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Unlocking hidden resources: The role of gaming skills in fostering career adaptability for resilience in the career planning of young people

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Abstract

This study examines how commercial video games can serve as informal learning spaces that promote adolescents' career adaptability, a crucial resource for effective career planning and resilience. Drawing on career construction theory, we examine whether skills developed through gaming align with career adaptability resources and how these resources influence adolescents' ability to recognise and apply such skills. Using structural equation modelling with data from 265 students aged 13–15, we find that gaming supports the articulation of adaptability-related skills, particularly among those who seek social support in career planning. Significant gender differences emerged: male students were more likely than females to identify career adaptability resources in gaming, which in turn facilitated the transfer of gaming-related skills and insights to real-life career planning. Game-based career counselling may therefore be a promising approach to reveal latent adaptability resources, strengthen digital competences, and enhance resilience – especially in contexts such as Switzerland or the Nordic countries, where vocational education and training (VET) systems face gendered participation patterns, high dropout rates, and increasing demands for transversal and digital skills.

Keywords: career adaptability resources, video games, informal learning, adolescents, career planning, resilience

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Introduction

Career planning is a demanding and stressful task for adolescents, making the availability, use, and navigation of various resources critical to overcoming this challenge (Haenggli & Hirschi, 2020; Hobfoll et al., 2018; Savickas, 2013). These resources develop and rely on external support systems (e.g., teachers, parents, or career counsellors) and internal prerequisites (e.g., self-efficacy, transferable skills, or self-concept clarity) and add to the resilience of adolescents (Hirschi, 2012). Competencies that young people develop through playing video games are, until now, often not seen as valid resources and have received limited recognition within the context of career planning; they often remain hidden or undervalued. Yet, in engaging with commercial video games, young people participate in informal learning environments where they acquire a range of competencies to achieve in-game objectives. These competencies, while relevant, are seldom considered in formal career guidance processes (Rochat & Borgen, 2021). Bridging this gap requires a closer examination of how these informally acquired competencies might align with established concepts, like the career construction theory (Savickas, 2013). Today, young people are expected to design their careers self-directedly and individually. Designing one's career has gained significance, imposing the need to cope flexibly with different career planning tasks and adapt to internal and external circumstances (Savickas, 2013).

In this context, career adaptability resources are gaining increasing significance (Savickas, 1997). These are defined as 'the self-regulation strengths or capacities that a person may draw upon to solve the unfamiliar, complex, and ill-defined problems presented by developmental vocational tasks, occupational transitions, and work traumas' (Savickas & Porfeli, 2012, p. 662). Such resources are particularly vital during the transition from school to work, which can be challenging for students. Therefore, examining the competencies developed in video games may prove beneficial. This paper explores the potential of competencies gained through commercial video games to contribute to the development of career adaptability resources.

In light of these considerations, supporting adolescents in identifying and navigating resources becomes increasingly important, as it may alleviate the stress associated with career planning (Hirschi, 2008; Ungar, 2005). In career guidance, counsellors and teachers often foster an awareness of skills developed in leisure activities to support adolescents in becoming aware of resources (Rochat & Bodoira, 2016). Adolescents are frequently asked to reflect on their extracurricular activities in sports, the arts, or scouting groups. Seldom, however, are they invited to think about the skills they develop while playing video games (Rochat & Borgen, 2021). This highlights a contradiction: while playing video games is prevalent among young people, especially among male students, in many parts of the world (Entertainment Software Association, 2022; Külling et

al., 2022), these activities are largely ignored and underestimated, which often results in them being overlooked as a potential informal learning environment for career planning. Aware of this discrepancy, Rochat and Armengol (2020) presented various methods for integrating video games into counselling settings. They adapted the career construction method (Savickas, 2015) from the life design approach (Savickas et al., 2009) to the experience and lifeworld of video game players.

Recognising such informal skills may be particularly valuable in education systems with high VET participation, such as Switzerland and the Nordic countries, where supporting smooth career transitions remains a policy priority (OECD, 2023). At the same time, both contexts continue to face persistent challenges in retaining students and ensuring successful transitions (Bundesamt für Statistik, 2023; Cedefop, 2014a–e). Building on this idea, a game-based learning approach that utilises gaming experiences for reflection and skill development has already been tested for new students in Norway who are transitioning from upper secondary to university. Using a specially developed game, informal learning was encouraged through a playful approach, fostering student reflection and resilience and aiming to lower drop-out rates (Susnic, 2024). Self-reflective practices help students become more resilient and better equipped to handle career transitions by cultivating the ability to assess their strengths and areas for growth. This approach aligns with the World Economic Forum's (2023) emphasis on adaptability and resilience as critical skills for future employability. Integrating these practices early in education, particularly through innovative methods such as game-based learning, can unlock potential skills that support career planning and prevent dropouts. The potential of the game-based learning approach by Rochat and Armengol (2020) has now been empirically investigated in this study.

In this article, we aim to shed light on potential hidden resources for fostering career adaptability in response to the demands of career planning, specifically focusing on the skills that young people acquire through commercial video games. This study examines whether young individuals can identify skills gained from video gaming and if these skills can be categorised based on Savicka's career adaptability resources framework (1997).

Following Ungar's (2005) concept of resilience – the ability to navigate and negotiate for resources that support well-being – we explore how this capacity for building resilience manifests within gaming. Primarily, we investigate whether the navigation of internal psychological resources and external social support, which are crucial for resilience in career planning, is reflected in gaming experiences. Additionally, we examine how young people's resource-seeking behaviours influence the gaming skills they identify within the career adaptability framework and how these skills may facilitate the transfer of

learning from gaming to career planning. By doing so, we intend to uncover hidden resources in the gaming world that promote resilience and adaptability, which are increasingly essential for navigating the complexities of contemporary career planning and vocational education and training (VET). While our empirical focus lies on Switzerland, these issues resonate more broadly, particularly in the Nordic countries where VET systems face comparable challenges of dropout prevention, skills mismatches, and the need to prepare young people for rapid economic and digital transformations (Cedefop, 2014a–e; OECD, 2023).

Theoretical approach

In this section, the key theoretical concepts include career adaptability, resilience, and game-based learning. Before outlining these concepts, it is crucial to address the challenge of career planning to highlight the specific difficulties that young people encounter when designing their careers.

Challenge career planning

In today's dynamic and rapidly changing world, career planning has become a complex and stressful task for adolescents: It requires a high level of adaptability, self-efficacy, and resilience to successfully navigate the uncertainties and potential crises that characterise contemporary career pathways (Haenggli & Hirschi, 2020; Savickas, 2013).

The OECD (2021) reports that career planning at the age of 15 is becoming increasingly challenging. Only a dwindling number of young people can formulate firm career aspirations for their 30s. One possible explanation for this phenomenon is that the freedom of choice and the necessity of coping with numerous options, opportunities, and challenges simultaneously provoke ambivalent and overwhelming emotional responses in many young people (Ewinger et al., 2016; Schicke et al., 2014).

