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Identifying resilience promoting factors in vocational education and training: a longitudinal qualitative study in Norway

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Abstract

Drawing on the literature on resilience in education, this article explores personal characteristics, abilities and behaviours that enable vulnerable students and apprentices to succeed in education and training. Despite high dropout rates in vocational education and training (VET) in most countries, little research on resilience in vocational contexts exists, and there is no general understanding or conceptualisation of resilience in VET. The study is based on qualitative interviews with eight adolescents from lower socioeconomic backgrounds who were identified as being at risk of not completing upper secondary education. The adolescents were interviewed the first time during the school-based part of their education (year 2) and the second time during apprenticeship training (year 4). Our findings show that commitment to learning and perseverance, self-regulated learning, goal orientation, self-efficacy and help-seeking are important resilience promoting factors in a vocational context that may serve to enhance resilience among students and apprentices in VET. The study discusses the role of learning environments in school and in the workplace in resilience in VET.

Keywords: Apprenticeship, Dropout, Resilience, Goal orientation, Self-efficacy, Self-regulated learning

Introduction

Dropout from upper secondary education is understood as the cumulative result of multiple risk factors, including a disadvantaged social background, academic difficulties and low engagement with education (Finn 1989; Lamb 2011; Rumberger 2011). Research shows that most risk factors for dropping out of education can be identified quite early in a person's life (Alexander et al. 2001; Rumberger and Rotermund 2012). Consequently, it is argued that dropout can be predicted based on certain risk indicators. A literature review of 36 studies on predictors of high school dropout found that various studies identified students who drop out with high precision—many of whom have only a few risk indicators. In particular, low and failing grades have been found to be among the most accurate predictors of high school dropout by a variety of studies (Bowers et al. 2013). However, in all these studies, a number of students were not identified by such predictors. Some students drop out of their education without the presence

of the examined risk indicators, while other students do not drop out—despite the presence of risk indicators.

Young people who defy predictions and follow unexpected pathways are interesting for both research and policy. In particular, disentangling the factors that contribute to explaining why some students, usually characterised as low-achieving, disadvantaged or vulnerable, succeed in education, may provide valuable information for educational policy. In research literature and policy documents, this group of young people who succeed in education despite some form of disadvantage or risk is commonly described as resilient (e.g. Finn and Rock 1997; Lessard et al. 2014; OECD 2011; Wang et al. 1997; Wosnitza et al. 2018).

Against this backdrop, this study attempts to identify resilience promoting factors in vocational education and training (VET). Despite high dropout rates in VET in most countries¹ (see e.g. Böhn and Deutscher 2022; Cedefop 2016), research on resilience in vocational contexts is very scarce (see also Schwarze and Wosnitza 2018). Therefore, this study aims to describe the specific factors that promote resilience in a vocational context, in both school-based and work-based learning settings. The study is based on qualitative interviews with young people from families with low socioeconomic resources who were identified as being at risk of not completing upper secondary education. Nevertheless, all of our participants had successfully passed the examinations at the end of both the first and second years of the school-based part of their education (years 1 + 2) and were in the last year of apprenticeship training (years 3 + 4) when we last interviewed them. The participants in the study were interviewed twice: first time in year 2 (as students) and a second time in year 4 (as apprentices). All were due to take the trade certificate in about half a year at the time of the second interview. We address the following research question: What personal characteristics, abilities or behaviours can be identified in the young people's narratives about their succeeding in education and training that can be described as resilience promoting factors?

Before presenting our study in more detail, we contextualise our work with reference to the literature on resilience in education and in terms of our study's particular setting in the sections below.

Background

Resilience in education²

Resilience refers to a dynamic process of positive adaptation during significant adversity (Luthar et al. 2000; Masten 2001; Rutter 2006; Ungar 2011). While some research focuses on the *absence* of mental health problems or a low level of impairment in the presence of adversities, other research concentrates on the *presence* of academic or social achievements or psychological well-being (Masten 2001). In the education field, research has mostly aimed to identify factors that moderate the effects of individual vulnerability or

¹ Due to different definitions and calculation methods, dropout rates in different countries are hardly comparable (see also Böhn and Deutscher 2022). In most countries, however, dropout rates are higher for VET programmes than for general education programmes (e.g. Cedefop 2016).

