation responses. Simulation provides a platform for nurses and a safe learning environment to be exposed to high acuity, low volume scenarios such as cardiac arrest. They can demonstrate timely and high-quality chest compressions with life-saving measures to the simulated patient [6]. Building the confidence of the nurses, allows the nurses to respond to emergency situations efficiently and effectively, which results in increased emergency response times and better patient outcomes [7]. In the study by Brzozoski et al. [6] with a convenience sample of four nurses and three nursing assistants, there was an improved confidence and increased nursing response times in cardiac emergencies. Although a thorough statistical analysis could not be conducted due to the small sample size, the increase in confidence

supports a previous systematic review that simulation increases the confidence of participants [8]. Simulation is a vital tool to provide nurses practice in high-acuity, low volume scenarios to bridge knowledge gaps and improve the delivery of care.

7. Standardized method for clinical staff training, education, and competency

Standardized clinical skill competencies provide a description and validation of staff responsibilities and expectations for nursing clinical practice. Clinical skill competencies start with nursing orientation and are continued annually for staff to maintain and standardize their practice. The collaborative effort between Nursing Professional Development and Education department and nursing leadership is important to create a sustainable clinical competency program. A clinical education framework was developed to create an education, training, and competency plan that spanned from new hires and continued annually to maintain competency for current staff. In this study, the training and competency program standardized nursing practice in the ambulatory facilities. The organization faced challenges implementing the annual competency system. There was minimal nurse manager engagement due to the culture shift of this change, therefore nurse engagement was low in attending the competency program. With the success of a standardized method to maintain competency, patient outcomes will improve, and patient safety would be maintained [9].

8. Mentoring program

Mentoring is a relationship between a Newly Graduate Nurse (NGN) and an experienced nurse that work collaboratively to help the NGN transition into practice. American Nursing Credentialing Center (ANCC) added mentoring as a standard of excellence in nursing practice [10]. Miller et al. [11] developed a detailed, evidence-based mentoring program "designed to engage, empower, and support nurses at every level across the continuum" (p. 343). Mentoring programs benefit not only the mentee but also the organization, which includes knowledge sharing, strengthening collegial relationships and establishing nursing social networks within the organization. It also develops emerging leaders, dependable loyal staff, and retention of talent within the organization. Mentoring fosters relationships and provides NGN support to help them transition to practice [11].

9. Nurse leader support of preceptors

Preceptors play a pivotal role in the orientation the NGNs. They fulfill the roles of teacher, leader, facilitator, socialization conduit, role-model [12]. The support and by-in from nurse leadership is vital for a robust preceptor program. This support can be obtained by providing education to nursing leadership about the role of their preceptors to bring awareness to them and their role in supporting them. Nurse leaders need to provide adequate resources and have engagement in the orientation process. Based on the study by Hemann [13], 11 nurse leaders were given education on preceptors' various roles and the adult learning theory, and addressing difficult orientation instruction, providing constructive feedback. The education provided

to the nurse leaders had a positive impact on them, in which they implemented their newly acquired skills to support the preceptor and orientee relationship and support the orientee during their orientation. Further research is needed to connect education provided to nurse leaders of preceptors with nurse retention and perceived level of support for NGNs and their preceptors [13].

10. Value of nursing professional development practice

Nursing professional development (NPD) specialists are integral in the onboarding of new hires and maintaining competencies for hospitals, but they have further value to organizations. NPD staffing metrics and organizational patient outcomes and how they were related were studied to measure the value of NPD practice [14]. This study used a descriptive, cross-sectional design. An 89-item research-team-developed survey was conducted to a convenience sample of pediatric nurses with 398 usable surveys. As stated by Harper et al. [14] "NPD staffing was measured as ratios: beds/NPD FTE, employees/NPD FTE, and RNs/NPD FTE. As reported in Part I, median staffing rations were 70 individual RNs per NPD FTE, 250 individual employees per NPD FTE and 25.8 beds per NPD FTE, although these ratios varied by organization size" (p. 286). This study broadened comparisons to all Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) metrics with potential financial benefits. HCAHPS scores are metrics of patient satisfaction. Statistical significance was shown as there were higher numbers of NPD specialists, there were lower unplanned visits for pneumonia, CHF, and open-heart surgery. With improved patient outcomes and patient satisfaction, this shows the financial value achieved by adding to hospital resource utilization and CMS reimbursement and cost avoidance a decrease in hospital readmissions [14]. By utilizing NPD specialists to their full potential, they can support NGNs and nurses to achieve better patient outcomes, improve quality indicators, and improve patient satisfaction.

11. Discussion

To fully understand the impact of transition to the NGNs, key stakeholders that support NGNs need to understand the Duchscher's [2] Stages of Transition Theory and Transition Shock model. The NGNs experience different emotional turmoil and professional transition in each of the stages of doing, being, and knowing. Also hearing the lived experiences of these NGNs, gives these stakeholders insight of their true experiences. Through the different stages, the NGNs have different needs and the type of support shifts with each stage. Throughout these stages, the Nursing Professional Development team and nursing leadership need to be fully engaged in the orientation process to ensure they receive the proper support. Nursing leadership needs to make ensure they are scheduled for a long enough orientation period in collaboration with Nursing Professional Development, monitoring the progress of the orientees and intervening if the NGNs are not meeting goals and expectations. In the doing stage, the NGNs are just starting their orientation and are very task oriented. They need constant supervision by the preceptor and the NPD specialist/nurse educator to ensure that they are completing the tasks of their competency checklist (tasks that need to complete). Having a standardized competency checklist, provides the NPD specialist, the preceptor, and the orientee a record of all the tasks that the orientee