Alongside this, career planning must be viewed as a coping process, with young people expected to actively overcome challenges and navigate various resources (Herzog & Makarova, 2020). Consequently, in nearly all educational systems, young people are expected to independently plan and design their careers at a young age by selecting their career path at the end of lower secondary education (OECD, 2021). Thus, there is a significant pressure on young people to find early certainty within themselves amid external uncertainty.

Adolescence is a significant stage of change during which individuals face a series of developmental tasks. According to focal theory originating from youth research, the stress related to career planning can be understood as a result of adolescents needing to manage multiple tasks simultaneously rather than

sequentially (Hollingworth & Jackson, 2016). One of the critical processes that adolescents must navigate is career planning.

Dropout prevention and career readiness in VET: A Swiss–Nordic comparison

Young people often face the pivotal decision of choosing between vocational and general education for their upper secondary studies – a choice that significantly shapes their transition from school to the world of work. In this context, analyses demonstrate that students who successfully transition to upper secondary education are more likely to achieve higher qualifications and stable careers; conversely, difficulties during this phase can negatively impact educational progress (Scharenberg et al., 2014).

OECD (2023) figures show that approximately 87% of students in general education successfully complete their courses, compared to only 73% in vocational tracks. This disparity highlights the unique challenges faced within vocational education and training (VET) and the higher drop-out rates associated with these programmes. Compared to their peers in general education, VET learners often encounter a faster and more demanding transition into the workforce, due to their earlier and more direct exposure to real-world work environments and the resultant need for immediate professional readiness (OECD, 2023).

This challenge is particularly evident in countries like Switzerland, where over 65% of students choose vocational pathways. Switzerland faces a dropout rate of approximately 25% within the first year of apprenticeships (Bundesamt für Statistik, 2023; gfs.bern, 2024). There are various reasons for this, including external factors such as a limited range of apprenticeship options, which often leads young people to accept positions out of necessity rather than genuine interest – frequently resulting in poor fit (Schmid & Stalder, 2008). Internal factors such as underperformance in school or at the workplace may also play a role. Some young people struggle to seek social support when facing difficulties, underlining the importance of fostering their ability to actively reach out for help (Schmid & Stalder, 2008). However, between 60% and 80% of those who drop out find their way back into the vocational education system, often by switching to another apprenticeship, profession, or training pathway, and can still achieve upper secondary qualifications (Bundesamt für Statistik, 2023; OECD, 2023). Consequently, supporting a smoother transition into vocational pathways is essential for reducing drop-out rates and ensuring VET students can thrive in their chosen fields. Therefore, Switzerland has embedded career guidance at the lower secondary level, to facilitate informed career choices, framing it as a joint responsibility shared by schools, families, national counselling services, and industry partners (D-EDK, 2016).

A similar yet distinct set of challenges can be observed in the Nordic countries – Norway, Sweden, Finland, Iceland, and Denmark – where VET faces high dropout rates, skills mismatches, and a continuing struggle to adapt to global economic change (Cedefop, 2014a–e). A gendered aspect further complicates the situation: male learners are overrepresented in sectors like construction and industry, which typically have higher dropout rates, while females tend to concentrate in fields such as health and social care (NIKK, 2022). In response, Nordic countries have implemented a variety of strategies aimed at enhancing student retention and support. These include Sweden's use of personal development plans (Larsen & Thunqvist, 2018) and Finland's targeted dropout prevention programmes (Vehkasalo, 2020) which aim to provide more tailored and responsive educational environments.

Not only is dropout prevention a key concern in Nordic countries, but the nature of demands within VET also differs significantly from systems like Switzerland's. In the Nordic context, vocational education tends to be more school-based and places greater emphasis on fostering transversal competencies such as self-reflection and self-directed learning. Increasingly, digital tools – such as simulation-based reflection and coaching – are being used to strengthen students' emotional well-being and to prepare them for the evolving demands of a digitalised labour market (Dahlberg & Gustavsson, 2024; Kaper et al., 2024).

Despite these supportive measures, students who drop out of secondary education and fail to re-enter either the workforce or the educational system are at risk of becoming NEET (Not in Education, Employment, or Training) (OECD, 2024). Early NEET status can lead to long-term disadvantages, including lower earnings and reduced life satisfaction (Parola et al., 2023; Ralston et al., 2022; Scharenberg et al., 2014). Young men aged 15 to 17 are particularly overrepresented in the NEET category due to higher dropout rates and difficulties transitioning from compulsory schooling to stable vocational pathways (Hupka-Brunner & Meyer, 2023).

Given these evolving demands, it is essential to proactively reduce dropout rates and prepare young people for modern VET by developing key skills early, at the lower secondary level. These foundational skills should support well-informed career planning, promote self-directed learning, and enable young people to navigate available resources effectively.

Navigating resources for resilience: Search for social support and self-efficacy

In general, resources are objects, states, conditions, or other things that help people to achieve a goal or overcome a stressful situation (Halbesleben et al., 2014). Both conditions apply to young people in their career planning. They must

attain certain goals, such as finding a follow-up solution after lower secondary school, and various stressful situations may arise. These can include the first rejections from applications to schools or internships, the feeling of not fitting into any profession, or feeling unwanted by anyone. Therefore, it is beneficial for young people to navigate resources during times of frustration (Hobfoll et al., 2018).

Career planning relies on external resources, such as social support from parents, teachers, or counsellors, as well as internal resources, particularly psychosocial strengths like self-efficacy (Haenggli & Hirschi, 2020; Hirschi, 2012). To reduce stress and strengthen resilience, young people need to identify and navigate available resources actively (Dueggeli et al., 2021; Halbesleben et al., 2014; Ungar, 2005), thereby taking an active role in shaping their career prospects (OECD, 2024). Accordingly, Ungar's conceptualisation of resilience is appropriate for this context, as it situates the person as a central figure engaged in a proactive and dynamic role. Ungar (2006) defines resilience as the capacity of people to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being and their capacity to negotiate for these resources. Thereby, it is possible to compensate for a lack of resources in one area by utilising resources from another area. Especially navigating resources at school, for example, using career guidance, can, at least to some extent, reduce social inequality (OECD, 2024). Young people from lower socioeconomic backgrounds with fewer material resources can significantly improve their career prospects by engaging in career guidance they find beneficial, as reported by the OECD (2024). Career guidance serves as an external social resource in career planning, where educators, counsellors, and parents provide information, emotional support, and practical advice based on their understanding of the young person's interests and abilities (Ginevra et al., 2015). Such social support can profoundly impact young people's career adaptability (Wang et al., 2023), as well as their well-being and resilience (Azpiazu Izaguirre et al., 2021).

