



How Do Social Support and Personal Resilience Assure Confidence in Vocational Choice in Times of the Pandemic?

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RESEARCH

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ABSTRACT

As a global crisis, the COVID-19 pandemic struck everyone hard. As an extraordinary, unforeseeable, and uncontrollable event, it qualifies as a career shock. Since young people early in their careers were in crucial stages of their development at the time social distancing started, they specifically suffered. According to Conservation of Resources Theory (COR Theory), individuals with higher resources are less affected by challenges. Resilience and social support are important during crises, as they help in dealing with setbacks. Our study followed a group of German bachelor students ($N = 797$) at three time points: in January 2020, during the first period of social distancing in April, and afterwards in June 2020. We assume that individuals with high resilience and support network quality have fewer thoughts about their career as consequence of the pandemic and thus cope better and stay confident in their vocational choice.

Findings reveal that especially resilience influences the thought process triggered by the COVID-19 pandemic: more resilient students also think less about their career as a consequence of the pandemic. Furthermore, at the same measurement point, those thought processes influenced the confidence in vocational choice negatively.

These results, aligning with COR Theory, underline the importance of resources in dealing with career shocks. Furthermore, they show that those thought processes have a direct influence on confidence in vocational choice, possibly influencing individuals' career paths. Since both resilience and social networks can be influenced, we recommend different measures for universities, students, and society in coping with the aftermath of the pandemic.

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KEYWORDS:

career shock; COVID-19;
resilience; social support;
university students

TO CITE THIS ARTICLE:

Hirschberger, S., Wittner, B., & Kauffeld, S. (2023). How Do Social Support and Personal Resilience Assure Confidence in Vocational Choice in Times of the Pandemic? *Swiss Psychology Open*, 3(1): 8, pp. 1–19. DOI: <https://doi.org/10.5334/spo.48>

INTRODUCTION

The COVID-19 pandemic had a massive impact on the daily and career-related lives of individuals (Elmer et al., 2020). As a global crisis, it forced society to take drastic measures to reduce infection rates (Ciotti et al., 2020; Ebrahim et al., 2020). These measures included, but were not limited to, the reduction of social contacts, distance learning in schools and universities, remote work wherever possible, and the closure of cultural institutions (Benke et al., 2020; Steinmetz et al., 2020). Because of the pandemic and the measures against it, many mundane experiences like meeting friends, going to school or university, going to work, travelling, and attending parties were suddenly not possible anymore.

Experiences, such as socializing with new friends and travelling, are especially important for the development of adolescents and young adults, as these life phases are characterized by drastic changes even under normal circumstances (Nurmi, 1993). Examples include becoming independent and detaching from the parental home, as well as making new friends in their studies who also have similar subject interests (Thiele, Sauer, Atzmueller et al., 2018).

In this context, the COVID-19 pandemic might especially be disruptive for people in the early stages of their careers, for example, students (Fegert et al., 2020), as many experiences were not possible to the same extent during the COVID-19 pandemic: students moved back into their parents' homes, and socializing became much more difficult because of digital teaching (Plakhotnik et al., 2021).

Furthermore, during adolescence and early adulthood, career planning is an important task and especially important during the transition from school to work or university (Havighurst, 1972; Manning, 2002; Toyokawa & DeWald, 2020) and a fundamental first step in career development (Gunkel et al., 2010). Career exploration – as described by Taveira and Morneno (2003) – is a complex psychological process that includes the search for career-relevant information as well as the testing of potential career paths. As the brain is still in development until the age of 25 (Hooper et al., 2004), even under normal circumstances, career planning is a rather difficult task for young adults (Taveira et al., 1998). A lot of developmental processes and drastic changes like leaving the parental home or finding a peer group take place simultaneously during this period and can divert attention from future career choices (Havighurst, 1972).

Consequently, this developmental task might especially be difficult during a pandemic. On the one hand, individuals have other preoccupations during a crisis. On the other hand, important experiences related to career planning were not (always) possible during the pandemic: e.g., internships, had to be interrupted, studying abroad, which provides intercultural experiences, was not

possible, and social exchange with other students and lecturers was limited (Schäfer et al., 2020; Plakhotnik et al., 2021). Therefore, as the COVID-19 pandemic not only influenced the private lives of individuals but also their careers and professional lives, it can be understood as a career shock – a concept by Akkermans et al. (2018) – that influenced the careers of individuals profoundly.

Different groups of students might be impacted differently by the pandemic, e.g., concerning the perception of stress in vulnerable student populations (Marczuk et al., 2021; Zimmer et al., 2021). In the context of this study, we were interested in the influence of the pandemic on career planning for pre-service teachers. Pre-service-teachers are recognized in this study as German university students pursuing a teaching degree in order to then be allowed to teach in schools. This influence on career planning and decisions might especially hold true for those pre-service teachers, as their outlook on their careers changed dramatically during the crisis. This in turn can profoundly impact their careers and studies. Since students in Germany have to decide on a major in teaching in their application and cannot easily change their careers with a teacher's degree, they consequently have to drop out of their studies. Deciding to no longer want to become a teacher or indecision, therefore, leads to a phase of career planning and lower confidence in vocational choice.

Students' career decisions with regard to the pandemic affect society as a whole. Their resilience and their perceptions are thus not only relevant because of the consequences that the career shock might have for their individual career paths, but also as an indicator of potential larger-scale consequences for universities and companies. University funding depends on the number of students who successfully complete their programs (Jaeger et al., 2005), and it is also important for companies to ensure that people entering the workforce are confident in their career decisions after graduation. This means that there are broad social and business concerns at stake in determining whether and to what extent the COVID-19 pandemic has an impact on students. Nonetheless, the needs of young adults and students were largely forgotten by society, since they are not the most physically vulnerable group (Chen et al., 2021).

Based on the above-mentioned influences of the COVID-19 pandemic, it seems essential to examine the role of the pandemic in the lives of university students and to determine what consequences the pandemic and consequent career-related thought processes might have for their careers and especially their career planning. Consequently, it is important to investigate the influence of the COVID-19 pandemic on the career planning and confidence of vocational choice of people in early life phases.

It is also important to investigate how students are dealing with such drastic changes and how they stay

secure in their career path. In this context, resources—as noted by the COR Theory (Hobfoll, 2001)—could play an important role during a crisis. Having resources (e.g., resilience, social support) allows individuals to respond to times of crisis (Akkermans et al., 2018). With this study, we examine how resources, such as resilience and social support, influence the thought processes concerning one's career triggered by the COVID-19 pandemic and subsequently the confidence in vocational choice of students planning to become teachers.

This research contributes to the research concerning career shocks. To date, there is little research concerning career shocks in general, as they are a relatively new concept. Analogously, career shocks for university students are a blind spot in particular. Career shocks have an impact on the choice of graduate careers (Seibert et al., 2013). On this basis, the investigation of undergraduate university students seems to be both justified and potentially interesting. In addition, this study combines research on career shocks with COR Theory – in line with Akkermans et al. (2018).