needs to complete before the end of orientation. It keeps the orientee and preceptor focused on the tasks to ensure that the orientees learn all the clinical aspects of being a nurse. In the doing stage, simulation is an excellent platform to help NGNs hone their skills without the repercussions of harming the patient. Simulation gives them a safe environment to make mistakes and to receive immediate feedback to improve their practice before they touch real patients. In the being and know stages, NGNs start to build their confidence as independent practitioners and need the support of mentors. Having a good mentorship program helps build the confidence of the nurses. Mentors do not closely monitor NGNs as the preceptors did, they provided emotional and clinical support when NGNs are struggling with tasks or social interactions with either their peers, patients, or other providers. Also in the being and knowing stages, competency checklists and simulation can still be used to ensure these NGNs are maintaining their clinical and social skills. Having nursing leadership and organizations understand the importance of this support for the NGNs, helps the NGNs receive support and the resources, like supplies and having mentors readily available. NPD specialists also show their value besides nursing orientation by providing education regarding quality indicators to new and current staff, thereby supporting staff after orientation and helping to improve patient outcomes in the process.

12. Summary

Newly graduated nurses (NGN)s experience the Duchscher's [2] Stages of Transition and experience shock throughout these stages. Understanding the doing, knowing and being stages, allows key stake holders, like NPD specialists, preceptors, and nursing leadership have the knowledge they need to provide the proper support as the NGNs' needs change with each stage. Simulation and standardized checklists provide preceptors and NPD specialists documentation and tracking of the NGNs progress and provides maintenance of these skills off orientation. A good mentorship that is fully supported by the organizations, provides emotional and clinical support to NGNs when needed to help them gain confidence as independent practitioners. The NPD specialist's value extends beyond orientation with the support they provide in education of quality indicators that improve patient outcomes and thereby help to maintain the excellent practice of NGNs and current staff. Providing these resources to the NGNs, help them transition into independent practitioners.

Author details

Diane D. Kret
Molloy University, USA

*Address all correspondence to: diane.kret@gmail.com

References

[1] Brook J, Aitken LM, MacLaren JA, Salmon D. An intervention to decrease burnout and increase retention of early career nurses: A mixed methods study of acceptability and feasibility. BMC Nursing. 2021;**20**(1):19

[2] Duchscher J, Corneau K. Nursing the future: Building new graduate capacity (part I). Nursing Administration Quarterly. 2023;**47**(1):41-54

[3] Feeg V, Mancino DJ, Kret D. First job workplace stressors for new nurse graduates in their own words: A secondary analysis. Nursing Education Perspectives. 2021;**43**(1):30-34

[4] Feeg V, Mancino D. New graduates' first jobs and future plans: Debt, employers, and education prospects. Deans Notes. 2018;**40**(1):1-6

[5] Fabry L, Casteel L. Standardization of virtual simulation: The importance of incorporating the NCBSN clinical judgment measurement model. American Nurse Journal. 2023 -2024 Education and Career Guide. 2023;**18**(6):19-25

[6] Brzozoski S, Oermann MH, Simmons VC. Virtual simulation to reinforce nursing staff resuscitation responses. Journal for Nurses in Professional Development. 2022;**38**(3):151-156

[7] Crowe S, Ewart L, Derman S. The impact of simulation based education on nursing confidence, knowledge, and patient outcomes on general medicine units. Nursing Education in Practice. 2018;**29**:70-75

[8] Foronda CL, Fernandez-Burgos M, Nadeau C, Kelley CN, Henry MN. Virtual simulation in nursing education: A systematic review spanning 1996 to 2018. Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare. 2020;**15**(1):46-54

[9] Siju J, Orekoya G, Vernet E, Anagoboso U. Developing a standardized method for clinical staff training, education, and competency. Journal for Nurses in Professional Development. 2023;**39**(1):27-32

[10] American Nursing Credentialing Center. Magnet Application Manual. Silver Spring, MD: American Nurses Credentialing Center; 2019. p. 2017

[11] Miller C, Porinchak M, Wagenberg C, Ramrup N, Loney E. Creating and implementing a nurse mentoring program: A team approach. Journal of Nursing Administration. 2020;**50**(6):343-348

[12] Ulrich B. Mastering Precepting: A Nurses' Handbook for Success. 1st ed. Indianapolis, IN: Sigma Theta Tau International; 2012

[13] Hemann M. Don't Forget About Us! Nurse Leaders may Benefit from Orientation Education to Support Their Preceptors and New Hires. Journal for Nurses in Professional Development. 2022;**38**(1):2-6

[14] Harper MG, Maloney P, Aucoin J, MacDonald R. Findings from the 2021 organizational value of nursing professional development practice study—Part 2. Journal for Nurses in Professional Development. 2022;**38**(5):265-272

Chapter 8

Perspective Chapter: Disabled Refugee Children and Teacher Competencies

Fırat Keser

Abstract

This study includes refugee children with disabilities, the problems experienced by refugee children with disabilities and their families in educational processes, and the competencies of teachers in the education of refugee children. In this study, the factors shaping the education systems of countries in the twenty-first century and inclusive education are primarily discussed. In addition, explanations of related concepts and legal processes are also mentioned. Within the scope of inclusive education, the problems experienced by refugee children with disabilities in educational processes and teachers' competencies and attitudes on this subject are also included. The findings of the studies conducted on this subject are also included explicitly in order to reveal the importance of the subject more clearly. Since the subject is closely related to the education systems and policies of many countries, the subject has been addressed as a whole as much as possible, and the language and terminology used have been handled in a comprehensive and universal manner, rather than the competencies that are required for the educational curricula of the countries in which teacher competencies are addressed. For a clearer comprehension of the subjects, they are divided into headings, and the relevant chapter is completed with a conclusion.