The significance of external support is crucial; however, internal resources such as transferable skills and psychological abilities, including self-efficacy, are equally important for young people's career planning (Hirschi, 2012). According to the life design approach (Savickas et al., 2009), adolescents must navigate these internal resources to address the challenges that arise during career planning in the 21st century. These resources include abilities and attitudes that help individuals cope with difficulties, manage career transitions, make informed choices despite perceived risks, and maintain an optimistic outlook for their future personal and professional development (Vilhjálmsdóttir, 2015). Self-efficacy plays a critical role in career planning: it influences expectations regarding career outcomes and, consequently, behaviour throughout the process (Lent et al., 2017). For example, those with high perceived self-efficacy tend to trust their

abilities in the face of adversity, demonstrating greater perseverance and resilience when confronted with difficult situations (Bandura, 1977; Schwarzer & Warner, 2013). Furthermore, young people aged 13–15 with higher self-efficacy typically face a lower risk of unemployment later and report higher levels of job satisfaction in adulthood (Pinquart et al., 2003).

Effects of gender on navigating resources

Upon examining gender differences in navigating diverse resources, it becomes evident that female adolescents generally tend to rely more on social support. (Kneavel, 2021; Öztemel & Yıldız-Akyol, 2021; Rueger et al., 2008), which significantly benefits career adaptability and career planning (Hirschi, 2009; Öztemel & Yıldız-Akyol, 2021). Regarding self-efficacy, studies indicate that male students typically exhibit greater goal decisiveness and stronger capability beliefs compared to female students (Hirschi, 2009). Furthermore, female students are affected by the phenomenon of stereotype threat, especially in STEM (science, technology, engineering, and mathematics) fields, leading them to feel less confident in their skills in these fields compared to their male counterparts. As a result, they perceive themselves as less self-efficacious and are less inclined to consider careers in these domains (Tellhed et al., 2018; Widlund et al., 2020). These gender differences suggest that targeted interventions may be necessary to help students recognise and navigate their resources for career planning.

Career adaptability resources for resilient life design

The life design approach appears to be a promising theory that assists young people in planning their careers during rapidly evolving times (Savickas, 2012). The concept describes career development as a process in which individuals actively shape their careers, utilising personal narratives to form their professional paths and give meaning to their lives. It emphasises the importance of individual adaptability and self-reflection, encouraging people to recognise their strengths, values, and goals, and to integrate these into the design of their personal and professional lives (Savickas et al., 2009). With self-construction at its core (Guichard, 2005), life design has initiated a new paradigm in the 21st century, blending two existing concepts from past career counselling studies: vocational guidance (Holland, 1959) and career development (Super, 1952). This new paradigm has shifted from matchmaking to meaning-making (Hartung, 2019) by focusing more on how work fits into life (Savickas, 2012) than on how people fit into work. Appropriate resources must be developed to nurture this attitude towards career planning among young people. Thereby, career adaptability resources (Savickas, 1997) are particularly crucial, as they prepare adolescents for the uncertainties presented by today's fluctuating work life (Vilhjálmsdóttir, 2015).

Career adaptability is typically conceptualised as a psychosocial state rather than as a stable trait based on a set of resources. The nature of these resources, known as the five Cs, becomes evident when young people are willing and able to autonomously plan, explore, decide, and cooperate to overcome challenges in their career planning (Nye et al., 2018; Savickas, 1997). Firstly, *concern* is essential for stimulating the necessary awareness and preparation in career planning, helping adolescents envision their future careers. *Control* encourages young people to recognise their capacity to make decisions and to take personal responsibility for their future choices. *Curiosity* fosters the exploration of oneself and the environment, leading to satisfactory career decision outcomes. *Confidence* is the belief in one's capacity to master challenges and solve problems; this ability is linked to overall self-efficacy (Savickas, 1997). The fifth resource, *cooperation*, introduced by Nye et al. (2018), conceptually differs from the other four psychological resources, as it primarily pertains to external relationships beyond the self.

The interplay between external and internal resources is crucial for young people's career planning. Career adaptability can be understood as the capacity to navigate internal resources, such as self-efficacy, and external resources, like social support – a core element of resilience as conceptualised by Ungar (2005). While the ability to negotiate access to resources also plays a role in Ungar's framework, we focus on self-efficacy and the active search for social support. These capacities can be seen as part of a dynamic process of resource management in response to career-related challenges. Schools can support this process by fostering career adaptability through targeted interventions; for example, teachers can help students feel more in control of their careers by highlighting aspects of career planning where adolescents can actively influence outcomes (Masdonati & Fournier, 2015). Furthermore, the gaming world offers a unique opportunity for young people to develop career adaptability resources, allowing them to experience decision-making, problem-solving, creative thinking, cooperation, and more in a simulated environment. Identifying and utilising these experiences from gaming can be particularly beneficial in enhancing their career adaptability resources.

The potential of video games for career planning

A key question to consider is why gaming should be regarded as an essential field for adolescents' career planning. Firstly, video games have become a viral leisure activity among young people in many parts of the world. For instance, in the United States, over 70% of individuals under 18 play video games regularly; in Switzerland, more than two-thirds of adolescents aged 12 to 15 are regular players (Entertainment Software Association, 2022; Külling et al., 2022). In

Norway, 76% of 9–18-year-olds participate in digital gaming activities (Kultur- og likestillingsdepartementet, 2024).

Secondly, it makes sense to take a closer look at the gender aspect in gaming, as the gaming world is still heavily shaped by persistent gender stereotypes. Current studies of media consumption indicate that there are still more male than female commercial video game players (Kinnunen et al., 2024; Külling et al., 2022; Kultur- og likestillingsdepartementet, 2024). Finnish male players predominantly engage in shooter (57%) and adventure games (46%), while female players prefer puzzle (56%) and simulation games (15%) (Kinnunen et al., 2024). Moreover, male players in Finland invest significantly more time and financial resources in gaming than females. The findings in Norway further highlight that female players encounter greater exposure to online harassment and social exclusion within gaming communities, underscoring persistent structural barriers to gender inclusivity in the digital gaming environment (Kultur- og likestillings-departementet, 2024).

Thirdly, many commercial video games address relevant societal issues and provide an opportunity to learn how to navigate real-world challenges (Lux & Budke, 2023). Consequently, the gaming world is of particular interest regarding how young people develop the skills necessary to adapt to a rapidly changing world of work.

Some efforts to involve the gaming world in young people's career planning already exist, such as serious games designed for learning rather than mere entertainment. In Switzerland, the game like2be[1] was created to promote diverse vocational exploration; in Germany, the feminine avatar in Serena Supergreen[2] serves as a role model for female adolescents pursuing careers in STEM (Keller et al., 2022, 2023; Spangenberger et al., 2022). In addition to serious games, game elements are currently utilised to enhance engagement and motivation by gamifying vocational orientation and vocational education classes (Fischer & Reichmuth, 2020; Jayalath & Esichaikul, 2020).