Especially the thought processes triggered by the COVID-19 pandemic might have an impact on the careers and the career planning of such young adults. It is important to examine how those thought processes can be influenced and how they influence the careers of young adults. In this sense, this study also enriches research on career shocks and resources with a perspective on student career planning.

Practical contributions include the information of the influence of career shocks and resources have on the individual's career path. Knowing how resources can influence and impact the career planning of individuals may help in developing interventions for students.

All in all, with this study, we examine how resources, such as resilience and social support, influence the deliberate thought process triggered by the COVID-19 pandemic and how this deliberate thought process influences in turn the confidence in vocational choice of pre-service teachers. Furthermore, we are also interested in the influence of resilience and social support on confidence in vocational choice. The full research model can be found in Figure 1.

COVID-19 AS A CAREER SHOCK AND ITS INFLUENCE ON CAREER PLANNING

Career shocks are disruptive and extra-ordinary events that are, at least partly, outside the individual's control, and trigger a conscious thought process concerning one's career (Akkermans et al., 2018). They can be differentiated regarding their predictability and their valence (Akkermans et al., 2018). While the concept of career shock is relatively new, other concepts were used in the past to describe similar kinds of events, e.g., chance events (Bright et al., 2005), serendipity (Betsworth & Hansen, 1996), and happenstance (Miller, 1983).

The COVID-19 pandemic is considered a career shock as it is a disturbing and extraordinary event that many people have experienced as a disruption to their lives (Akkermans et al., 2020), in part because of the many measures implemented due to the pandemic that restricted both private and professional life and is outside of the individual's control. Akkermans et al. (2018) conclude that, when both the predictability and controllability of the event are low, as is the case for the COVID-19 pandemic, it is more likely to result in negative career outcomes. Furthermore, the COVID-19 pandemic can also be described as an impactful or strong event,

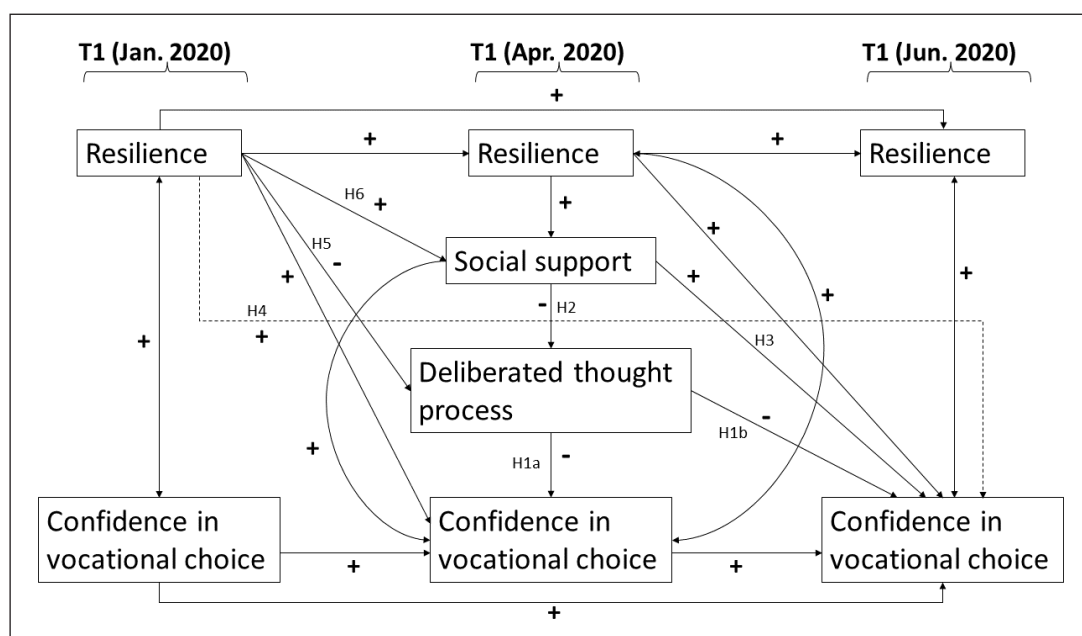


Figure 1 Assumed model of the influence of resources (resilience and social support) on the reflective thought process triggered by the COVID-19 pandemic and the influence of that thought processes, in turn, on confidence in vocational choice.

based on the event systems theory (Morgeson et al., 2015), which describes events as impactful that share the key characteristics of novelty, discontinuity, and criticality.

Studies show the importance of chance events (e.g., Bright et al., 2005; Hirschi, 2010) in adolescence and early adulthood and that those events influence their career decision making as well as their perceived career success, underscoring the necessity of handling those events well. As many as 69% of school and college students in a study by Bright et al. (2005) indicated that chance events influenced their career decision making processes. Hirschi (2010) comes to a similar conclusion: chance events play an important role in the transition from school to work or university. The perception of those events is also related to their perceived career success (Hirschi, 2010).

As the COVID-19 pandemic is a career shock with a mostly negative impact, it also influences especially adolescents and young adults. Research shows its influence on university students concerning student anxiety, uncertainty about completing the semester, confusion about study expectations, and increased stress levels (Elmer et al., 2020). Students also report an increased workload (Wang et al., 2020) and decreased enthusiasm for working in their chosen professions (Ye et al., 2020). The pandemic also influenced the plans of university students, 11.9% of whom changed their plans due to the pandemic (Garcia et al., 2021). These changes were also related to higher stress perception and anxiety (Garcia et al., 2021), which shows the negative consequences that a career shock and the consequent process of reflecting on their career plans can have on students.

Especially pre-service teachers might be affected by the COVID-19 pandemic in two particular ways. First, in their role as students, they lose the support of their professors and fellow students because of social distancing. Second, in their role as prospect teachers, they realize that teachers have to adapt quickly to changing circumstances, in this case by implementing distance learning without having been trained for it. Some students experience this first-hand during internships or part-time work in schools, and others are made aware of the problems of distance learning via news and social media. Their views of their prospect profession might change as a consequence of this career shock, prompting, in turn, a reflection process regarding their chosen profession.

In conclusion, career shocks can have a major impact on individuals' career trajectories, as they prompt reflection and deliberation on one's career (Akkermans et al., 2018; Seibert et al., 2013). The focus of the current study are those deliberate thought processes that might be triggered by the perception of COVID-19 as a career shock and how those thought processes influence the career planning and career decidedness of students.

CONFIDENCE IN VOCATIONAL CHOICE

Even though people make career decisions throughout their lives, such decisions are rarely simple (Patton & Creed, 2001). The choice to study is one of the first professional decisions that people make, but it is also perceived as life-defining (Wittner et al., 2019). Confidence in vocational choice—a similar concept to career decidedness—describes one's level of confidence in one's chosen career and, in the context of students, specifically one's confidence in and commitment to one's chosen course of study (Gordon, 1998; Li et al., 2019; Robbins et al., 2006).