² The literature on resilience in education commonly uses the terms 'educational resilience' and 'academic resilience' interchangeably (e.g. Rudd et al. 2021). Since this study was conducted in a vocational context, we prefer to use the term 'educational resilience'.

environmental hazards and enable children and youth who have been exposed to adverse circumstances (e.g. disadvantaged socioeconomic backgrounds and school-related risk factors) to succeed in education despite these negative circumstances. Educational resilience has been defined as 'the heightened likelihood of educational success despite personal vulnerabilities and adversities brought about by environmental conditions and experiences' (Wang et al. 1997, p. 4). Similarly, students who show educational resilience have been described as those 'who have been exposed to adverse circumstances, such as low socioeconomic status (SES), that put them at a heightened risk of school failure, yet they demonstrate continued high levels of academic performance' (Rudd et al. 2021, p. 2).

Research suggests that factors that promote educational resilience among youth, also called protective factors, can come from multiple sources, including the adolescents themselves, family, peers, school and the community (e.g. Li et al. 2018; Schwarze and Wosnitza 2018; Wang et al. 1997). In a prior part of this study, we highlighted the students' educational and social learning environments at school, active support from teachers and mutual motivation among classmates (Schmid 2021; Schmid et al. 2021) and their parents' involvement in their education and their support (Schmid and Garrels 2021) as important contributions to their success in school. In the current study, we focus on personal attributes of the adolescents themselves (i.e. personal characteristics, abilities and behaviours) that enabled them to succeed in education and training.

To date, research on resilience in education has predominantly focused on general education contexts (e.g. high school), while there is very little research on educational resilience in vocational contexts (see also Schwarze and Wosnitza 2018). A recent systematic literature review of quantitative research measuring academic resilience resulted in 127 studies from a variety of countries, including samples from pre-school to university students; however, none were conducted in a vocational context (Rudd et al. 2021). The question thus arises as to whether factors that underpin resilience in a high school or university setting can be used to enhance resilience among students and apprentices in VET.

Although there is consensus as to the definition and broad understanding of resilience in education, there are different approaches to its operationalisation and measurement (Rudd et al. 2021). As described by Rudd et al., a variety of latent construct approaches capture the characteristics of students associated with their resilient behaviour. One of the most widely used constructs of academic resilience is the 5-C model developed by Martin and Marsh (2006). Based on a sample of Australian high school students, Martin and Marsh found that academic resilience is predicted by five factors: confidence (self-efficacy), coordination (planning), composure (low anxiety), control (how hard work and effective strategies impact achievement) and commitment (persistence). Another approach was presented by Cassidy (2016). This construct was developed based on a sample of American undergraduate students and comprises 30 items measuring three dimensions: perseverance, reflecting and adaptive help-seeking, and negative affect and emotional response. According to Rudd et al. (2021), the construct developed by Cassidy is the most well-known multidimensional construct measure of academic resilience (see e.g. Hunsu et al. 2022; Trigueros et al. 2020).

In their literature review, Rudd et al. (2021) concluded that the factors of academic resilience used to measure a student's capacity for resilience (also called individual characteristics, cf. Ungar 2011 or individual resilience factors, cf. Li et al. 2018) presented in the literature can be divided into two categories. The first category captures *students' attitudes and behaviours related to their identities as learners*. Examples of concepts in this category are self-confidence, self-efficacy, control, optimism, academic engagement and goal orientation. The second category encompasses *students' levels of emotion regulation and self-regulation*, such as resourcefulness, low levels of anxiety, an ability to solve problems and the initiative to ask for help. While the first category seems to reflect learner attributes that are beneficial to all students, regardless of their experiences of adversity, the second category is more closely aligned with the essence of academic resilience as a response to adversity (Rudd et al. 2021).

The factors of academic resilience identified by quantitative research are also widely supported by qualitative studies. As a qualitative follow-up to a larger mixed-methods study on resilience in Chinese high school students, Li et al. (2018) conducted qualitative interviews with 31 educationally successful students from high-risk environments. They found that the adolescents were characterised by three common attributes: having positive life goals, perseverance and confidence. Similarly, in a sample of 20 African American high school students from impoverished backgrounds, Floyd (1996) identified two personal characteristics of the students that were associated with their resilient behaviour: perseverance or a strong belief in the power of hard work to overcome adversity and optimism.