Keywords: refugee disabled children, refugees, special needs, teacher competencies, support services, inclusion, inclusive education, mainstreaming

1. Introduction

The most rapid changes in the field of education in the historical process have undoubtedly occurred in the twenty-first century. Wars, climate changes, industrial development, economic developments, etc., in every country have affected education systems. The development of technology is one of the factors that have the most impact on education systems. The increasing importance given to human and human rights has also forced the education systems of countries to modify.

The development and change of education systems has a great impact on teachers day by day. Teachers' attitudes and competences also affect educational outcomes. Therefore, education systems and teachers mutually affect each other.

As mentioned above, the increasing importance given to the human and human rights has also shaped education systems. It would not be wrong to say that the most important change in the twenty-first century in terms of equal education rights of individuals with special needs is inclusive education. The conference held in Salamanca, Spain, between 7 and 10 June 1994 with the participation of 92 governments and 25 international organizations culminate in the Salamanca Declaration [1]. The declaration was based on the basic principle of "education for all". Thus, it was ensured that individuals with special needs receive education under equal conditions and in the same environment with their typically developing peers. With this declaration, not only children with disabilities but also refugee children have gained equal access to the educational environment. However, it has been observed in many studies that serious problems still persist in the education of refugee children. In addition, it has also been observed that there is a limited number of studies on the education of refugee children with disabilities. On the other hand, with the Syrian Civil War, it has been stated that there are many problems in the education of disabled refugee children [2]. This situation has been an important factor in this research. The ability of refugee children with disabilities to receive an effective education in an integrated education environment is closely related to teacher competencies.

The education of refugee children with disabilities is carried out within the scope of the inclusive education system. Therefore, it is useful to explain the inclusive education model. The definition of inclusive education may vary for every country. The main reason for this situation is the education policies and economies of countries. For instance, MoNE does not include education in mother tongue or language adaptations in its legal definition of inclusive education [3].

Inclusive education and the terms related to inclusive education are explained below:

1.1 Inclusive education

The "education for all" final declaration was published at the conference held in Salamanca, Spain, in 1994 with the participation of 92 governments and 25 international organizations. As a result, in the following 30 years, many countries especially the countries that signed the declaration started to adopt the inclusive education model and took the necessary steps in this regard. The basic philosophy of inclusive education is based on the principle of making necessary arrangements in the education system for "everyone" without ignoring any of the dissimilarities [4]. The philosophy of inclusion is that different students, families, and teachers cooperate to build schools and other social structures on the basis of acceptability, belongingness, and community-based feelings [4–6].

Mainstreamed education is often confused with inclusive education. In my opinion, there are two main reasons for this confusion. The first one is that the researchers working on this subject do not read in depth about the philosophies of mainstreamed and inclusion educations. The second reason is that countries do not act sincerely due to their current policies and educational practices, and this is because inclusive education is an expensive education model. For this reason, I consider that countries with capitalist or neoliberal economic policies prefer to call "the mainstreamed education model" instead of "the inclusive education model", in order not to make any adaptations in this regard.

In order to eliminate this confusion, it is useful to show mainstreamed and inclusion education practices on **Table 1**.

Inclusion education model		Mainstreamed education model
All students have the right to receive education in general education classes.	Who	Selected students can be eligible for a general education placement only after their performance assessment.
All students have the right to access general education programs and all educational and social activities.	What	They have limited access to general education programs and educational and social activities.
They are eligible for full-time placement in general education classrooms.	Where or When	Placement in general education classrooms is conducted in two different ways: full-time and part-time.
Students are provided with support services in general education classrooms.	How	Support services are provided in or outside (support education rooms) of the general education environment.
Special education and general education support services are provided together.		Special education and general education support services are provided in separate environments.
Focuses on the behavioral, social, academic, emotional, and physical development of all students in order to bring them to a place where they can adapt to the society.	Why	Focuses on students' behavioural, social, academic, emotional, and physical development to help them adapt to society.

Table 1.
Differences between mainstreamed and inclusion education models (based on [2, 7]).

In inclusive education, arrangements are made for "all students" with individual differences in terms of ethnicity, race, religion, language, culture, sexual orientation, gender, disability, spiritual values, socioeconomic level, geographical location, etc., and in accordance with the principle of universal design [4]. The support services provided to students in inclusive education are provided in the classrooms, rather than different environments or buildings [7]. In general, inclusive education is a concept related not only to the education processes of individuals with disabilities but also to the education processes of socially and culturally disadvantaged children [8].

Inclusive education has some core principles. These core principles are given in **Figure 1**.

An effective inclusion program promotes integration within the general education system regardless of language, religion, race, ethnicity, cultural background, gender, sexual orientation, language skills, learning competencies, learning styles, socioeconomic status or country of origin. In addition, the inclusion program enables all students to overcome challenges and succeed in society through a flexible, adaptive curriculum [5, 6].

Effective inclusion focuses on the strengths of the individual. Furthermore, teachers cannot teach in a way that ignores children's individual and cultural differences [9].

Another principle of effective inclusion is to organize the classroom environment according to the principle of universal design [10]. In addition, differences in language, religion, race, ethnicity, sexual orientation, etc., have an impact on socialization and academic achievements [11]. Therefore, the teacher conducts flexible and scientifically based practices by making differentiations based on culture [12, 13].