As a career shock, the COVID-19 pandemic has influenced the career path of individuals (Akkermans et al., 2018) and therefore, their confidence in vocational choice as well. In line with Akkermans et al. (2018), description of a career shock all those changes might trigger a deliberate thought process concerning their chosen career. This thought process in turn might lead the students to question their career choices and might in turn reduce their confidence in vocational choice. Research also shows that such shocks can lead to reflection on one's career and also to career changes (Seibert et al., 2013).

Considering that, in the German tertiary education system, individuals must choose their major (Bachelor's degree programme) before beginning their studies. This seems to be even more important for pre-service teachers, who not only choose their major upon beginning their Bachelor's degree in teaching, but also, mostly likely, their future profession. In comparison to other students, who can often decide over the course of their studies which careers they want to pursue, pre-service teachers usually determined their careers at the beginning of their studies: they study to become teachers.

Thus, it is especially important that pre-service teachers are confident in their vocational choice. Pre-service teachers who report lower career decidedness are more likely to drop out of their degree program (Klassen & Chiu, 2011; Roberts, 2012). In addition, career decidedness is a good predictor of persistence to graduation (Eren & Rakicioğlu-Söylemez, 2021; Hobson et al., 2009), as well as career satisfaction (Earl & Bright, 2007). Confidence in vocational choice and career decidedness are thus important measures in determining the impact of the COVID-19 pandemic on pre-service teachers and their career plans.

As outlined above, circumstances for pre-service teachers changed dramatically in two ways: On the one hand, university changed to distant learning and also practical experiences such as internships were no longer possible. On the other hand, also their chosen career changed dramatically during the pandemic as teachers were often left alone to teach online or in double shifts. Furthermore, it is also harder for them to adapt, as pre-service teachers study to become teachers and they mostly only have the choice of staying in their

current career path or of dropping out of their studies and finding something new entirely. Consequently, this thought process – even though it might also be considered adaptive – is a consequence of the pandemic and the changed circumstances during the pandemic. Since negative events in particular, such as a pandemic, stimulate processes of thinking and reflection (Seibert et al., 2013), it is not surprising that they lead many people question their career paths (Ibarra, 2020).

Consequently, we assume:

H₁: Students who think more about their careers as a consequence of the pandemic have a lower confidence in vocational choice (a) as the pandemic first hit and (b) three months later.

In regard to the impact on confidence in vocational choice, it seems to be important that there might be interindividual differences (e.g., Hirschi & Valero, 2017). Confidence in vocational choice can stem from different intrapersonal resources (e.g., self-efficacy (Restubog et al., 2010), vocational identity (Vondracek et al., 1995), and work engagement (Konstam & Lehmann, 2011)) and interpersonal resources (social-support (Chan, 2018)). This dependence on resources is explained by the COR Theory: certain individuals are at higher risk for detrimental outcomes as a result of negative career shocks (Akkermans et al., 2018). In this context, the COR Theory offers an interesting explanation on how those individual differences are developed and how they impact the consequences of the career shock.

THE POSITIVE INFLUENCE OF RESOURCES – COR THEORY AND JOB-DEMANDS RESOURCES MODEL (JDR) AS UNDERLYING MODELS

Resources can reduce the impact of the COVID-19 pandemic as a career shock on pre-service teachers and might lead to less powerful thought processes about their careers. In addition to contextual conditions, individual conditions also play an important role in dealing with career shocks (Akkermans et al., 2020). The basic tenet of COR Theory is that individuals as well as groups aspire to preserve, protect, and foster those things that are of fundamental significance to them: resources (Hobfoll et al., 2018). Having resources leads to increased well-being as well as personal development (Hobfoll, 2001). Thus, resources are important in light of challenges, as they allow individuals to be more resilient and flexible during career-related challenges.

Overall, COR theory proposes three principles: 1) resource loss is more salient than resource gain, 2) one has to invest one's resources to protect oneself against resource loss, and 3) the gain of resources is especially important during resource loss (Hobfoll et al., 2018). Additionally, three corollaries are also part of the theory: firstly, those that have more resources are less susceptible to resource loss

and better at gaining resources, while those with fewer resources are more susceptible to resource loss and worse at gaining resources. Secondly, resource loss happens in cycles, increasing in momentum and magnitude, while thirdly, resource gain happens in slower gain spirals than resource loss because of the slowness and lower magnitude of resource gain (Hobfoll et al., 2018).

During the COVID-19 pandemic, the first corollary (being less susceptible to resource loss when having more resources) was especially relevant. The pandemic and the measures were a unique challenge that could lead to resource loss. Therefore, it is important to be protected against this kind of resource loss and this can be a consequence of having more resources as stated by the COR theory.

Applied to work-related contexts, the JDR model (Bakker & Demerouti, 2017) assumes that each job has specific characteristics which can be classified into two categories: job demands and job resources. Job resources are especially important, as they are described as the physical, psycho-social, and organizational aspects of a job that facilitate the achievement of goals at work, promote personal growth, and reduce the demands of work and their associated costs. In the context of workplace safety, some studies show an association between job resources and negative outcomes, such as emotional exhaustion and low job satisfaction (Falco et al., 2021). Thus, resources can potentially reduce the negative impact of COVID-19 in the context of career planning.

All in all, resources are important in dealing with career shocks. Resilience and social support are two resources known to be important during crises and thus might play an important role in coping with career shocks, as well. Seibert et al. (2016) point out the importance of individual resources in dealing with career shocks, such as having a growth mindset, dealing with distracting emotions, and forming social relationships. Firstly, resilience can be seen as a moderately stable personal characteristic that plays a major role, especially, in the context of challenges and setbacks, helping individuals cope with them and possibly emerge stronger from them (Schulte et al., 2016). Social contacts, secondly, are of particular importance for students, especially contacts with other students (Wittner & Kauffeld, 2021). Especially during the pandemic, most individuals recognised that humans are not lone wolves but are embedded in groups of friends, family, co-workers, and acquaintances. Thus, researchers cannot forget the social networks individuals live in—especially during times when social contacts decrease to “flatten the curve”.

SOCIAL SUPPORT

Following the theoretical framework of the JDR, social support is an important resource in dealing with stress (Bakker & Demerouti, 2017). While the model assumes a

buffering effect for resources, studies show direct effects of social support. Having and using contacts—i.e., social capital and social support—is helpful for handling both positive and negative challenges and has a direct effect on psychological factors such as job satisfaction (Lin, 2012). According to COR Theory, individuals gain access to additional resources through their support systems and shape their identity through the people around them. Thus, individuals strive to keep their social support systems in order not to lose their resources and their identities (Hobfoll & Stokes, 1988).

A developmental network that provides an individual with vocational and socio-emotional support further helps individuals reach career relevant outcomes, such as work satisfaction (Higgins, 2000) and salary (Murphy & Kram, 2010), and it also increases self-efficacy beliefs (Dobrow & Higgins, 2005; Ragins & Kram, 2007) and optimism (Higgins et al., 2010). In higher education, it is an important factor linked to academic achievement (Thiele, Sauer, & Kauffeld, 2018), performance (Thiele et al., 2019), and retention (Wittner et al., 2019), as well as academic satisfaction (Wittner & Kauffeld, 2021) and career planning (Wittner & Kauffeld, 2021).