In the context of our study on educational success among young people from lower socioeconomic backgrounds identified as being at risk of not completing upper secondary education, the study by Lessard et al. (2014) may be particularly relevant. Based on qualitative interviews with 140 Canadian high school students identified as being at risk of dropping out of school, Lessard et al. found several differences between the students who graduated (i.e. 'resilient students') and those who dropped out. Educationally successful students were characterised by their ability to draw on their own resources, to plan and anticipate, to ask for help when needed and to establish and maintain positive relationships with teachers and schoolmates. Moreover, they found that the students who showed educational resilience were convinced that they could succeed and believed in their own abilities, despite facing adverse life situations and/or learning difficulties.

The presented studies provide important knowledge about the factors that promote resilience among students in a general education setting. However, research is needed to examine the factors that enable vulnerable students and apprentices to succeed in VET, in both school-based and work-based learning environments.

The Norwegian VET context

Upper secondary education in Norway is a statutory right that is free for anyone who has completed compulsory school. Young people may choose between five general education programmes (e.g. specialisation in general studies; art, design and architecture) and ten vocational programmes (e.g. building and construction; sales, service and tourism; healthcare, childhood and youth development). About 98% of young people start upper secondary education immediately after compulsory school (normally at the age of 16),

and half enrol in vocational programmes. Admission to upper secondary programmes is based on the student's grade point average (GPA) from lower secondary school. However, all students are guaranteed admission to one of three preferred programmes.

The general education programmes last for 3 years and qualify for higher education. The vocational programmes last for 4 years, comprising 2 years of mainly school-based education followed by 2 years of apprenticeship in a company (known as a 2 + 2 model). VET leads to more than 180 different trade or worker's certificates. It does not provide access to higher education, although vocational students who wish to qualify for higher education may switch to a supplementary year of academic subjects after their second year of VET instead of starting an apprenticeship in a company.

Non-completion of upper secondary education, especially from VET, has been an educational policy issue for a long time. According to recent figures, one out of three VET students does not complete upper secondary education successfully within 6 years, i.e. they do not obtain a trade certificate or a university admission certification within that time (Statistics Norway 2021). Most drop out during the first two years of education in school or during the transition to apprenticeship training (Norwegian White Paper 2018, 15). Research has identified low grades from lower secondary school as one of the strongest predictors of dropout from upper secondary education (e.g. Dæhlen 2017; Markussen et al. 2011). Furthermore, background variables, such as gender, social and minority backgrounds, have a significant influence on the likelihood of completing or dropping out of upper secondary education, strongly transmitted via grades from compulsory school (Markussen et al. 2011). Thus, the groups most at risk of not completing upper secondary education are boys with a minority background and those from low socioeconomic backgrounds, such as most of the participants in our study.

For students in a vocational programme, the transition from the school-based part of VET to apprenticeship training represents a particularly critical phase. Despite an increase in the number of apprenticeships during the last few years, every year, about three out of ten VET students who wish to start an apprenticeship lack a training place (Norwegian White Paper 2018, 15). Besides regional differences and differences by trade, grades and the number of absences during the first two years of education in school are among the factors that most strongly affect the probability of obtaining an apprenticeship. Furthermore, the risk of not getting an apprenticeship is higher for young people with minority backgrounds than for those of Norwegian backgrounds (Markussen et al. 2011; Norwegian White Paper 2018, 15). The persistent lack of apprenticeships is considered a structural barrier that may cause a significant number of young people to leave education and training early. However, students who do not obtain an apprenticeship are offered a school-based track leading to a trade certificate (Norwegian White Paper 2018, 15). Furthermore, a significant number of students leave VET after the second year at school and switch to the third year of academic subjects instead of starting apprenticeship training in a company. If completed successfully, an additional school year qualifies students for higher education. According to recent figures, 83.6% of young people have successfully completed upper secondary education before the age of 25 (OECD 2021).

Method

Study design

The study is part of an ongoing longitudinal research project on vulnerable young people's pathways through upper secondary VET, which is being carried out in Oslo, Norway. In this project, we are interested in why some young people succeed in education and training despite some form of risk or disadvantage, and how the adolescents themselves explain what helps them succeed. The aim of the project is to identify the factors that enable vulnerable students and apprentices to succeed in both school and apprenticeship training (see also Schmid and Garrels 2021; Schmid et al. 2021).