Resilience through game-based learning

'Playing video games regularly can be a healthy behaviour in helping people deal with stress and difficulties in real life' (Zhao et al., 2024, p. 4). Beyond their recreational and emotional benefits, video games also offer rich cognitive and social learning opportunities that can be meaningfully connected to educational and career development contexts. This perspective aligns with the concept of game-based learning, which conceptualises experiences, skills, and preferences developed in commercial video games as informal learning outcomes relevant to career planning (Prensky, 2003). Using the gaming world as a new reference for career interventions is already mentioned in the field of career transitions and coaching (Rochat & Armengol, 2020; Rochat & Borgen, 2021). The studies demon-

strate the significant potential for employing gaming as a tool for career planning by utilising a gaming-related metaphor to diminish the anxiety often associated with making major career decisions, thereby facilitating a more open-minded approach. In the current digital age, career counsellors and teachers should assist young adults in regulating their expectations and anxiety, which the overwhelming amount of information, uncertainty, and career options can increase (Sovet et al., 2018). By encouraging young people to view their career planning more playfully, as if it were a game, they can broaden their perspectives and turn the daunting task of career planning into a motivating challenge rather than an intimidating problem (Rochat & Borgen, 2021).

Recent research shows that gaming fosters confidence, adaptability, communication, collaboration, and problem-solving – skills that are essential for career adaptability (Barr, 2019b, 2019a; Savickas, 1997). Career adaptability is crucial not only for navigating the initial career choice process but also serves as a vital ability in a workforce characterised by constantly changing tasks, team structures, and emerging skill demands (World Economic Forum, 2023). Parola et al. (2024) systematically review digital games in career guidance, underscoring their role in enhancing career adaptability. The study highlights how digital games support career decision-making, increase engagement with career exploration, and nurture a more positive outlook on future professional opportunities. Furthermore, the findings suggest that game-based approaches provide an immersive and interactive environment that facilitates the development of key employability skills. Collectively, these studies demonstrate the increasing potential of video games as an innovative tool in career planning, offering interactive settings for developing adaptive skills. Moreover, structured reflection on gaming experiences can help young people enhance their employability and long-term career resilience (Barr, 2017; Zhao et al., 2024).

Commercial video games as informal learning environments

Playing video games is part of the youth subcultures and serves as an informal learning environment. The gaming world, with its rules, language, and cultural events, is viewed negatively by many adults, similar to many other youth subcultures (Fromme, 2003; Zeimet, 2011). Informal learning, more broadly, refers to the ongoing acquisition of knowledge, skills, attitudes, and insights through everyday experiences and interactions with one's environment. This type of learning takes place outside formal educational settings and naturally arises as a by-product of other activities (Johnson & Majewska, 2022).

Playing has, in general, enormous potential for the learning and meaningful development of young people (Gee, 2003; Huizinga, 1987; Piaget & Gattegno, 1972). This is evident in traditional games, such as sports or analog board and card games, as well as in many video games, defined in this article as screen-

based electronic games played on any hardware platform (Funk et al., 2003). While young people up to the age of 13 primarily engage with games from the realms of sports or traditional board and card games, the use of video games significantly increases after this age (Pronova BKK, 2023). Therefore, it is essential to consider adolescents' engagement with traditional board and card games along with sports games as well.

Indeed, in the realm of video gaming, this leisure activity is often still associated with challenges, such as increased aggression of gamers (Ferguson, 2018). While these factors deserve consideration, a solely deficit-focused view of adolescents' media activities overlooks numerous opportunities for connection (Preite, 2018). Several studies have shown that so-called transferable skills (Nägele & Stalder, 2017) can be developed and applied in commercial video games, enabling them to serve as valuable resources in real life (Adachi & Willoughby, 2013; Bediou et al., 2018; Qian & Clark, 2016). Moreover, video games frequently present challenges that require repeated attempts to progress to the next level, fostering self-efficacy and problem-solving abilities (Weerdmeester et al., 2022).

Furthermore, research has demonstrated that commercial video games can offer immersive informal learning opportunities by providing players with strong emotional experiences and positive feelings (McGonigal et al., 2012). Gaming environments can therefore provide a safe space for adolescents to confront and regulate negative emotions, such as frustration, and develop social skills beyond their student identity, such as teamwork and cooperation. This is particularly important because young gamers no longer play alone and isolated in front of their computers (Kenny & McDaniel, 2011; Kinnunen et al., 2024; Kultur- og likestillingsdepartementet, 2024; Zhang & Frederick, 2018) despite the many prejudices held by adults, parents, and educators. On the contrary, gamers are digitally connected through platforms like Steam, Discord, and Twitch, and studies show that playing games often enhances real-life relationships rather than simply replacing them (Schiano et al., 2014). More than 83% of gamers in the US engage with others in-person or online and 46% have met a good friend or significant other through video games (Entertainment Software Association, 2022). To sum up, most gamers develop a playful identity while playing, trying out different roles and new solutions, and sharing support with others to creatively and cooperatively overcome obstacles (McGonigal, 2016).

Skills developed through education, extracurricular activities, and leisure activities like gaming can enhance an individual's employability and adaptability in the changing labour market (Rochat & Bodoira, 2016). Therefore, a reflection on gaming skills can help young people to explore hidden resources for career planning that they were previously unaware of (Rochat & Armengol, 2020). This process can be regarded as an indirect investment in their internal resources

(Hobfoll et al., 2018) and may also influence other aspects of their resources. For instance, skilled players in video games can effectively utilise in-game resources, such as the social support acquired through collaboration with other players (McCreery et al., 2011).

Reflecting on gaming experiences and the skills involved can enhance the transfer of valuable learning into career planning. Recent research has increasingly examined how skills gained through commercial video games contribute to career development. Wallinheimo et al. (2023) found that different professional fields tend to favour specific game genres, which help cultivate transferable soft skills such as problem-solving, spatial awareness, and leadership. Similarly, Kraus et al. (2021) identified a correlation between frequent gaming and improved cognitive abilities, including opportunity recognition – an essential skill in entrepreneurship. It can, therefore, be assumed that if young people use and even develop career-related skills through gaming, reflecting on their gaming experiences can indirectly contribute to their career planning by uncovering these competencies.

Hypotheses and conceptual model

The following hypotheses emerged from analysing the theory and are represented in the conceptual model (see Figure 1).

Influence of gender on game type, search for social support, and self-efficacy

Current studies on media consumption indicate that there are still more male than female commercial video game players (Külling et al., 2022). Furthermore, research suggests that female students tend to utilise and benefit more from higher levels of social support. In contrast, male students tend to demonstrate higher self-efficacy, believing more in their ability to successfully use their skills to achieve goals and overcome challenges in career planning (Hirschi, 2009; Rueger et al., 2008).

Therefore, we have the following three hypotheses regarding the influence of gender:

H 1.1 Being a male student has a positive effect on the game type (video games).
H 1.2 Being a female student has a positive effect on the search for social support.
H 1.3 Being a male student has a positive effect on self-efficacy.