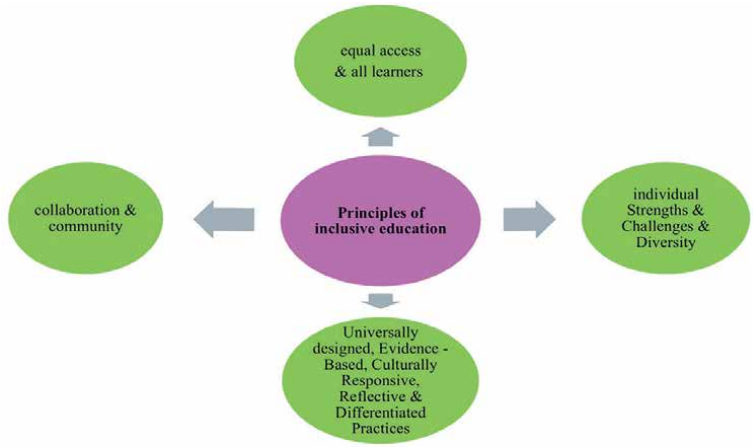

Figure 1.
Principles of inclusive education.

1.2 Refugees with special needs/disabilities

In this regard, any official definition of refugees with special needs or refugee children with disabilities (RCD) can be detected on neither the UN Department of Economic and Social Affairs (DESA) Website nor in the literature. Although the United Nations has broadly recognized the importance of addressing the needs of persons with disabilities in the international normative framework on human rights and development, it has historically ignored sub-groups within persons with disabilities in the context of migration, including migrant workers with disabilities and refugees. This situation appears to be a factor for not providing a formal definition.

In order to make a definition regardless of countries' economic status and special education support services, the definition of refugees with special needs/disabilities can be described as follows.

An individual who needs additional support services or educational adaptations for any and/or more than one of the difficulties due to learning difficulties and/or disabilities in areas such as intellectual functioning, emotional/sensory integration, physical, behavioural, linguistic, and who has refugee or temporary protection status in a country other than his/her own country [11].

During migration, RCDs face many complications in health, housing, and education. In the field of education, one of the most serious complications is that RCDs cannot receive qualified and adequate special education support services according to their disability category. It is observed that some countries do not provide special education support services to the RCD's which are provided to their own citizens with disabilities or that refugee families spend a serious effort to receive these special education support services for many years. This situation prevents RCDs from performing poorly academically, exhibiting problematic behaviors, adapting to the country they are trying to establish a new life in, and communicating. In addition to this, RCDs who have a lot of psychological problems are encountered.

In a qualitative doctoral dissertation research [11] on the problems experienced by RCDs, teachers' views on this subject are given below:

> *"...I mean, at first, when he was just with us, it was more about withdrawing into his own shell and there were certain behaviors that he exhibited every day. He was exhibiting behaviors like eating his clothes. After her grandmother came (to Turkey), her behavior evolved to a completely different point and when she spoke Arabic with her grandmother at work, it was like opening the door to her world at work. After seeing this situation, I started to learn Arabic so that I could communicate. After the second month, we started to communicate more."* Participant Teacher (PT)3

> *"If I am not mistaken, they cannot receive services in a special education rehabilitation center. I mean, I guess the government does not provide them with a free right. They cannot receive it."* PT7

> *"Dear teacher, my opinion on this issue is this: I am in favor of giving our citizens here the same rights that are given to all children in need of special needs, because we all see the child. For example, everyone is busy working around. Most of them have very bad financial situations and that is why they fall behind in education. In this case, when they came to us, they came for a certain fee. Since these people were already in financial difficulties, most of the time they did not come to classes. They tried to come as long as they could afford it. I am in favor of this kind of support, especially if it is to be improved, because when these children stayed with the family, it was a huge financial burden on the family. In our classes, when they showed up once, they did not showed up twice, when they showed up twice, they did not show up four or five times. They tried to come as long as they had money, as long as they saved their money. So our progress was negatively affected and the family could not bring the child even though they wanted to. So when their rights are improved and they start coming to rehabilitation centers for free, it will be easier for us to move forward."* PT2.

> *"Let's say the child really needs support in some areas. We realized this or the interpreter helped us in this regard. The second part, when the child is not a Turkish citizen, they cannot benefit from the support education. This is also a problem. For example, I think the student who came last week needs support education, but we cannot send him to the rehabilitation center because of the rule that refugee children who are not Turkish citizens cannot benefit from support education. This is the second problem. I mean, together with the language barrier, it is the second problem."* PT1.

2. Teacher competencies

Teacher competence can be defined as a set of knowledge, skills, and attitudes that teachers should have in order to perform their profession in the most effective and efficient way for the benefit of the child [14]. In order for a program prepared in the field of education to reach its goal in the most effective way, teachers who will implement this program must have some competencies [15]. Teachers should have the qualifications and competencies to organize the learning environment according to the individual and cultural differences of students, to take into account student differences and to guide students, and to reach the goals they want to achieve by utilizing the available facilities in the most efficient way [16].

Considering the competencies of a teacher in general, the competencies that a teacher should have can be as follows:

- Have a strong intellectual knowledge
- Have the capacity to create a positive learning environment for students,
- Take into account the different learning potentials of students,
- Give importance to students' creative and analytical thinking,
- It should enable students to recognize themselves and allow students to develop at their own pace,
- Have good communication skills,
- Prepare the education and training plan effectively,
- Have the necessary professional knowledge and skills required for teaching [14].