The participants in the study were interviewed twice: In the first part of the study, we interviewed 25 students in their second year of VET who were identified as being at risk of not completing upper secondary education (autumn 2019/winter 2020). In the second part of the study, eight participants who were in apprenticeship training 2 years after the first interview were interviewed a second time (autumn 2021). All the apprentices were in their last year of apprenticeship at the time of the second interview.

In this article, we focus on our qualitative analysis of data from semi-structured interviews with the eight adolescents who were still in VET in autumn 2021. Hence, the analysis is based on interviews with the same participants at two points in time: (1) during the school-based part of VET when our participants were *students* at upper secondary school and (2) during their apprenticeship training when they were *apprentices* in a company.

Participants

The sample in the first part of the study consisted of 25 students (10 female, 15 male) from four different schools, eight different classes and seven different educational programmes in year 2 of VET. To identify students perceived to be at risk of not completing upper secondary education, we contacted four schools in Oslo where the GPA for admission to upper secondary education is comparatively low. GPA is the average of all grades from the last year of lower secondary school. Grade scores range from 1 to 6, and a minimum of 2 is needed to pass a subject. The GPA is used as the basis for admission to upper secondary education. The sample was selected purposively to include students from different schools, classes and educational programmes and to ensure gender variation. The students were recruited through the schools they were attending during the first part of their education and selected based on their GPA at the end of lower secondary school. A recent evaluation showed that students with a GPA below 3.5 are at particular risk of not completing upper secondary education (Norwegian White Paper 2018, 15). For the school year 2020/2021, the mean GPA in Norway was 4.3 and 4.5 in the county of Oslo (Norwegian Directorate for Education and Training, 2022). All the students in the sample had a GPA below 3.5, and the mean GPA in the sample was 2.8.

For the second part of our study, we contacted all of our participants again in autumn 2021. Fourteen had started as apprentices at a company after the school-based part of their education. However, two had left their apprenticeships in the first year and were not in education or training when we contacted them. Eleven participants had, for several reasons, never started an apprenticeship. Some had switched to a third year of academic subjects and had completed upper secondary education with a university

admission certification or were preparing for the examinations. In other words, these young people did not drop out of upper secondary education but had left VET. Several participants were (temporarily) out of education and training in autumn 2021, some because they had not found an apprenticeship place. Since the focus of this study is successful pathways through VET among young people perceived to be at risk of not completing their education, young people outside education or training and students who changed to a general education track in the third year of their education were not the target group for the second interview.

Of the twelve adolescents who were in apprenticeship training in autumn 2021, eight were willing to be interviewed a second time. In total, the sample for the second interview—and thus for the analysis in this article—consisted of eight apprentices (7 male, 1 female) from five different trades (car parts supply; childcare and youth work; motor vehicle; sales; service and administration). All the participants came from families with low socioeconomic resources, with most parents in manual or unskilled occupations (e.g. working as cleaners or taxi drivers), unemployed or receiving social benefits. All eight participants were born in Norway; however, six were children of immigrants, mostly from countries in Asia (e.g. Pakistan and Turkey). Most of our participants spoke a language other than Norwegian at home and were 17 years old at the time of the first interview. To sum up, the participants in the sample represented a particularly vulnerable group in several ways.

Data collection

The first interviews were carried out between October 2019 and January 2020 at the respective schools and had an average duration of 30 min. The second interviews were conducted between August and October 2021. Most interviews were conducted at the apprentices' workplaces, one interview was carried out online. The average duration of the second interview was 60 min.

At both points in time, the adolescents were interviewed individually and a semi-structured guide was used. In the first interview, the students were asked questions regarding thriving at school, career choice and aspirations, challenges at school, thoughts about leaving school or plans to complete upper secondary education, relations and support both within and outside school. 2 years later, the apprentices were interviewed on the transition to apprenticeship, work tasks, responsibility and autonomy, guidance, support and relations in the workplace and their plans for the future.

All the interviews were recorded and transcribed verbatim. All interviews were conducted in Norwegian by the first author and two research assistants.