Influence of self-efficacy, search for social support, and game type on career adaptability

Video games often reflect real-world scenarios (Lux & Budke, 2023). Consequently, we posit that skills utilised in video games can be mapped to the career

adaptability framework (Nye et al., 2018; Savickas, 1997). This framework of the 5Cs encompasses both, navigating internal resources, which can be translated to the concept of self-efficacy (Schwarzer & Warner, 2013), and external resources, which can be interpreted as search for social support (Schulz & Schwarzer, 2003). In the context of career planning, we hypothesise, therefore, that the coding of career adaptability resources represented by gaming skills will correspond to the navigation of internal and external resources in the process of career planning in the real world. Therefore, we propose the following hypothesis:

H 2.1 The game type (video games) positively influences the frequency of career adaptability resources in gaming.
H 2.2 The perceived search for social support in career planning influences the frequency of career adaptability resources in gaming.
H 2.3 The perceived self-efficacy of adolescents in career planning positively influences the frequency of career adaptability resources in gaming.

Influence of career adaptability on learning transfer

Since gaming skills are considered as transferable (Kailani et al., 2019; McCreery et al., 2011), they may be more easily applied to career planning. Therefore, we assume that if young people exhibit more gaming skills that align with the career adaptability framework (Nye et al., 2018; Savickas, 1997), they will also perceive these skills as advantageous for their career planning. Thus, we hypothesise:

H 3 The frequency of career adaptability resources in gaming has a positive effect on the transfer of learning to career planning.

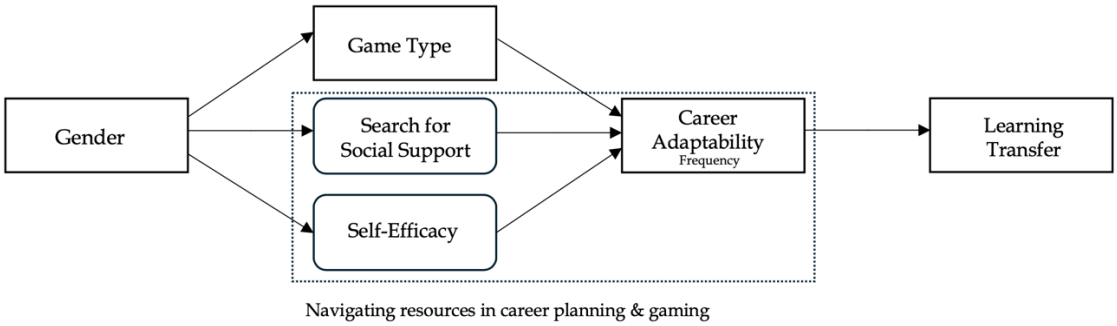


Figure 1. Conceptual model.

Methods

The following methodological approaches were employed to address the hypotheses concerning the classification of game skills as career adaptability resources and their impact on learning transfer to career planning, as well as the alignment of external and internal resource navigation between real life and gaming.

Participants and procedure

The data for this article stem from the earlier part of the longitudinal study (2021–2025) digibe[3] (Nägele et al., 2025) conducted by the School of Education, University of Applied Sciences and Arts Northwestern Switzerland (FHNW), on the digital support of young people in career orientation at the lower secondary level (Grades 9–11) in Switzerland. The study is carried out in collaboration with the Bern University of Teacher Education and the School of Applied Psychology, University of Applied Sciences and Arts Northwestern Switzerland (FHNW). The selected sample comprises 265 students who completed the reflection task 'Skills in Games, Skills in Career Planning' as part of a module inviting students to apply a video game metaphor in their career planning (Hoffelner et al., 2025; Nägele et al., 2025). The students worked on the tasks between September 2021 and June 2023. The 52 participating schools were located in five of the seven Swiss major regions. Almost half of the schools came from Northwestern Switzerland (46%; Aargau, Basel-Landschaft, Solothurn), while 22% were located in Central Switzerland (Lucerne, Schwyz, Zug, Nidwalden) and 17% in the Espace Mittelland (Bern). Eastern Switzerland accounted for 14% of the sample (Schaffhausen, St. Gallen, Glarus, Graubünden), and 2% of the schools were located in the Zurich region (Zurich). No schools were included from the Lake Geneva Region or Ticino. This distribution ensured a broad representation of both urban and rural areas within the German-speaking part of Switzerland. The majority of students (71%) lived in urban areas, with smaller proportions from intermediate (15%) and rural (14%) regions (Swiss Federal Statistic Office, 2025).

All parents were fully informed and provided active, informed consent for their children to participate in the study. The participating teachers were involved in career education, and they received comprehensive information about the scientific basis of the project and its aims, including the use of data throughout the study and its anonymised processing, which they communicated to both students and parents. The students' parental backgrounds were fairly evenly distributed across lower (41%), middle (29%), and higher (30%) occupational levels (ILOSTAT, 2025), with software developers, office clerks, and educators being the most common roles.

Students were free to choose between working on the reflection tasks or engaging in alternative work unrelated to the project. The following three

questions were embedded in the reflection task 'Skills in games, skills in career planning', enabling students to reflect on their gaming habits and preferences and consider their relevance to career planning (Hoffelner et al., 2025; Nägele et al., 2021). First, students had to freely name the game they played most often. Second, they were asked an open-ended question about the skills required in that game. Third, they were invited to reflect on whether they could apply these skills to their career planning.

The software utilised to code the data was MAXQDA (VERBI, 2023). In this software, coding involves selecting text segments and assigning them to relevant codes to systematically organise and analyse qualitative data. The open questions were generally coded based on qualitative content analysis (Früh, 2015; Mayring, 2016). For this study, the responses regarding favourite games and the usefulness of gaming skills for career planning were inductively coded, allowing the category system to emerge from the data. The gaming skills were deductively coded based on the career adaptability skills framework (Savickas, 1997), ensuring alignment with the established theoretical framework. A second coder independently coded a sample of response texts, and the reliability measure of Cohen's Kappa (Landis & Koch, 1977) was calculated to evaluate the quality of coding.

For this study, measures on seeking social support and self-efficacy (Schulz & Schwarzer, 2003; Schwarzer & Jerusalem, 1997; TREE, 2016) were used to assess external and internal resources. These measures, along with the information on gender, were taken from the status questionnaire (Nägele et al., 2021) administered at the beginning of the project, where students reported on current state of their career planning. Students filled in the questionnaire during career orientation classes. The duration between completing the reflection task and responding to the status questionnaire varied for each individual. A test was conducted to determine if this time difference influenced the results; the outcomes indicated that it did not.

Finally, the coding results, represented by one code per response, were matched directly to the survey data and other variables. The combined dataset was then analysed to draw conclusions from the coded information for further analyses by using chi-square and structural equation models (SEM) with the statistical software MPLUS (Muthén & Muthén, 2021) and JASP (2023).