In addition to the competencies mentioned above, the competencies of the teacher working in an inclusive education environment are addressed in a much wider spectrum. It is emphasized that teachers working in an inclusive education environment should have positive attitudes towards language, religion, culture, sexual orientation, socioeconomic level, etc., should be able to make adaptations and provide support services and special education support services on these issues, and be able to work in multilingual and multicultural environments [17–20].

It was revealed that teachers working with RCDs had difficulties particularly in some of the competencies mentioned above. These areas of competence in which teachers have difficulties are discussed under the relevant headings below.

2.1 Communication and cooperation competencies

It can be suggested that the most important item among teacher competencies is the teacher's communication and collaboration competency. The teacher's communication with teachers, administrators, auxiliary staff (school transportation workers, cleaners, childcare workers, etc.), and families, especially the students in the classroom, has a significant impact on the academic performance of RCDs, facilitating adaptation to the classroom, and the level of communication between students. Teachers' communication skills also have a significant role in the rapid integration of RCDs into the host country and its education system.

First of all, the teacher's collaboration competencies are as crucial as communication competencies in the preparation of students' Individualized Education Program (IEP), homework assignments, field trips, curricula prepared as a group and the adaptation of these curricula, the use of technology in the classroom environment, and the adaptation of RCDs to the classroom and school culture.

2.1.1 Communication with RCDs

The whole process after migration from one country to another is based on communication. The process after the migration of disabled individuals is much more challenging. Especially autistics who have limitations in verbal communication, low verbal language skills due to intellectual disability, and the associated difficulty in

learning a new language are one of the biggest obstacles for RCDs to communicate effectively. Providing psychosocial support to RCDs who have been exposed to adversities such as war and destruction in a short time, and achieving results by carrying out rehabilitation processes effectively depend on effective communication with RCDs. Therefore, the communication skills and competencies of teachers working in an inclusive education environment with disabled people and refugees with disabilities are doubly important. The teacher's knowledge/learning of the mother tongue of the RCDs prevents the RCDs from feeling alienated in the classroom, enables the teacher to establish a bond between the teacher and the RCDs in a short time, and facilitates the process of mutual acceptance between the RCDs and their classmates. There is a strong possibility that RCDs who have difficulty expressing themselves may exhibit problematic behavior and disobey classroom rules. Teachers' effective communication skills and their ability to speak the native language of the RCDs prevent the emergence of problem behaviors and ensure effective classroom management. In addition, the teacher's competence in this area makes it easier for the RCDs to learn the language of education of the country they come from in a short time and facilitates the cooperation of the families of the RCDs with the school. It also makes it easier for families, who are natural members of the unit that prepares the IEP, which is a legal obligation for children with disabilities, to take part and have a say in the IEP preparation process. Thus, the infrastructure for the preparation of a functional IEP is provided. Only through a functional IEP can RCDs achieve academic success. Therefore, the teacher's language and communication competencies are an important factor for effective inclusion.

Some of the findings of a study [11] on the problems experienced by teachers in their communication with RCDs are as presented below:

> *"... Actually, this is a problem that everyone (teachers) has experienced when communicating with refugee children. Since they don't speak Turkish, I tried to speak Kurdish in the hope that maybe they would know a little bit of Kurdish, I tried to communicate mostly with basic level Turkish and some English. I did this with different languages. But the child only knows Arabic. Therefore, I had a lot of difficulty."* PT5

> *"Actually, we also experience the problems that colleagues face when communicating with the child."* PT9

> *"For instance, I took a child to class, a Syrian child. In the first twenty minutes of the lesson, I could not communicate with the child in any way. I mean, I show the child the pencil because I don't speak Arabic. 'What is this?' No, no reaction. What is your name? No. 'Do you know what this is?' He didn't react in any way."* PT5

> *"...I mean, I can't teach in any way. I invited his grandmother to the lesson, but that doesn't work either..."* PT4

2.1.2 Collaboration with parents

In order to be able to discuss an effective inclusive education, cooperation with parents is a necessity. An effective collaboration between the teacher and the parents not only facilitates the teacher's work but also serves as a touchstone for the student's academic success. It is inevitable for the teacher to communicate and cooperate with the parents in order to have information about the RCDs who have just started their education and to make the evaluation and placement of the student accordingly [21].

Communication with the families of people with disabilities takes place in two dimensions: the first dimension is the parents themselves, and the second dimension is the bridge between the teacher and the children who have difficulty communicating verbally. Therefore, the teacher's communication with the parents becomes vital. In particular, the teacher's ability to speak the language of the immigrant families until they learn the official language/educational language of the host country (transition model) is an important factor in the inclusion processes of the families, learning their legal rights, establishing social relations, being psychologically well, being informed about the educational processes of their children, establishing a bond with the school, participating in their child's IEP meetings, and having a say in the educational process.