Data analysis

Our data analysis was guided by the framework analysis presented by Spencer et al. (2014). Framework analysis has been described as a form of thematic analysis that combines inductive and deductive approaches. The analysis consists of two major components: creating an analytic framework and applying it. After the first step of familiarisation with the data, the researcher constructs a thematic framework for organising the data, based on a combination of a priori and emergent concepts and themes. Consequently, this analytic approach allowed us to draw on the literature on educational

resilience in a general education context and, at the same time, remain open to what might emerge from our data beyond the concepts presented in the literature.

We started the analysis process by iteratively reading the transcribed interviews, paying attention to connections to the presented concepts of resilience in education. During this process, we worked together and discussed identified themes to increase our understanding of the theoretical concepts and their connection to the interview data. This process resulted in a list of key thematic issues, which we further sorted into a hierarchy of themes and subthemes to construct a framework for use across the data (cf. Spencer et al. 2014).

The next step is called indexing and refers to the process of labelling the data according to the thematic framework (Spencer et al. 2014). We first carefully read through the transcribed interviews and highlighted all the text chunks with connections to the thematic framework. To capture the voices of our participants rather than our interpretation of the data, we re-read all the marked text passages and generated in vivo codes (Saldaña 2021). In vivo coding has also been labelled natural or inductive coding, meaning that codes refer to a word or a short phrase used by the informants themselves.

In the next step, similar codes were collated into themes that were considered purposeful with regard to our thematic framework. At this point, we worked independently of each other to increase the reliability of the analytical process (Creswell and Poth 2018), and both authors worked out a list of themes based on the previously identified codes. Finally, we discussed and revised each of the independently constructed themes together until a consensus was reached about which themes told the most coherent and insightful story about the data in relation to our research question. As a result of this process, we defined the following themes: (1) 'I just have to work hard', (2) 'You have to take responsibility', (3) 'You want to get on in life', (4) 'I believe in myself and know that I can do it' and (5) 'Then I ask right away'.

Ethical considerations

This study was approved by the Norwegian Centre for Research Data (NSD). At both interview times, all the participants received written and oral information about the project, and they gave their written consent to participate. They were informed that participation was voluntary and anonymous and that they could withdraw from the project at any time.

The sample in this study consisted of a small group of adolescents representing a particularly vulnerable group. Therefore, safeguarding our participants' anonymity was a key issue during the entire research process. In the presentation of this study, we decided to ensure the anonymity of our participants by anonymising background characteristics, such as gender, migration background, school, workplace or trade. All information that could possibly lead to the identification of the adolescents has been withheld.

Findings

In the following sections, we present the five themes identified through our analysis. Where relevant, we have contextualised our findings with reference to the literature and included anonymised, translated quotations from the interview data.

'I just have to work hard'

A prominent topic in the adolescents' narratives about their succeeding in education and training was their commitment to learning, their engagement and willingness to work hard. Asked about what it takes for them to be able to complete their education, typical answers were: 'I just have to work hard' (participant 8, interview 1) or 'I have to work even harder' (participant 6, interview 2). At both points in time, the young people seemed to have a clear understanding of what this meant and required of them: to focus on their education, be active and show engagement, 'cram' theory, do homework and—above all—be able to get up in the mornings and show up on time. Especially during the first interview, when our participants were attending the school-based part of their education, school attendance and absenteeism were major issues. For many students, being at school on time and attending school for the whole day was a challenge. However, to pass a subject, students must not go beyond the limit of ten percent undocumented absences. Furthermore, the students were aware that a low level of absence increased their likelihood of getting an apprenticeship place. All the students described how they managed to reduce the number of lessons they missed, some proudly said that they had not missed any lessons at all in the current semester, such as participant 2: 'I have zero missing lessons so far' or participant 1: 'I've been here every single day from eight to four. So I was like, yeah, I was very punctual.'

During their apprenticeships, absence was much less of an issue for our participants. Several stated that it was easier to get up in the morning than at school. All the apprentices emphasised that showing up punctually is very important in an apprenticeship and that one should be ready to work right from the start. Some apprentices described this as a new challenge, to which they first had to get used after 2 years at school. Participant 5 put it like this:

I plan more when I go to bed, when I go to work, things like that, compared to school days, where you could go to bed at midnight or one o'clock. But when you go to work, you need to be ready.