During the COVID-19 pandemic, students mainly studied alone instead of in study groups, and other interactions among students also became less frequent (Elmer et al., 2020). Elmer et al. (2020) conclude that isolation in social networks and the lack of social support, as well as physical isolation, could be related to negative mental health trajectories. This shows the particular importance of social support in times of crisis.

Thus, according to COR Theory, we assume that social networks remain beneficial for students' confidence in vocational choice (Wittner et al., 2019; Powazny & Kauffeld, 2021).

H₂: Reporting higher social support leads to fewer thoughts about one's career as a consequence of the pandemic.

H₃: Reporting higher social support leads to higher confidence in vocational choice.

RESILIENCE

While support as an interpersonal resource is important in times of crisis, intrapersonal resources, e.g., self-efficacy-beliefs, are important in decreasing students' drop-out intentions, (Aymans & Kauffeld, 2015). One intrapersonal resource that is very important and must be considered when talking about crisis is resilience.

Resilience can be defined as the ability to successfully overcome failures, setbacks, or other potentially threatening situations (Schulte et al., 2016) and can also be understood as a process or as an outcome in threatening situations (Masten et al., 1990). It is also described as the human capacity for dealing with, as well as prevailing amidst or even learning from, adverse

life events and stressors (Grotberg, 2003). Thus, it can only be understood in the context of adversity and crisis (Fisher et al., 2019). As shown by previous studies, resilience can reduce the negative effects of those events (Linnenluecke, 2017; Ran et al., 2020). Resilient employees are better at overcoming adversity, their own failures, and change processes (Luthans, 2002), and employees can even emerge stronger from these difficult situations (e.g., Linnenluecke, 2017). Positive adaptation in the face of adversity thus means that resilience has been successfully demonstrated (Fisher et al., 2019).

Nakano et al. (2011) were able to show that resilience is crucial for stressful events. First studies already show the importance of resilience during the COVID-19 pandemic: people with higher psychological resilience had fewer symptoms of depression, anxiety, and somatization (Ran et al., 2020). Furthermore, a study by Li et al. (2021) also indicates that social support and resilience protected the mental health during the COVID-19 pandemic.

Resilience could be established as an important factor in positive organizational behaviour (Schulte et al., 2016) and important in the context of academic performance. For example, resilience has been shown to be important for adaptive coping skills and the ability to turn stressors into opportunities for learning and development (Wilks, 2008). In studies with college students, resilience was found to be related to task-related coping (Campbell-Sills et al., 2006) and to problem-focused coping with stressors (Kariv & Heiman, 2005). These, in turn, are important for academic achievement (Clifton et al., 2004). Resilience also reduced the effect of negative affect and increases the effect of positive affect on psychological health in young adults in Turkey (Arslan et al., 2020). All in all, students with high resilience can be described by their skill to use their resources, deal with challenges and also still have academic success (Ang et al., 2022).

In this context, we assume that resilience also helps students in dealing with the COVID-19 pandemic as a career shock and helps them especially in dealing with the deliberate thought process that is triggered by the COVID-19 pandemic. As described above, we consider this thought process to be firstly maladaptive as it stems from the pandemic which is an acute stressor (Kuntz et al., 2021) and might therefore lead to misinformed career decisions. We assume that resilience is linked to fewer thoughts about one's career as a consequence of the pandemic as resilience helps with positively adapting to the situation of the COVID-19 pandemic.

H₄: Reporting higher resilience leads to fewer thoughts about one's career as a consequence of the pandemic.

Resilience could also be related to confidence in vocational choice, as it is important for the adaptive functioning of young adults as well as adaptation in work

environments (Shin & Kelly, 2015). Results by Shin & Kelly (2015) indicate that resilience helps in dealing with challenges during the career decision-making process.

H₅: Reporting higher resilience leads to higher confidence in vocational choice.

Finally, resilience might predict social support, as resilient individuals have the capability to maintain their networks, even in the face of challenges (Ngoma & Ntale, 2016). Similarly, Coutu (2002) concluded that resilience can help during difficult situations with staying flexible and adaptable and might therefore help them in being in different social networks and increasing their feeling of social support. These characteristics of resilient individuals might be especially important during the COVID-19 pandemic, as having social contacts was more difficult during the months of social distancing.

H₆: Students with more resilience report having more social support during the COVID-19 pandemic.

RESEARCH MODEL

We state that the COVID-19 pandemic is a career shock that triggers a deliberate thought process concerning one's career. This thought process in turn can profoundly impact the career and career planning especially of young adults affected by the COVID-19 pandemic. This might show in the reduction of confidence in vocational choice for those individuals that experience a stronger thought process as a consequence of the pandemic (cf. H_{1a} and H_{1b}).

From COR Theory, it can be inferred that those with greater resilience and higher social support have fewer thought processes concerning one's career as a consequence of the pandemic (cf. H₂ and H₄). Resources are also important for career planning: resilience and social support can influence confidence in vocational choice directly (cf. H₃ and H₅). As we measured resilience and confidence in vocational choice at multiple time points, we also controlled for the autoregressive effects of the first and second order of resilience on resilience and confidence in vocational choice on confidence in vocational choice and were able to investigate the influence of different time points of resilience (before, during and after the pandemic hit) on confidence in vocational choice. For an overview of the assumed model, refer to Figure 1.

METHODS

PARTICIPANTS

Of the 972 students who provided data on at least one measurement point, the data from 797 students could be used in the study. Data was available from 797 students at the first measurement point, from 749 students for

the second measurement point, and from 644 students at the third measurement point.

Three persons were excluded because they provided nonsensical information in the age field (age > 99), and the others had to be excluded because they had not provided information on any of the study variables. While participation was mandatory as a course requirement, students were able to choose not to answer questions. This resulted in students taking part in at least one measurement point but not submitting any data for the relevant variables and thus, 172 students had to be excluded.

Students were in their second ($n = 442$) or fourth ($n = 355$) bachelor's semester. They were on average 21.15 years old ($SD = 3.34$). As is common for German students pursuing a teaching degree, 74% were female and 26% were male students. This gender distribution corresponds to the typical distribution found in studies of German pre-service teachers (e.g., Wittner et al., 2019). There were no statistical significant differences between the students that only took part at the first measurement, at the first and second, or at all three measurement points.

RESEARCH DESIGN

Our study used data from an ongoing longitudinal project following prospective teachers through their bachelor's degree. Participants completed an online questionnaire at three time points: January 2020, April 2020, and June 2020. Resilience as well as confidence in vocational choice was measured at all time points, but the items concerning the COVID-19 pandemic, the open-ended questions about resources and social support were only measured in April 2020 (see Figure 1).