> *"... About the family... I almost cannot communicate with the family at all. The family does not speak Turkish. They have just arrived in Turkey. So when I first call them, when I want to reach them, we cannot communicate."* PT3

> *"... I think the family has the same thing, because we wanted to contact his family many times. We sent messages. There were also problems on the telephone. They did not answer..."* PT6

> *"... and I can only communicate with the grandfather, I even recorded him as 'father'. For a long time I knew him as his father, because they don't speak any language. When I asked him if you are his father, he said 'yes'. So I registered the grandfather as the father. I mean, I really had a lot of trouble. Because I have never met him face to face. I couldn't understand him from a gesture or something..."* PT1

> *"My hearing-impaired student is completely unable to speak and hear because he spends critical periods without the device. He/she also has problems with his device. The device constantly malfunctions. He/she comes to school one day with the device. He/she comes two days without the device. We also have such problems."* PT7

> *"He/she is a child with a walking disability. Since he/she has a walking disability, of course his/her treatment processes were interrupted. The family was not very concerned about this."* PT5

> *"... most of them don't speak Turkish anyway and they don't make any effort to learn it. We wanted to talk a little bit over the internet. (The family) was not very receptive to that either. I mean, when we wanted to talk about our student, we couldn't communicate much with the parent by phone. When we called, he/she either returned late or we wanted to translate and write. He/she didn't answer then either. We cannot fully communicate with parents."* PT12 *[11]*.

2.1.3 Collaboration between school administrators and colleagues

The teaching profession is not only about the ability to teach in the classroom. In the contemporary, inclusive education model, learning outcomes cannot be achieved only in the classroom environment. Facilitating students' learning by providing them with experiences in different environments makes it possible for more permanent learning [22]. Providing experiences from the educational processes of RCDs, especially those who are newly integrated into the education system in the host country and who have limitations in understanding/speaking the language of the school

they are integrated into, can provide RCDs with very important benefits. Therefore, it is important for the teacher to have the competence to cooperate with the school administration and colleagues in order to be able to use other parts of the school for the instructional purposes of the RCDs, to plan out-of-school trips, to ensure that the RCDs integrate with the students in other classes during breaks, to communicate effectively with the members of the IEP team to be convened for the RCDs, and to convince them on some points. In addition, the teacher's cooperation with colleagues, school administration, and families is important to prevent possible discrimination and peer bullying against disabled and refugee children.

2.2 Competencies to create and follow the curriculum

Curriculum is one of the factors affecting the success of the student. A student's academic performance is directly related to the instructional objectives received during a period of education within the curriculum. Therefore, in order to ensure that students achieve well, teachers are required to select the objectives based on the level of the student, individual differences, learning style and speed, and the socioeconomic and cultural structures of the student. Studies have shown that teachers have serious inadequacies in creating IEPs [23]. In addition, it has been experienced that teachers choose the same goal for all students in the IEP creation process and even copy and paste the same goals over and over again every academic year. Within the scope of a research I conducted with teachers, it was stated by teachers that IEPs were never created for RCDs.

2.3 Competencies for inclusive education

In addition to teacher competencies in general, the teacher's demonstration of special education field competencies has a direct impact on the academic performance of RCDs. Educational adaptations within the scope of inclusive education are based on the student's level of disability, language, religion, gender, sexual orientation, race, ethnicity, and individual and cultural differences. The teacher is expected to create the student's IEP by taking these factors into consideration, make classroom and material adaptations, and select appropriate special education teaching methods and techniques. In order for the teacher to master different methods and techniques, he/she is expected to be familiar with the instructional methods and techniques applied in the field of special education, and scientifically based, comprehensive and focused practices. In order to realize all these, the teacher is expected to have a positive attitude towards diversity. On the other hand, a teacher who is racist, fascist, and discriminatory cannot be expected to show the competence to make these adaptations in the educational environment.

2.4 Competencies for technology and artificial intelligence supported applications

The development of technology brings some changes in the field of education each passing day. Technology has started to be used more and more in the field of education and in the classroom environment. For this reason, teachers with a traditional perspective are expected to have the ability to use technology. Technology, which is used effectively in the field of special education more and more every day, eliminates the need to carry many educational materials to the classroom environment. In

addition, due to the lack of materials and limited facilities in schools, teachers may not be able to include these goals in IEPs from time to time, even if the priority need for the child is the goal. However, thanks to technologies such as smart boards and smart tablets, the goals that are not included in IEPs can be realized much more easily. On the other hand, it is expected that the teaching realized by providing concrete experiences to the RCDs will be more permanent. Again, the first place that a teacher who has difficulty in translating for RCDs in the classroom environment may be the smart board. The teaching process can also be facilitated by using smart boards, educational assistive technologies, and applications for teaching primarily for disability groups in the classroom. Alternative and supportive communication systems can be used for children who have no ability to speak properly (e.g. some autistics). In order for a teacher to be able to realize all these, it is important for him/her not to refrain from changing technology, to have a positive attitude towards it, and to improve his/her skills in technological applications by attending in-service trainings if necessary.

3. Discussion

Throughout history, much has been written and drawn on the education of refugees. Especially with the outbreak of the Syrian Civil War, the education system of many countries, especially Turkey, has been affected by these migrations. Even though countries have enacted many theoretical provisions on the rights of refugees in accordance with international treaties, there can be a big gap between theory and practice. This gap is a very effective factor on the education of refugees [24].

It has been discussed that teachers have difficulties in communicating with RSDs and the activities that teachers can carry out to overcome communication difficulties. It has also been reported that teachers have difficulties in communicating with Syrian refugee children in Turkey due to language barriers [25].

The finding that RCCDs exhibit problematic behaviors and low academic performance because they cannot communicate is also in line with the research conducted by Moralı [25]. It has been determined that refugee children constantly fight because they cannot communicate and do not meet academic expectations. Similarly, it has been observed that the performance of refugee children with low educational language level is below the level of the class [26].

In addition, in a study in which teachers' views on Syrian refugees in Turkey were obtained, it was stated that they did not fulfill their school stakeholder duties and did not cooperate due to the families' lack of language skills [27].