In their study of academic success among students at risk for school failure, Finn and Rock (1997) refer to the kinds of behaviours that our participants described as 'engagement behaviours that facilitate learning'. As examples, they cite coming to school on time, being prepared for class work, participating in class activities or completing assignments, and they found that resilient students show higher levels of these kinds of behaviours than non-resilient students. Participation in educational activities is crucial for student's commitment to learning, while lack of participation is found to lead to emotional withdrawal and poor identification with school (Finn 1989). For the adolescents in our study, these kinds of behaviours were not a matter of course. For all of our participants, compulsory school was characterised by academic difficulties and periods of low motivation, for several of them also by truancy, disturbing behaviour in the classroom and warnings from school. Our findings suggest that the transition to upper secondary education represented a turning point for the young people and led to increased engagement and commitment to learning.

'You have to take responsibility'

Closely connected to the young people's commitment to learning is the narrative related by all of our participants about taking responsibility for their own learning. At both points in time, our participants emphasised how important it was to take their education seriously and take responsibility. In the first interview, several students explained that taking responsibility for their own learning was something they had learned first in upper secondary school. Several described themselves as troublemakers during compulsory school due to experiences of school failure, boredom and low mastery. However, things changed when they started upper secondary school, as related by participant 5: 'You sort of get responsibility, it's where you start to take responsibility for your own learning.' Similarly, participant 7 explained:

You need to take responsibility. If you are late, it's your own responsibility. /.../ I should have felt this way already in 10th grade, but it didn't come until upper secondary [school]. It's much better to be aware of it. And in the second year of upper secondary [school], you are more mature. /.../ You feel that you need to take responsibility when teachers say so. You must really follow their advice to be able to keep up with school.

Our participants' views of themselves as responsible for their own learning are closely aligned with theories of self-regulated learning. Self-regulated learners consider themselves active participants in their own learning processes, and they regulate their own learning through the systematic use of motivational and behavioural strategies (e.g. Pylväs et al. 2022; Zimmerman 2013). Responsibility was also an important issue 2 years later, when our participants were apprentices. All of our participants emphasised that they were experiencing more responsibility than at school and that they were often required to work autonomously. More concretely, the apprentices described their responsibility for certain work tasks and procedures in the company, and they explained that they were required to make decisions on their own, initiate activities, select appropriate procedures and also self-evaluate their work. Furthermore, several argued that as apprentices their responsibility for learning also included taking responsibility for others and the company. One of them who explained this was participant 1: 'At school, it affects yourself, while here it affects others, so you must be able to take more responsibility towards others as well. So there is quite a difference'. In a similar way, participant 2 described what may happen if you are not ready to take the responsibility required at work:

The difference with school is that, if you're late, it doesn't have any major consequences, it's not like the teacher stops the class and waits for you. If I'm late for work, it's like... If I don't send a message, they don't know what is happening with me, they have to call me, they have to get a person to sit at the checkout desk or take my work, so there are bigger consequences if I don't show up or if I don't wake up early.

These extracts illustrate how the responsibility they were given made the apprentices feel needed through their active participation in the daily business of the company. Our findings thus suggest that during their apprenticeships, our participants' ability to take responsibility was closely linked to the level of trust and the responsibility they were

given. Although some apprentices felt that the responsibility they were given could sometimes be stressful, all of our participants expressed that they were up to the responsibility placed upon them. Moreover, the apprentices expressed that the trust they were shown and the responsibility they assumed fostered their motivation and engagement in learning.

'You want to get on in life'

All of our participants had a specific goal they were working towards, and they described at both interview times how this goal motivated them to work and engage with school and training. Some were planning to work in their profession, e.g. as a car mechanic or security guard; a few were dreaming of becoming self-employed and starting their own businesses. Some of the adolescents were planning to take an additional school year after the trade certificate to obtain a university admission certification. For all of them, obtaining a trade certificate was an important first step, and, hence, they were all determined to complete their education. According to research on decision-making processes related to dropping out of education, students' goal orientation may be crucial for their motivation and decision to stay in education. The more students see education as part of their own career development and consciously pursue this goal, the more likely they are to stay in and complete their education (Aarkrog et al. 2018). In line with these findings, none of our participants expressed any plans to drop out of education or training when we interviewed them in year 2 or year 4, as illustrated by the following extract from the interview with participant 4 (interview 1): 'I've never thought about dropping out because there isn't much point. I'd have to do everything again later. /.../ I know that I'd regret it. So I'd never think of dropping out.'