While first cases of COVID-19 were reported in January 2020 (Schäfer et al., 2020), general measures to counter the pandemic were introduced during March 2020 with the enactment of limitations on social contacts (Thyrian et al., 2020). Even though there was no legally binding "lock down" in Germany, most public institutions were closed, including schools, universities, restaurants, clubs, and recreational facilities (Thyrian et al., 2020). Groups of celebrating people were expressively forbidden as well (Schwinger et al., 2020). For students, those measures had a huge influence on their summer term, including the shutdown of nearly all university facilities in Germany and the switch to digital learning (Schäfer et al., 2020). During May and June, the restrictions were slowly lifted (Thyrian et al., 2020). Thus, the time points described above represent different stages of the pandemic: before the COVID-19 pandemic, during the initial lockdown, and during a period of fewer restrictions.

INSTRUMENTS

Confidence in Vocational Choice

To measure students' confidence in their choice of field of study, we adapted a three-item scale on confidence

in vocational choice from Neuenschwander et al. (2013) using the word ‘study’ instead of ‘job’ (e.g., “I am certain that my study choice was just right for me.”). We used a 6-point Likert-type scale ranging from 1 (not at all true) to 6 (exactly true). In previous studies, the internal consistency ranged from Cronbach’s $\alpha = .86$ (Neuenschwander & Nägele, 2017) to $.81$ (Wittner et al., 2019). In the current study, the internal consistency was Cronbach’s $\alpha = .82$ for the first measurement point, Cronbach’s $\alpha = .85$ for the second measurement point, and Cronbach’s $\alpha = .83$ for the third measurement point, respectively.

Thought Process Triggered by the COVID-19 Pandemic

Different measures were used to investigate the perception of COVID-19 as a career shock. In this study, as described above, we focused on the career-related thought process that is triggered by the COVID-19 pandemic. Adapting from Bright et al. (2005), we used a single-item measure to investigate to what extent the COVID-19 pandemic led to a deliberative thought process concerning students’ long-term careers (“Unplanned or random events can provide the impetus to reflect on one’s plans. To what extent did the COVID-19 pandemic make you think about your long-term career plans/goals?”). The item was measured on a 6-point Likert-type scale ranging from 1 (very much) to 6 (not at all). To make the item more comparable to the other measures used in this study, the item was recoded before data analysis, indicating that higher values also meant a greater extent of the thought process.

Resilience

The individual resilience subscale from the FITOR (Schulte et al., 2016) was used to assess resilience. It consists of ten items that represent ten different facets of resilience. Examples of the items are stress resistance (“I can handle stress very well.”) and optimism (“I can find something positive in every situation.”). It was measured on a 6-point Likert-type scale ranging from 1 (not at all true) to 6 (exactly true). The internal consistency in the current study was $\alpha = .89$ for the first measurement point, $\alpha = .90$ for the second measurement point, and $\alpha = .91$ for the third measurement point, respectively.

Social Support

In contrast to measuring general and sometimes hypothetically perceived social support (Kenny et al., 2003), we wanted to measure the support the students were actually receiving from their real networks. Thus, we followed an approach used by Wittner and colleagues (2019, 2020). Students were asked at first about the people they were in contact with during lockdown (digitally and face to face) and allowed to randomly specify five of their contacts, describing their age and

education and the type of support they provided. Because of this, they were more aware of their support networks when answering the support quality question (Wittner et al., 2019). After making them aware of their support networks, we asked them to rate the perceived quality of support generated by their networks on a 6-point Likert-type scale in a single-item measure (“How well do you feel supported by your network?”).

Resources—Open-Ended Questions

While we focused on two resources in the research model, other resources might also be influenced by the COVID-19 pandemic. Therefore, we decided to investigate those resources exploratively with open-ended questions, in line with Froehlich’s (2021) call for mixed-method studies. For those questions, we used the resource model of Brummelhuis and Bakker (2012) asking students to explain in detail, the external and interpersonal resources they gained and lost during the pandemic as well as the ones they feared losing in the future. For each of those four categories (contextual-temporary, contextual-structural, personal-temporary, personal-structural), we formulated three open-ended questions concerning their resource loss, their resource gain, and their feared loss of resources (e.g., “To what extent have you lost contextual-structural resources in the last three months?”), resulting in twelve open-ended questions. Thus, participants followed a structured thought process. Later, their answers were clustered using qualitative content analysis (Mayring, 2019) and analysed concerning a) gain, b) loss, c) fears, as well as the constructs of our proposed model.

DATA ANALYSIS

All analyses were conducted in R, including descriptive analyses and the path analysis model with autoregressive effects (R Core Team, 2021). For testing the relationships between the assessed constructs, we used full information maximum likelihood (FIML) and the maximum likelihood estimation (MLR). We controlled for no other variables except for the autoregressive effects.

To assess the model fit of our hypothesized model, several fit indices were used: chi-square, robust comparative fit index (CFI), robust Tucker-Lewis index (TLI), the robust root-mean square error of approximation (RMSEA), and the Standardized Root Mean Squared Residual (SRMR). A relative chi-square (Chi2/df) below 2 indicates a good fit, while values under and at 3 represent an acceptable fit (Cangur & Ercan, 2015; Wang & Wang, 2019). Values for the robust TLI and robust CFI that are close to one indicate a good model fit, while a value of .08 or less for RMSEA is considered an acceptable fit (Wang & Wang, 2019). The SRMR indicates an acceptable fit with values lower than .10 and is an indicator of a good fit with values smaller than .05. (Cangur & Ercan, 2015).

RESULTS

DESCRIPTIVE STATISTICS

Table 1 shows the means, *SD*, and correlations among all of the main study variables: resilience, social support, career thought processes triggered by the COVID-19 pandemic, and confidence in vocational choice at their respective measurement times. The *p*-values of the correlations were adjusted via the Holm Method (Holm, 1979). The results show significant correlations between confidence in vocational choice and resilience, social support, and the thought process triggered by the COVID-19 pandemic. In line with our expectations, resilience and confidence in vocational choice correlate with themselves and each other over time. Social support

and the deliberate thought process triggered by the COVID-19 pandemic also correlate with confidence in vocational choice. Still, contrary to expectations, neither resource correlates with the thought process triggered by the COVID-19 pandemic.

MODEL RESULTS

All in all, our model showed an acceptable fit to the data $\chi^2 (8, N = 797) = 25.517, p < .000, \chi^2/df = 3.18$, robust CFI = .99, robust TLI = .95, robust RMSEA = .066 (CI = [.037, .096]), SRMR = .040. The relationships that we proposed in the model were able to explain 43,7% of the variance in confidence in vocational choice. The results of our path analysis can be seen in Figure 2. As we expected, the autoregressive effects of resilience and confidence in

	<i>M (SD)</i>	2	3	4	5	6	7	8
Time 1								
1 Resilience	4.07 (0.81)	.41***	.61***	.31***	.09	-.09	.58***	.30***
2 Confidence in Vocational Choice	4.53 (1.15)		.31***	.56***	.13	-.11*	.29***	.52***
Time 2								
3 Resilience	4.10 (0.81)			.35***	.18**	-.09	.64***	.30***
4 Confidence in Vocational Choice	4.63 (1.20)				.20**	-.15**	.33***	.62***
5 Social Support	4.80 (1.23)					-.05	.16*	.18**
6 Deliberate thought process	3.11 (1.59)						-.11	-.16**
Time 3								
7 Resilience	4.13 (0.87)							.42***
8 Confidence in Vocational Choice	4.59 (1.20)							

Table 1 Means, Standard Deviations, and Bivariate Correlations Among Assessed Constructs.