It was observed that teachers working with RCDs had limitations in creating IEPs, requesting support services for RCDs, classroom adaptations, educational evaluation of students and applying formal and informal assessment tools, and fulfilling the requirements of integrated education. In addition, it has been observed that teachers working as "paid teachers" in special education settings are insufficient in terms of knowledge, skills, methods, and techniques in special education [28–31].

However, the range of teacher competencies within the inclusive education curriculum is wider. It is emphasized that teachers working in an integrated education environment should have a positive attitude towards language, religion, culture, sexual orientation, socioeconomic level, etc., should be able to adapt and provide support services and special education support services on these issues, and should have the competence to work in multilingual and multicultural environments [17–20]. However, it has been stated that the teachers who provide education to RCDs in an

inclusive education environment are not sufficient in this regard. In this direction, it was stated that the most common limitation was communication with the RCDs and their families. On the other hand, although it was seen that teachers who know the native languages and cultures of RCDs and their families do not have any limitations in this regard, it was seen that there is no systematic practice and curriculum in this regard within the scope of inclusive education. The practices of teachers who know the native languages of the RSDs and their families in this regard are shaped according to their own initiatives.

It would not be wrong to say that teacher training programs in many countries are far from the inclusive education program in the world and therefore need to be updated. In addition, it is stated that teachers who are not specialized in refugee children, multiculturalism, and multilingualism have difficulty in accepting refugees and are not successful in the education process of refugees. It has been emphasized that teachers working with Syrian refugee children have difficulties with language and therefore some refugee children have difficulty integrating into society by leading an isolated life [32].

4. Conclusion

In the twenty-first century, education systems have been subjected to changes in parallel with the development of technology. Wars, migrations, and climate crises have also affected this transformation process. In addition, with the increasing importance given to human and human rights, states and local governments have also revised their education policies. Possibly the most important of these revisions has been the spread of the inclusive education system around the world with the final declaration of the conference held in Salamanca in 1994.

In order to talk about full inclusion, all children, regardless of language, religion, race, ethnicity, culture, socioeconomic status, disability, refugee status, gender, and sexual orientation, should benefit equally from the educational environment and educational opportunities. In inclusive education, children are not integrated into a particular norm, as in mainstreaming education. Instead, the educational environment is reorganized according to all the differences of all children. Norms and rules previously established for a certain group of children are thus eliminated. The norm of inclusion is based on everyone's equal and fair voice and social participation. In inclusive education, school management and teachers adapt the school to the child. Briefly, adaptations are made through the school and the school environment rather than through the child.

Teacher competencies are an important factor for the effective and successful implementation of these principles. Teachers should have a positive attitude towards diversity. It is especially important that the teacher should be able to speak different languages and make an effort to establish strong communication with disabled and refugee children and their families. It is also expected that the teacher should not have a racist, fascist attitude that would lead to discrimination among children.

Migrant children with disabilities and their families need strong communication in order to adapt to the host country where they migrate and try to build a new life. With the competencies that teachers can demonstrate in this regard, possible problems to be experienced are prevented. With a strong bond between teachers and refugee parents, the educational processes of children with disabilities can be carried out more effectively and easily. It becomes easier to include families in the education

process, which is one of the basic principles of special education. Therefore, it is very important for teachers to be able to communicate with the mother tongue of the child and families when necessary during the transition process. It would not be wrong to say that teachers who are able to communicate with the mother tongues of RCD and families carry out the educational processes more effectively and successfully. In addition, both children and families can establish a stronger bond with the teacher and the school in this way.

With strong communication, teachers' competencies in classroom management, problem behaviours, and effective use of technology, RCDs can be integrated into the educational environment in a shorter period of time. In addition, if the teacher lacks knowledge and skills in these areas, it is important for the RCDs and their families to adopt and respect the education and teachers of the host country. Providing education to all children without discrimination is a fundamental moral responsibility that extends beyond teacher qualifications.

Author details

Fırat Keser
Ministry of National Education, Ege University Faculty of Education, Izmir, Turkey

*Address all correspondence to: firatkeser@anadolu.edu.tr

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References

[1] UNESCO. Word Conferance on Special Needs Education: Access and Quality (Rapor No. ED-95/WS/2). 1994. Available from: https://files.eric.ed.gov/fulltext/ED384189.pdf

[2] Keser F, Tanrıverdi A. Teacher competencies and qualifications for support services in special education institutions. Pamukkale University Journal of Education. 2021;**53**:328-354. DOI: 10.9779.pauefd.848889

[3] MEB. Özel Eğitim Hizmetleri Yönetmeliği. 2018. Available from: http://www.resmigazete.gov.tr/eskiler/20180/20180707-8.htm

[4] Salend SJ. Creating Inclusive Classrooms: Effective, Differentiated and Reflective Practices. New York: Pearson; 2016

[5] Giangreco MF, Doyle MB, Suter GC. Demographic and personnel service delivery data: Implications for including students with disabilities in Italian schools. Life Span and Disability. 2012;**15**(1):97-123

[6] Causton-Theoharis J, Theoharis G, Bull T, Cosier M, Dempf-Aldrich K. Schools of promise: A school district—University partnership centered on inclusive school reform. Remedial and Special Education. 2011;**32**(3):192-205

[7] Salend JS. Creating Inclusive Classrooms: Effective and Reflective Practices. 7th ed. New Jersey: Pearson; 2011

[8] Cummings C, Dyson A, Millward A. Participation and democracy: What's inclusion gotto do with it? In: Inclusion, Participation and Democracy: What is the Purpose? Dordrecht: Springer; 2003. pp. 49-65