However, some of our participants admitted, particularly in the first interview at school, that they sometimes had thoughts of dropping out. They clarified, though, that they did not mean it seriously, such thoughts usually emerged at times when everything just got too much. What held them back was their goal of obtaining a trade certificate. For instance, participant 5 commented as follows when asked whether he sometimes thought about leaving school:

Participant 5: Such thoughts ... It may be hard sometimes, school isn't the best thing, but I've never thought of dropping out, somehow.

Interviewer: What is it that keeps you going even though it's sometimes hard?

Participant 5: Sometimes when it's hard, I could think 'Ah, I just have to quit, that would be so much easier', but then I think 'What will I get out of it?' It won't do me any good. So why not just work a bit now and have it better later on in life.

All of our participants clearly explained that a qualification at upper secondary level was necessary for getting a job and being successful in life, and they seemed to take this into consideration in their decision to commit to education and training. One of them who explained this in both interviews, was participant 8, who struggled with low motivation in both school and the apprenticeship. However, leaving education was not an option:

The thing is that I think that I should complete my education. I really don't want to

be left behind. /.../ You really need an education to make a good living, that's what it's all about. You need to have an education, no matter where you want to work, just to be able to get a job. (Interview 2)

During the apprenticeship, some of the apprentices explained that they were actually working like other employees, not like an apprentice, and that sometimes they thought they would earn more if they quit their apprenticeship and worked as regular employees. However, all of them explained that this was short-sighted and that it was important to have a plan for the longer term, like participant 2: 'I go for a trade certificate just so I can write on my CV that I have completed my education.' In a similar way, participant 1 said: 'Time goes by, you get older, so it's important to complete things when they are supposed to be completed, you don't want to lag behind. /.../ You want to get on in life, don't you?' Clearly, their focus on a specific goal was an important motivational factor for the young people.

'I believe in myself and know that I can do it'

Another prominent topic in the adolescents' narratives about their succeeding in school and apprenticeship was their belief in their own success. All of our participants expressed at both points in time that they believed that they would 'make it' and complete upper secondary education. This positive view of their educational success may seem somewhat surprising, since all of them had a history of school-related difficulties. However, all eight adolescents managed to improve their grades during upper secondary school, and the findings indicate that their engagement and success, together with the support of their teachers and classmates, contributed to strengthening their self-efficacy. According to Bandura (1997), self-efficacy, or an individual's belief in their ability to accomplish a task or succeed in specific situations, is constructed from different sources, one being past performance and mastery experiences. During upper secondary school, our participants experienced that they were able to succeed, with the help of their own efforts. For example, participant 3, a student who explained that he had always been a 'low achiever' before upper secondary school, answered the following when asked whether he believed that he would complete his education (interview 1):

Yes. I believe in myself and know that I can do it. /.../ If I keep doing what I'm doing right now. /.../ If you give your best, I can promise you that things will turn out all right for most of us. If you work hard, even if it's hard some days, you just have to tell yourself that you will be rewarded for your efforts, somehow. Things always get better.

Like participant 3, several other participants explained that success had a lot to do with willpower, as expressed by participant 4 (interview 1): 'I guess I can do it if I want to. So when I want something, I do it. And then I always do it very well.' These extracts illustrate that the young people trusted or had learned to trust their ability to succeed—despite previous experiences of failure and setbacks. According to Bandura (1997), the most effective way to build self-efficacy is to engage in mastery experiences, and he describes how students' self-efficacy increases through gradually more challenging tasks and experiences of mastery. This also implies that people who believe in their own abilities see new tasks as a challenge and an opportunity to learn rather than as a threat.

Several young people in our sample related that they were eager to learn more and get better, especially during their apprenticeship, and they described with experiences from the workplace how challenging situations and their willingness and courage to face such situations had contributed to learning and increased confidence. One of them who explained this, was participant 8:

I'm not afraid of much because I dare to try. As an apprentice, I should be trying things and getting used to how things work /.../ You have to try new things and not always do the same thing.