Note: * $p < .05$. ** $p < .01$ *** $p < .001$.

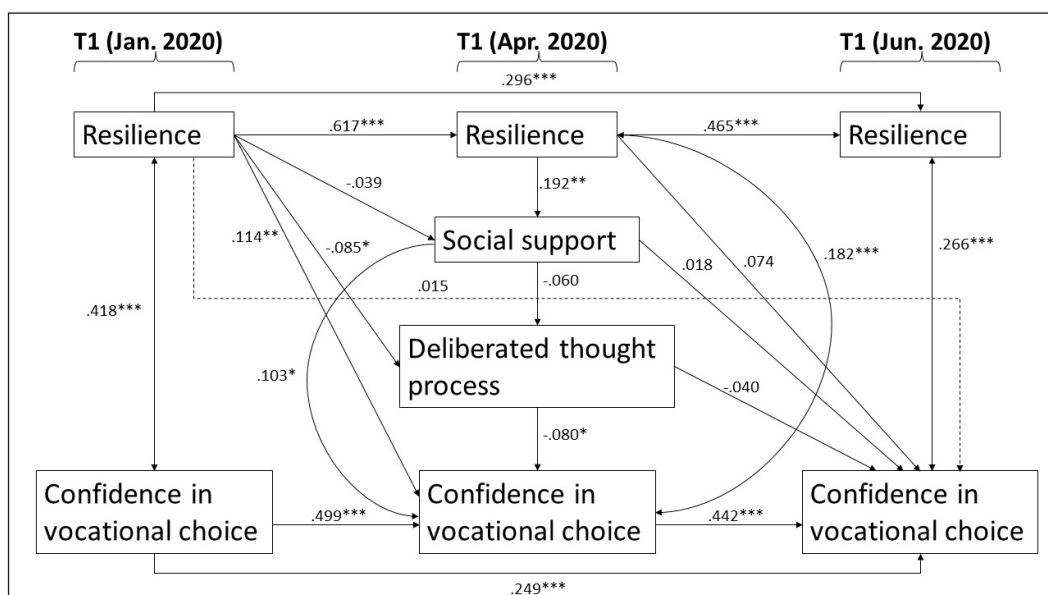


Figure 2 Final model of students' confidence in vocational choice with standardized beta coefficients.

*** Significant at $p < 0.001$, ** Significant at $p < 0.01$, * Significant at $p < 0.05$.

vocational choice were especially profound in explaining the variance in each construct.

Contrary to our beliefs and in contradiction to hypothesis H_{1b} , the deliberate thought process that was triggered by the COVID-19 pandemic and its role as a career shock did not lead to a reduction of the confidence in vocational choice over medium-term ($\beta = -.040$, $p = .19$), but it still influenced the confidence in vocational choice at the same measurement point ($\beta = -.080$, $p = .014$) in line with hypothesis H_{1a} . This means that people who thought more about their careers as a consequence of the COVID-19 pandemic felt less confident in their vocational choice at the same measurement point.

Concerning the resources and their influence on the deliberate thought processes triggered by the COVID-19 pandemic, only resilience – in line with hypothesis H_4 – showed a significant influence on this construct ($\beta = -.085$, $p = .037$), while social support was not related to the deliberate thought process triggered by the COVID-19 pandemic ($\beta = -.060$, $p = .256$) which leads to an rejection of hypothesis H_2 . This indicates that people who were more resilient before the outbreak of the pandemic also thought less about their careers as a consequence of the COVID-19 pandemic in April 2020. Social support did not play a role in this context.

In line with our expectations, the resources and confidence in vocational choice also relate to each other. First and foremost, resilience and confidence in vocational choice covaried at each measurement point ($r_{T1} = .42$, $p < .001$; $r_{T2} = .18$, $p < .001$; $r_{T3} = .27$, $p < .001$), indicating a mutual influence of those two variables on each other. Furthermore, resilience in January 2020 also predicted confidence in vocational choice in April 2020 ($\beta = .114$, $p = .002$), indicating that students who feel more resilient before the COVID-19 pandemic also are more confident in their vocational choice over medium-term and during the first lockdown. Similarly, social support also predicts confidence in vocational choice at the same measurement point ($\beta = .103$, $p = .013$). But we found neither an effect of resilience in January ($\beta = .015$, $p = .724$) or April ($\beta = .074$, $p = .081$) on confidence in vocational choice in June nor an effect of social support on confidence in vocational choice in June ($\beta = .018$, $p = .647$) which leads to an rejection of hypothesis H_3 and H_5 .

EXPLORATIVE RESULTS

To further investigate the role of (social) resources during the first stages of the pandemic, we asked participants to tell us what resources they gained, lost, and were afraid of losing. Of the 969 students, $N = 504$ gave answers in the open response format, where the participants were able to answer in as much detail as they saw fit or decide to not give any information.

While some people gained new friends, rekindled old friendships over the internet, or were happily moving back in with their parents, many suffered losses. When

asked whether they had lost resources, $N = 169$ (33%) students reported having lost social contacts in the long term ([long distance] relationships, family bonds, friendships, and roommates) as well as temporarily ($N = 127$; 25%; learning groups, acquaintances from university). Especially during the lockdown, they missed physical contact (e.g., hugging one's parents) as well as the ability to hang out in person. This often made them feel less supported and appreciated, and they missed affection. Even more students feared they might lose their social contacts in the future. Of the 309 students who shared their apprehensions about losing resources in the long run, more than a third ($N = 132$; 42%) were afraid of losing friends, family, and acquaintances for good. The reasons they gave were mostly not seeing each other, as well as fighting (especially with people they saw often during the pandemic), or older contacts dying of COVID-19. The short-term effects the students ($N = 86$ of 179; 48%) worried about were that their current contacts would become less harmonious, supportive and understanding or that some contacts would be less intensive during the lockdown. A few people described how losing relationships led to having bad moods and being less interested in things (hobbies, new knowledge, etc.). Nonetheless, participants stated that a lot of their existing relationships did change for the better: conversations got more profound and smaller circles became closer. The individuals enjoyed refreshing old acquaintances via the internet and long phone or zoom calls. Since they were relying on each other on a new level, the participants felt closer to their partners, roommates, and families. Considering all of this, while relationships did change a lot, participants did not necessarily feel less supported or more alone.