Measures

Gender and game type

Gender was assessed using a single standardised item that provided students with three options: 'female','male', and 'diverse'. In Germany, the category

'diverse' has been legally recognised since 2018 and is increasingly used as an umbrella term in surveys and official documentation for people who do not identify with binary gender categories (Hadler, 2022). In the German-speaking part of Switzerland, the category 'diverse' does not yet exist legally but remains under discussion. For research purposes, we have adopted Germany's approach, which is also reflected in public discourse and by LGBTQ+ organisations such as the Transgender Network Switzerland (TGNS). In the sample of this study (N = 265), 57% were male students (N = 151), while 43% were female students (N = 114). No students selected 'diverse'.

The game type that students played was derived from the open-ended question about their favourite games, which was coded into two categories: video gamers (N = 147) and non-video gamers (N = 118).

Since the students did not always identify a single game as their most played, we combined those who selected only video games with those who mentioned video games alongside other types in the category of video gamers. Those who did not specify any particular games or referenced non-video games, such as sports or traditional card and board games, were categorised as non-video gamers. Video gamers reported playing video games exclusively (e.g., Grand Theft Auto V, Minecraft, Clash Royale), or in combination with sports (e.g., I really enjoy playing soccer in real life, but I also like playing FIFA; Occasionally, I also play GTA or Shadow Fight), or alongside traditional card or board games (e.g., Chess, Ludo, Minecraft, Assassin's Creed). Non-video gamers stated none or only sports (e.g., Tennis), only traditional board or card games (e.g., City, Country, River), or a combination of both (e.g., Chess, Soccer, Exit, Monopoly). Two raters independently coded 40% of the responses, and the interrater reliability was very good, with a Cohen's Kappa of 0.99.

Navigating resources in career planning: Search for social support and self-efficacy

Search for social support was measured with three items based on Schulz and Schwarzer (2003), for example, 'If I don't know what to do, I ask others what they would do in my place', on a scale from 1 'does not apply at all' to 5 'applies very much,' (N = 265, M = 3.61, SD = .82, *Cronbach's* α = .76).

Self-efficacy was measured with three items taken from the longitudinal study TREE (2016), based on Schwarzer and Jerusalem (1997), for example, 'When a problem arises, I can solve it on my own.', on a scale from 1, 'does not apply at all' to 5, 'applies very much,' (N = 265, M = 3.44, SD = .73, *Cronbach's* α = .72).

Navigating resources in gaming: Career adaptability

Students were invited to respond to an open-ended question: 'Identify and describe five skills that you apply when playing your favourite game.' To code

the five responses, we chose to use the career adaptability approach with its 5Cs for coding, namely concern (e.g., motivation), curiosity (e.g., being attentive), control (e.g., making decisions), confidence (e.g., persistence) and cooperation (e.g., playing in a team). Each category was labeled and numbered, along with a definition, examples, and coding guidelines for clarity. The coding procedure underwent revisions until a satisfactory level of agreement was reached. The number of career adaptability resources indicated is presented as 'Career Adaptability Frequency' and ranges from 0 to 5. Two raters coded 40% of the responses independently, with interrater reliability being very good by Cohen's Kappa of 0.88.

Learning transfer

The open-ended question, 'Can you also use the gaming skills you mentioned for career planning?', was employed to explore the extent to which students demonstrated a learning transfer to career planning in their responses. The answers were coded into two categories: Yes (e.g., I think yes, because one should always remain calm and kind, be a team player, and often think things through carefully.) and No (e.g., I don't think so.). Two raters independently coded 40% of the open-ended responses using MAXQDA (VERBI, 2023). They achieved high interrater reliability, with Cohen's Kappa at 0.96.

Strategy of analysis

We employed SEM with MPlus (Muthén & Muthén, 2021) to analyse the data. SEM is a preferred method for examining path models with latent constructs in the field of social sciences (Civelek, 2018). To evaluate model fit, we considered the comparative fit index (CFI), Tucker–Lewis index (TLI), and root mean square error of approximation (RMSEA) (Hu & Bentler, 1998). CFI and TLI values above 0.90 and RMSEA values below 0.08 indicate acceptable fit, while values above 0.95 and below 0.06 represent good fit (Hu & Bentler, 1998). We used bootstrapping, a statistical resampling method, to estimate parameters from the sample (Preacher & Hayes, 2008). Latent-variable structural path analyses were conducted using maximum likelihood estimation (Maydeu-Olivares, 2017).

Results

Descriptive statistics

Table 1 presents the means, standard deviations, and intercorrelations of the study variables. Gender (male) shows a positive correlation with the game type (video game) and a negative correlation with the frequency of career adaptability resources. The search for social support is positively correlated with self-efficacy.

Additionally, the game type (video gamer) is positively correlated with both the frequency of career adaptability resources and positive learning transfer, while the frequency of career adaptability resources correlates positively with positive learning transfer. High correlations (i.e., >.60) were examined, and none were found, suggesting that multicollinearity is unlikely to bias our results (Tabachnick & Fidell, 2013).

Table 1. Descriptive statistics and correlations among variables.

	M	SD	1	2	3	4	5
1 Gender	.57	.50					
2 SSO	3.62	.82	-.09				
3 Self-Efficacy	3.44	.73	.11	.15*			
4 Game Type	.56	.50	.27***	-.06	-.02		
5 CA Frequency	2	1.66	-.02***	.09	-.02	.20**	
6 Learning Transfer	.45	.50	-.05	-.02	-.02	.15*	.48***

Note. N = 265; SSO = Search for Social Support; CA = Career Adaptability; Gender dummy coded 1 = male, reference = female, Game Type dummy coded 1 = video gamer, reference = non video gamer, Learning Transfer dummy coded 1 = yes, reference = no learning transfer, * $p < .05$, ** $p < .01$, *** $p < .001$.

Gender and game type

Female students, $\chi^2(6) = 44.23$, $p < .001$, report a greater variety of favourite games in traditional board and card games (*adj. res* = 4.74), sports (*adj. res* = 2.04), or a combination of both (*adj. res* = 2.22). In contrast, male students primarily reference video games (*adj. res* = 4.27) or a mix of video games and sports (*adj. res* = 2.79).