[9] Tomlinson CA, Javius EL. Teach up for excellence. Educational Leadership. 2012;**69**(5):28-33

[10] Allday RA, Neilsen-Gatti S, Hudson T. Preparation for inclusion in teacher education pre-service curricula. Teacher Education and Special Education. 2013;**36**(4):298-311. DOI: 10.1177/0888406413497485

[11] Keser F. Özel gereksinimli mülteci çocukların eğitimi sürecinde yaşanan problemler ve çözüm önerileri (doctoral thesis). Eskişehir: Anadolu University; 2024

[12] Slavin RE. How evidence-based reform will transform research and practice in education. Educational Psychologist. 2020;**55**(1):21-31

[13] Smith RM, Sapon-Shevin M. Disability humor, insults, and inclusive practice. Social Advocacy and Systems Change. 2008;**1**(2):1-18

[14] Milli Eğitim Bakanlığı (MEB). Öğretmen Strateji Belgesi 2017-2023. 2017. Available from: www.meb.gov.tr

[15] Tosuntaş ŞB. Öğretmenlik mesleği genel yeterliklerinin incelenmesi. Akademik Eğitim Bilimleri Dergisi. 2020;**4**(1):53-61

[16] Pantić N, Wubbels T. Teacher competencies as a basis for teacher education—Views of Serbian teachers and teacher educators. Teaching and Teacher Education. 2010;**26**(3):694-703

[17] Vantieghem W, Roose I, Goosen K, Schelfhout W, Van Avermaet P. Education for all in action: Measuring teachers' competences for inclusive education. PLoS One.

2023;**18**(11):e0291033. DOI: 10.1371/journal.pone.0291033

[18] Papadopoulou K, Palaiologou N, Karanikola Z. Insights into teachers' intercultural and global competence within multicultural educational settings. Education and Science. 2022;**12**(502):1-18. DOI: 10.3390/educsci12080502

[19] Li L, Ruppar A. Conceptualizing teacher agency for inclusive education: A systematic and international review. Teacher Education and Special Education. 2021;**44**(1):42-59. DOI: 10.1177/0888406420926976

[20] Polat İ, ve Kılıç, E. Türkiye'de çokkültürlü eğitim ve çokkültürlü eğitimde öğretmen yeterlilikleri. Van Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi. 2013;**10**(1):352-372

[21] Aksoy V, Diken İH. Rehber öğretmenlerin özel eğitimde psikolojik danışma ve rehberliğe ilişkin öz yeterlik algılarının incelenmesi. İlköğretim Online. 2009;**8**(3):709-720

[22] Sünbül AGAM. Öğretmen niteliği ve öğretimdeki rolleri. Kuram ve Uygulamada Eğitim Yönetimi. 1996;**8**(8):597-608

[23] Alan Ş, Ve Aksoy V. Özel Eğitim Okullarında Geliştirilen Bireyselleştirilmiş Eğitim Programlarının (BEP) Kalitesinin İncelenmesi. Ondokuz Mayis University Journal of Education Faculty. 2023;**42**(1):161-194. DOI: 10.7822/omuefd.1216755

[24] Magos K, Margaroni M. The importance of educating refugees. Global Education Review. 2018;**5**(4):1-6

[25] Moralı G. Suriyeli mülteci çocuklara Türkçenin yabancı dil olarak öğretiminde karşılaşılan sorunlar. OPUS International Journal of Society Researches. 2018;**8**(15):1426-1449

[26] Chatzina P, Mouti A. Second language assessment issues in refugee and migrant children's integration and education: Assessment tools and practices for young students with refugee and migrant background in Greece. Language. 2022;**7**(2):82

[27] Kardeş S, ve Akman, B. Suriyeli Mültecilerin Eğitimine Yönelik Öğretmen Görüşleri. Ilkogretim Online. 2018;**17**(3):1224-1237

[28] Özan S, ve Sarıca, A. D. Bireyselleştirilmiş eğitim programı: Sınıf ve rehberlik öğretmenlerinin deneyimleri. Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi. 2021;**22**(1):147-174. DOI: 10.21565/ozelegitimdergisi.664973

[29] Walton E, McIntyre J, Awidi SJ, De Wet-Billings N, Dixon K, Madziva R, et al. Compounded exclusion: Education for disabled refugees in sub-Saharan Africa. Frontiers in Education. 2020;**5**(47):1-14. DOI: 10.3389/feduc.2020.00047

[30] Tanriverdi A, Özokçu O. The psychometric properties of the Turkish version of the teacher efficacy for inclusive practices (TEIP) scale. Educational Research and Reviews. 2018;**13**(18):654-663

[31] Rasmussen MU, Kış A. Qualifications of subject teachers in special education schools. Journal of Education and Training Studies. 2018;**6**(4):48-57

[32] McBrien LJ. Educational needs and barriers for refugee students in the United States: A review of the literature. Review of Educational Research. 2005;**75**(3):329-364

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With the continuous innovation of market demands and the increasing complexity of the employment environment, cultivating modern talent capable of adapting to future technological advancements and new economic dynamics has become a global mission that transcends borders. This book explores key topics such as internships, apprenticeship programs, and continuing education, providing an in-depth analysis of the intricate relationship between education and work experience. In addition, the book offers a comprehensive discussion on academic mentoring, career counselling, and skill assessment, serving as a complete guide for students seeking to enhance their career prospects. The research and discussions presented in this book will provide valuable insights and inspiration to educators, policymakers, researchers, and all readers interested in the reform and innovation of education.

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