Further, looking into answers coded as resilience-related, most people said that they gained time during the pandemic. Participants used the time for themselves to unwind and, thus, felt more relaxed. They self-structured and reflected on their lives and goals. They pursued new fields of interest, new hobbies, and new sports to cope with the situation and were able to see a silver lining after all. Some even called the pandemic a new experience in which they learned how to deal with new situations. They also gained patience, since things were a) slower and b) unpredictable.

DISCUSSION

The aim of our study was to investigate the role that the thought process triggered by the perception of COVID-19 as a career shock plays in the future career planning of young adults, especially in hard-set career-paths as for pre-service teachers. Second, we wanted to connect the COR Theory with the theory of career shocks and to examine the role of resources in this context. Since both

play an important role during crisis (Seibert et al., 2016), we focused on resilience and social support, which are known to help with challenges and setbacks (Schulte et al., 2016; Wittner & Kauffeld, 2021). Our findings show the importance of both resilience and social support during the COVID-19 pandemic. First, people who are more resilient thought less about their careers compared to those who reported lower resilience. Second, resilience and social support are positively associated with confidence in vocational choice at the same time point and also – in case of resilience – over medium-term. This shows the importance of these two resources for coping with career shocks. This finding was also amplified by the explorative results.

The thought processes triggered by the COVID-19 pandemic also had an influence on confidence in vocational choice: Individuals for whom the COVID-19 pandemic more strongly triggered a thought process about their own careers were less confident in their career decisions. Still contrary to our beliefs, this relationship held only true for the same measurement point but not over medium-term, while controlling for autoregressive effects which could mean that the effect decreases over time.

Lastly, in line with our expectations, we also found an autoregressive effect, first and second order, of resilience on resilience as well as confidence in vocational choice on confidence in vocational choice which show the relative stability of these constructs.

THEORETICAL IMPLICATIONS

Our findings strengthen COR Theory and JDR Model in the context of a pandemic and restrictive safety measures, give insights into thought processes triggered by the COVID-19 pandemic, and highlight the special role of social support and resilience.

In line with COR Theory and JDR, the results indicate the importance of resources in the context of a crisis. Those who report having higher resilience report a less profound thought process triggered by the COVID-19 pandemic. Consequently, this indicates that resilience helps pre-service teachers to feel less influenced by the changing circumstances due to the COVID-19 pandemic and enables them to deal with those changes. This shows the influence of resources on the career planning of individuals.

Akkermans and colleagues (2018) also indicated that COR Theory offers an interesting explanatory perspective on the importance of resources in the context of career shocks. Hirschi and Valero (2017) investigated the relationship between chance events and career decidedness in adolescents in vocational training and identified five different latent profiles with differences in their perception of chance events as well as their career decidedness. The results of this study suggest that chance events can influence career development, occurring

both in conjunction with and independently of career decidedness, and that individual profiles emerge. This indicates that career planning occurs also independent of chance events, as some people experienced a lot of chance events and still had high career decidedness, while other participants experienced a lot of chance events and had low career decidedness. Therefore, it is possible that either interindividual differences in the perception of such chance events or the contextual factors of those events might influence the relationship between chance events like career shocks and career decidedness. This might explain why we did not find long-term effects of thought process variables on confidence in vocational choice. The interindividual differences may mask larger effects and warrant further investigation.

Another reason for the insignificant results concerning the long-term effects of thought processes on confidence in vocational choice might be the nature of those thought processes themselves. Those interindividual differences might also stem from adaptive as well as maladaptive thought processes as a consequence of the COVID-19 pandemic. Not all thought processes triggered by the COVID-19 pandemic might be negative and might in the long-term even lead to more confidence in vocational choice, as those pre-service teachers think more about their career and consequently feel even more secure in their study choice.

Consistent with the prediction of COR Theory (Hobfoll et al., 2018) that states that individuals with higher resources are less vulnerable to resource loss, students with higher resilience and social support also retain higher confidence in their vocational choice – at least at the same measurement point and from before the pandemic to the onset of the lockdown. Still – while controlling for the autoregressive effects – we did not find an influence of resilience or social support over medium-term after the onset of the COVID-19 pandemic. This might be explained by the fact that confidence in vocational choice is best explained by confidence in vocational choice and is dependent on various other aspects which is in line with the research by Hirschi et al. (2011). Other research shows that resources such as conscientiousness and social support are important in preventing academic burnout and promoting engagement for first-year university students (Alarcon et al., 2011). Furthermore, personal resources, such as mindfulness, psychological flexibility, and a supportive university supervisor, were also important in preventing burnout among students in the health profession (Robins et al., 2015). Smokowski and colleagues (1999) examined resilience using autobiographical essays and found that resilient African American high school students develop coping skills and strategies to overcome adversities such as career indecision. Resilience is also associated with success in dealing with the challenges of the career decision-making process (Shin & Kelly, 2015). Therefore,

our research in line with previous research shows the importance of resources for the academic career and career planning of young individuals, especially during times of crises.

Our explorative results show the importance of social support that was not as evident in the quantitative data. A lot of students reported that they had lost or were afraid of losing social contacts. This is in line with research by Elmer and colleagues (2020). They found that students mostly studied alone during the COVID-19 pandemic, and that other interactions also became less frequent, which students also reported in the open-ended questions in this study. In addition to the loss of study groups and university acquaintances, they also reported to have lost family bonds and friendships and to miss physical contact. Elmer and colleagues (2020) conclude that isolation in social networks, the lack of social support, and physical isolation could be related to negative mental health trajectories.

PRACTICAL IMPLICATIONS

While the pandemic was a major focus in the lives of individuals, as well as for society as a whole, university students were often forgotten. To bring them back into focus and help them get back on their feet after the COVID-19 pandemic, we conclude with practical implications on three levels: 1) society and politics, 2) universities and educators, and 3) students.

While we of course support the political decision to support students financially during COVID-19, we also advise giving students time to readjust to life after the pandemic. They will thus be able to revisit career decisions and deal with indecisiveness that took root during the pandemic. Further, they will be able to regain their resources, work on their resilience, and rebuild their social relationships. Giving them time to be happy and enjoy life could have a direct effect on their overall resilience (Cohn et al., 2009). Society should also work on its community resilience, e.g., by working on connectedness and shared values and using the resources immanent in communities (Pfefferbaum et al., 2007).

The responsibility of universities for students during the COVID-19 pandemic included not only teaching, but also accompanying students through daily struggles and shocks. Consequently, increased counselling programs often focused on specific, individual problems. A future approach could focus on a) students' resilience, b) their vocational choice making, and c) helping them (re)build a social network. Since resilience can be strengthened (Luthans, 2002), universities should use both university-wide and individual counselling measures (Farquhar et al., 2018). Students could benefit from workshops on mindfulness (Galante et al., 2018), handbooks (Gamble & Crouse, 2020), lessons on characteristics in both students and educators that are associated with resilience (autonomy, sense of purpose, social competence,

problem-solving, and achievement motivation; Morrison & Allen, 2007), and other programs, such as peer mentoring (McDonald, 2015) or coaching (Jordan et al., 2016).