Career adaptability resources

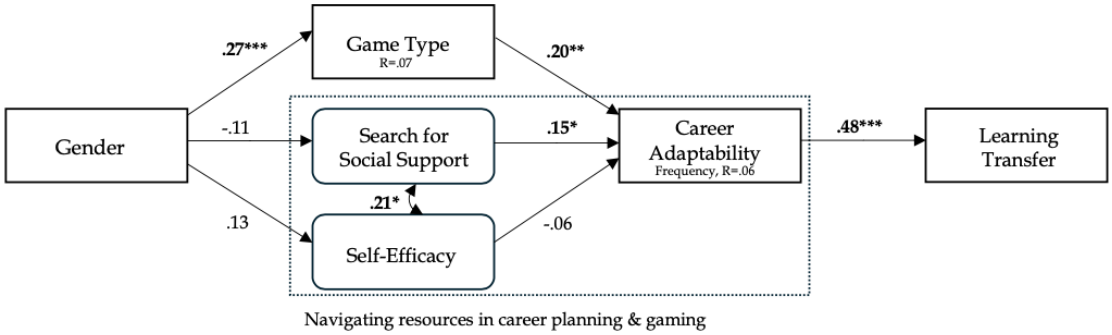
We examined the students' responses regarding which skills they use during a game. Out of the 265 participants, 77% (*N* = 204) identified one to five skills they employed in the games (e.g., planning, team play, programming); 23% (N=61) gave responses that we categorised as indicating no skills (e.g., luck, money, nothing). Overall, most students mentioned several skills, typically four or five, while only a few cited between one and three skills.

Out of the sample (*N* = 265), we found that 71% (*N* = 187) reported 529 skills, which can be categorised using the career adaptability approach (e.g., perseverance, logical thinking, decision-making). Additionally, 29% (*N* = 78) identified 198 other skills (e.g., feeling for the ball, farming, good reflexes). Among the students, 59% (*N* = 156) mentioned two or more career adaptability resources

while gaming, while 12% (N = 31) reported at least one. Of the students who listed career adaptability resources (N = 187), 20% (N = 37) fell into the concern category (e.g., good tactic, always thinking one step ahead, concentration), 65% (N = 122) into the control category (e.g., good considerations, finding fast solutions, logical thinking), 34% (N = 63) into the curiosity category (e.g., being attentive, creativity, roleplay), 34% (N = 64) into the confidence category (e.g., patience, not giving up, being ambitious) and 49% (N=91) into the cooperation category (e.g., teamwork, being able to talk well, being fair with others).

Hypothesis testing

The model presented in Figure 2 demonstrates a good fit, χ^2 (31, N = 265) = 45, p = .05, *CFI* = .97, *RMSEA* = .04, *SRMR* = .05, *TLI* = .96 (Cohen, 1988).



Note. N = 265; Gender dummy coded 1 = male, reference = female, Game Type dummy coded 1 = video gamer, reference = non video gamer, Learning Transfer dummy coded 1 = yes, reference = no learning transfer, * p < .05, ** p < .01, *** p < .001.

Figure 2. Path model.

As anticipated, being male is associated with playing video games. The unstandardised path weight from gender to game type was b = .27, p < .001, confirming Hypothesis 1.1.a. We hypothesised that being female positively influences the search for social support, but our research shows that the female gender does not positively impact navigating social resources, b = -.11, p = .11, indicating Hypothesis 1.2a is not confirmed. Our assumption that being male affects self-efficacy in adolescent career planning has not been supported, b = 0.12, p = .12, leading to the conclusion that Hypothesis 1.2b is also not confirmed.

We hypothesised that the number of career adaptability resources is influenced by the game type (video game), the search for social support, and self-efficacy. We found a significant positive effect of the game type (video game) on the frequency of the career adaptability resources mentioned, b = .20, p < .001. Hypothesis 2.1 is confirmed. Additionally, we observed a positive effect of

seeking social support on the number of career adaptability resources, b = .14, p < .05, confirming Hypothesis 2.2. However, there was no effect of self-efficacy on the frequency of the career adaptability resources, b = -.05, p = .12, leading to the conclusion that Hypothesis 2.3 is not confirmed.

We hypothesised that the learning transfer depends on the number of career adaptability resources mentioned. As expected, we found that naming a high number of career adaptability resources positively affects learning transfer, b = .48, p < .01. Thus, Hypothesis 3 is confirmed.

Discussion

First, participants were asked about their favourite games and the skills they developed through gaming. The analysis of game preferences revealed a wide variety of games, including video games, sports, and traditional board or card games. Most adolescents listed between one and five skills cultivated through gaming, such as planning, teamwork, and decision-making. Young people can, therefore, identify the skills they use and develop in video games, even without predefined response options. The only instruction needed is to encourage adolescents to consider and reflect upon the skills they develop through gaming. This could be approached similarly to career counseling sessions, where the game metaphor is utilised (Rochat & Armengol, 2020).

This data was analysed with a focus on gender differences, aiming to understand how male and female students might exhibit different results in their favourite games and their behaviour in navigating career planning resources. In this study, the gender variable was recorded in a binary format, indicating a lack of diverse responses. This limited variation may be influenced by the context of career planning, which remains strongly shaped by prevailing gender stereotypes (Hupka-Brunner & Meyer, 2023). Such stereotypes can lead students to align themselves with binary categories, potentially adjusting their responses to fit perceived expectations rather than fully expressing their own gender identity. An interesting finding was the gender association between preferred types of games, with male students tending towards video and sports games, while female students preferred traditional board or card games. This observation aligns with research trends, indicating distinct gaming behaviours among genders (Külling et al., 2022; Mäyrä et al., 2024; Kultur- og likestillingsdepartementet, 2024).

When interpreting the results, it is essential to consider that video gaming remains a male-dominated domain, often leading to the underrepresentation of women and other marginalised groups (Richard & Gray, 2018). Consequently, this environment can influence gaming behaviours and the self-perception of female gamers. Socialisation processes, for instance, typically encourage boys to

engage with digital and competitive games, whereas girls are more often guided towards social or non-digital forms of play, reflecting the influence of prevailing cultural and gender norms (Kelly et al., 2023). Additionally, stereotype threat may further inhibit female participation, as societal narratives frequently question their gaming competence (Ratan et al., 2015). Moreover, self-reporting biases and social framing play a role in shaping game preferences. Specifically, female gamers often underreport their gaming activity, particularly in casual genres such as mobile and puzzle games, which are perceived as less skill-intensive and thus excluded from the 'hardcore gamer' identity (Eklund, 2015; Yao & Rhodes, 2023). As a result, these perceptions reinforce the notion of gaming as a predominantly male domain, discouraging women from identifying as gamers and exacerbating gender disparities. These factors may have influenced the findings of this study, wherein male students more frequently reported a preference for video games. Cultural framing and self-perception biases likely contribute to male students' greater willingness to identify as gamers, while female students may underreport their gaming engagement due to prevailing stereotypes.

Interestingly, in the context of career planning, a different gender pattern emerges. Being female does not influence the utilisation of social resources in career planning, contrasting with the findings of other studies (Rueger et al., 2008). Furthermore, no impact of gender on self-efficacy in career planning could be identified, which aligns with the varied results in research showing that, in general, the effect of gender on self-efficacy in career planning is complex and influenced by additional factors, including social and cultural background (Booth et al., 2022; Sagone et al., 2020).

As career adaptability resources are essential for navigating today's uncertainties in the job market, the coding was done based on the career adaptability framework outlined in this paper (Nye et al., 2018; Savickas, 1997). This included resources for planning (concern), decision-making (control), exploration (curiosity), problem-solving (confidence) and teamwork (cooperation). The data was then analysed using a structural equation model, demonstrating a robust fit that confirms the reliability of our findings.

The study found that the identified gaming skills correlate with career adaptability resources. It determinded that adolescents who play video games tend to report a greater number of career adaptability resources. This challenges the traditional opposing viewpoint that underestimates the educational value of video games (e.g., Ferguson, 2018). This finding supports the idea that video gaming, along with its often-utilised real-life scenario, serves as a valuable informal learning environment for developing essential resources in today's digital and fast-evolving world (Rochat & Armengol, 2020; Rochat & Borgen, 2021).

Our study also sheds light on the roles of navigating to internal and external resources in real life and their impact on referencing career adaptability resources in gaming scenarios. While self-efficacy and related problem-solving skills are not evident in gaming, the use of external, primarily social resources is reflected in the mention of more career adaptability resources. Therefore, young people who actively seek the opinions and support of various individuals when planning their careers have greater access to gaming resources. One could argue that seeking social resources enables young people to leverage diverse resources for problem-solving.

The connection between identifying career adaptability resources and a positive learning transfer to career planning was also confirmed. Learning transfer is positively influenced by recognising a greater number of gaming skills that can be classified as career adaptability resources. This underscores the importance of encouraging young people to link their leisure activities, such as gaming, to their career planning. By willingly applying their gaming habits to strategies in their career planning process, they may discover hidden resources that can be beneficial.

Results from the SEM also indicate that gender influences the type of games played, which in turn affects the frequency of identified career adaptability resources and ultimately the learning transfer. Specifically, male students are more likely to engage in certain game types, particularly video games, that help them identify more gaming skills applicable to career adaptability resources. For male students, engaging in one of their preferred leisure activities, gaming, can thus be an effective way to reflect on their behaviour within gaming contexts and recognise potential resources for navigating career decision-making processes.

Conclusion

Overall, the study found that adolescents can identify and articulate skills gained through gaming, aligning with the career adaptability resources framework, which includes concern, control, curiosity, confidence, and cooperation (Nye et al., 2018; Savickas, 1997). Career adaptability is crucial for resilience, enabling individuals to manage challenges and transitions more effectively (Santilli et al., 2020). In a rapidly evolving job market, adaptability and resilience rank among the top skills required for employability, as highlighted by the World Economic Forum (2023). By cultivating these skills, students can establish a stronger foundation for informed career planning and for managing the demands of contemporary education and work environments. This study highlights the potential of video games as an informal learning tool to raise awareness of resources like career adaptability and resilience in adolescents. These insights can

be highly beneficial for career planning and may help to reduce dropout risks in vocational education and training (VET).

The implications of these findings are particularly relevant for the Nordic countries and Switzerland, where reducing dropout rates in VET programmes remains a common challenge. Dropout rates tend to be higher in VET pathways than in general education. In Switzerland, approximately 25% of apprenticeships are terminated within the first year (Bundesamt für Statistik, 2023), while, for example, in Norway, around 30% of VET students do not complete their programmes (Schmid, 2017). Given these challenges, integrating game-based learning into the VET curriculum – or even earlier at the lower secondary level – could help foster essential skills, such as career adaptability, which may be critical for vocational pathways and reducing dropout risk.

In particular, young men – who are disproportionately affected by VET dropout rates in both Switzerland and the Nordic countries – may benefit from targeted game-based interventions. While male students report lower levels of social help-seeking in the context of career planning, this behaviour is associated with indentifying fewer career adaptability resources in gaming. Interestingly, the same group demonstrates high engagement with video games, where they frequently practise career adaptability competencies such as problem-solving, decision-making under pressure, and strategic collaboration. This contrast highlights a promising opportunity: video games can serve as an accessible and relatable 'door opener' to initiate career-related reflection and resource awareness. Career counsellors and educators can draw on the familiarity and motivational appeal of gaming to introduce concepts of support-seeking and teamwork in a context that resonates with young male students (Ginevra et al., 2015).

Moreover, using game-based metaphors can help normalising the idea of drawing on others' strengths and perspectives when facing complex decisions. As shown by Rochat and Borgen (2021), such metaphors support young people in recognising overlooked resources and translating them into their real-life planning processes. Just as every game hero relies on a guild with complementary abilities to overcome complex challenges, adolescents can be encouraged to build their own 'career team' – comprising peers, teachers, counsellors, or family members – to support their career planning. By bridging the gap between informal learning experiences in gaming and formal career guidance, practitioners can more effectively engage male adolescents who might otherwise be hesitant to seek support. At the same time, fostering reflective practices through game-based approaches holds broader potential: encouraging early engagement with reflective practices benefits all students, regardless of gender. Early reflection enhances self-awareness and facilitates a smoother transition into more structured learning environments such as VET. Dahlberg and Gustavsson (2024) noted that reflective practices and digital simulations are increasingly crucial in

Nordic VET systems, which are predominantly school-based and often lack experiential learning opportunities. Introducing structured game-based learning and reflection into lower secondary education can bridge this gap, preparing students for the demands of self-directed learning and digital simulations in modern VET programmes.

In summary, the reluctance to embrace game-based learning risks overlooking a highly relevant and motivating context in which adolescents are already developing essential skills for career planning. Additionally, using the metaphor of a video game in guidance settings can serve as a powerful motivational tool. Educators and career counsellors should recognise the informal learning potential of video games and actively guide adolescents in reflecting on their gaming experiences. This encourages them to apply familiar gaming competencies to their own career-planning journeys, helping them access hidden resources. By making these resources visible and transferable through structured reflection, professionals can better prepare young people to navigate resources for the uncertainties of modern work and education more consciously.

Limitations and outlook

The study didn't consider video game genres significantly influencing skill acquisition. Presenting the effects in a more nuanced way when considering game type would be beneficial. Additionally, reliance on self-reported data obscures clarity regarding skill development during gaming and its transfer to career planning. Further research is required to investigate these processes, potentially using qualitative methods and more extended observation periods. Another limitation of this study is its binary classification of gender, which fails to encompass the full spectrum of gender identities. Future research should explore how gaming experiences and career-related effects extend beyond the binary, facilitating a more inclusive understanding of young people's gaming habits and resources.

Endnotes

[1] See webpage, www.liketobe.ch
[2] See webpage, https://serena.thegoodevil.com/
[3] See webpage, www.digibe.ch

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Ethical considerations

The study received approval from the ethics commissions of the collaborating universities, ensuring that all procedures adhered to ethical standards for research involving human subjects. Regular reports are submitted to the State Secretariat for Education, Research and Innovation (SERI) of Switzerland as required. Participation is based on obtaining fully informed consent from students, their parents, and teachers. In line with our open data policy, the collected data will be made publicly available upon the project's completion.

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