In addition to using these programs, students can also increase their resilience during a global crisis by connecting with their emotions, verbalizing them and looking for help if needed (Kieft & Bendell, 2021). Further, working on or realizing one's individual sense of purpose can increase both resilience and confidence in vocational choice (Stevenson et al., 2011; Duffy et al., 2014). We encourage students to work on their individual levels of resilience by paying attention to their personal resources, their attitudes towards their studies, positive emotions, and the demands and resources they are presented with at university (Hartmann et al., 2020).

LIMITATIONS AND FUTURE RESEARCH

While this study and other works (e.g., Akkermans et al., 2020) show that the COVID-19 pandemic can be perceived and act as a career shock, it still is a more extraordinary situation than other career shocks investigated in the past (see e.g., Seibert et al., 2016). Therefore, it remains unknown whether the current findings are generalizable to other career shocks. Still, this current study shows the importance of resources in crises, and it seems reasonable to assume that resources also play an important role in other crises. Other studies point in the same direction (Arslan et al., 2020; Plakhotnik et al., 2021; Ran et al., 2020). Since many research programs have collected data during the pandemic, future research will provide more evidence.

Furthermore, the participants consisted of pre-service teachers during their bachelor's degree at one German university. While our sample is large and should represent those students well, it remains unclear if the results can be generalized for other populations. Pre-service teachers—in contrast to other students in German universities—have a determined career path from the beginning of their studies; this might have an effect on how they perceive the COVID-19 pandemic and how it influences their confidence in vocational choice. As teaching is an important profession, it seems essential to investigate pre-service teachers in particular during a crisis. Furthermore, this population is also especially interesting—as mentioned above—as it is impacted in a twofold manner by the COVID-19 pandemic.

It is also possible that the instrument choice might have influenced the results. There are few instruments to measure career shocks, and, in this case, we even needed measures for the COVID-19 pandemic as a career shock. Thus, we adapted the instrument for this study, basing them on previous studies on career shocks. It seems important to develop general measures for career shocks that are adaptable for different contexts. It is also important to note that we measured the influence

on the deliberate thought process with only a one-item measure to keep the study shorter. While research shows the validity of one-item measures, e.g., in the context of job satisfaction (Dolbier et al., 2005), it is still important to investigate career shocks and their impacts with longer questionnaires.

While we used the students' social networks only as a reminder to measure support quality, it would be interesting to investigate which network structures influence the quality of networks during the COVID-19 pandemic. A study by Wittner and colleagues (2019) showed that the quality of a network is more influential than the network's size on students' decision making. Furthermore, Powazny and Kauffeld (2021) also investigated the buffering effect of social support on students' intention to drop-out of university and found that, in addition to the support network, the characteristics of the supporters also play a major role. In this regard, students' intentions to drop out depended on their supporters' attitudes toward their chosen career path. Nonetheless, structures, contacts, frequencies, and emotional strength might have changed due to the pandemic. This leads to the question of whether researchers will still be able to apply their prevailing constructs when looking at students' networks during COVID-19, and studies need to re-evaluate whether social capital still has the same positive influence on academic outcomes (Froehlich, 2021). As our data shows that a lot of contacts were lost during the COVID-19 pandemic, it would be interesting to compare the influences of social network structure on the quality of the networks before, during, and after a pandemic, as well as its influence on career-related outcomes.

We also found no influence of the deliberate thought process on confidence in vocational choice over medium-term, but only for the same measurement point. On the one hand, this might be explained by Hirschi and Valero's (2017) findings concerning the relationship between career decidedness and chance events. Individual profiles emerged that might mask the direct effects of chance events on career decidedness, as people with high as well as low career decidedness might have high chance events. Therefore, other factors might also influence the relationship between career shocks and confidence in vocational choice. On the other hand, as mentioned above, the thought processes concerning one's career triggered by the COVID-19 pandemic might not only be maladaptive but also adaptive over time. Future research needs to investigate the relationship between career thought processes during crises and confidence in vocational choice.

To get more in-depth insights into the resources students lost, gained, or feared losing during the COVID-19 pandemic, we gave them the opportunity to explain in full detail in open questions. About half of the participants chose to take this opportunity, but we

cannot say for certain that their experience matched the experience of their peers or why others chose not to report their experiences in detail. Thus, the information needs to be treated cautiously. Future research should address the topic in qualitative interview studies.

While we focused on the consequences of the COVID-19 pandemic for career planning and the deliberate thought process triggered by the career shock, other aspects of career shocks are also important to investigate to better understand the impacts of the COVID-19 pandemic. For example, it is important to note that the experienced valence of the shock to the individual itself determines its categorization and what positive or negative consequences might result (Akkermans et al., 2018). Although the COVID-19 pandemic is overwhelmingly perceived as negative, it is still experienced differently by individuals. Thus, the perceived degree of intensity differs, as do the evaluations of the crisis. Earlier studies described possible consequences of the crisis that can be differentiated into positive (e.g., strong motivation for digital learning, changes in learning environments (Al-Tammemi et al., 2020)) and negative (e.g., student anxiety, uncertainty about the semester completion, and confusion about study expectations, higher stress levels (Elmer et al., 2020)) as well as short-term (e.g., increased workload (Wang et al., 2020)) and long-term (e.g., decrease in enthusiasm to work in one's chosen profession graduation (Ye et al., 2020)) consequences.

DATA ACCESSIBILITY STATEMENTS

The data that support the findings of this study are available in Leopard, Technische Universität Braunschweig at <https://doi.org/10.24355/dbbs.084-202308161724-0>.

ETHICS AND CONSENT

The study was approved by the ethical review board at the participating university (number: DM-2016-06).

ACKNOWLEDGEMENTS

We would like to thank Dr Carina Bargmann and Dr Sandra Rothenbusch for their support in designing the study and collecting the data.

TRANSPARENCY STATEMENT

We reported how we determined the sample size and the stopping criterion. We reported all experimental conditions and variables. We report all data exclusion criteria and whether these were determined before or

during the data analysis. We report all outlier criteria and whether these were determined before or during data analysis.

FUNDING INFORMATION

This work was supported by the Federal Ministry of Education and Research [grant number: 01JA1609].

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR CONTRIBUTIONS

Author 1: formal analysis (lead); methodology (lead); visualization (lead); writing – original draft (lead); writing – review and editing (lead). **Author 2:** conceptualization (support); formal analysis (support); writing – original draft (support); writing – review and editing (equal). **Author 3:** conceptualization (support); writing – review and editing (equal).

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TO CITE THIS ARTICLE:

Hirschberger, S., Wittner, B., & Kauffeld, S. (2023). How Do Social Support and Personal Resilience Assure Confidence in Vocational Choice in Times of the Pandemic? *Swiss Psychology Open*, 3(1): 8, pp. 1–19. DOI: <https://doi.org/10.5334/spo.48>

Submitted: 21 March 2023 **Accepted:** 05 September 2023 **Published:** 20 September 2023

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