Similarly, participant 6 related how he used to be stressed or even frightened when he had to answer the phone or talk to clients. However, these tasks or challenges had contributed to his learning: 'These were things that took some time to learn, but gradually it got better and better and better and better, so I can do almost anything in there.'

'Then I ask right away'

In their study of high school students at risk of dropping out, Lessard et al. (2014) found that students who graduated showed the ability to ask for help when it was needed. Similarly, our findings show that the adolescents in our study not only described how they *received* help and support from parents, teachers and other school staff, as reported earlier (cf. Schmid 2021; Schmid and Garrels 2021; Schmid et al. 2021). They also knew where and how to get help when needed, and they *asked for it* when necessary. Help-seeking is an essential self-regulatory skill that helps learners control and direct their learning (Zimmerman 2013). Research indicates that help-seeking behaviours are required more strongly in work-based learning settings than in school-based VET (Pylväs et al. 2022). Our study shows similar findings. While in the first interview our participants mainly talked about the help they received, especially from their teachers, 2 years later, all of them highlighted that as an apprentice you need to take an active role and ask for help yourself when needed. When asked about challenges or difficulties at work, typical answers were: 'If I'm not sure about something or I don't know if it's right, then I ask right away' (participant 7) or 'It actually happens quite often that I suddenly get to a point where I don't understand what to do, so then I ask someone else' (participant 3). Participant 3, who in year 2 was put in charge of the apprentices in the first year, knew how important it was to ask for help also from the perspective of a supervisor: 'If you don't ask anyone, no one will come and help you or answer your questions /.../ If an apprentice doesn't understand and doesn't ask either, then I think they will know about that.'

Discussion and conclusions

Despite high dropout rates in VET in most countries (e.g. Böhn and Deutscher 2022; Cedefop 2016), no general understanding or conceptualisation of resilience in vocational contexts exists (see also Schwarze and Wosnitza 2018). Therefore, the aim of this study was to identify the factors that promote resilience in a vocational context, in both school-based and work-based learning settings. Based on qualitative interviews with adolescents in their second and fourth years of VET, the article has analysed personal characteristics, abilities and behaviours of the young people that can be identified as

resilience promoting factors and thus may have contributed to their succeeding in education and training. The adolescents in the study came from families with low socioeconomic resources, and all of them had left lower secondary school with a GPA below a critical level, which statistically put them in the at-risk group for not completing upper secondary education. However, all of our participants had successfully passed the examinations at the end of the school-based part of their education and were in the last year of apprenticeship when we last interviewed them. Therefore, all of them can be described as showing resilience (cf. Finn and Rock 1997; Lessard et al. 2014; Martin and Marsh 2006; Wang et al. 1997).

Based on our analysis of the interview data, we identified five different personal characteristics, abilities or behaviours of our participants that can be described as resilience promoting factors. The adolescents in our study described in different ways their commitment to learning and their willingness to work hard (*'I just have to work hard'*). They showed a strong sense of responsibility for their own learning and the work processes in their company (*'You have to take responsibility'*). Furthermore, all of them had a concrete goal they were working towards, and their focus on their goal encouraged and motivated them to engage with education—also at times with low motivation (*'I want to get on in life'*). All the adolescents in the study believed in their ability to succeed, and they were not shying away from facing new learning situations or challenges in the workplace (*'I believe in myself and know that I can do it'*). Finally, the young people knew how and where to get help, and they also asked for it when it was needed (*'Then I ask right away'*). Based on our findings, we therefore conclude that commitment to learning and perseverance, self-regulated learning, goal orientation, self-efficacy and help-seeking are also important factors in a vocational context that may serve to enhance resilience among students and apprentices in VET. Consequently, our findings support the assumptions put forward by Schwarze and Wosnitza (2018) that, despite the context being different, the underlying principles of resilience are generic. However, the consequences that can be drawn from this study need to be discussed in a vocational context, and prevention measures need to be specified and adapted to the vocational setting. In the following sections, we therefore discuss our findings in our study's particular setting. We highlight the following three areas of focus:

First, our findings highlight the need for strong self-regulatory skills for learners in vocational learning environments. According to Zimmerman (2013, p. 137), self-regulated learning refers to 'the degree to which students are metacognitively, motivationally, and behaviourally active participants in their own learning'. While self-regulatory skills may be important for learners in all learning contexts, our findings indicate that these skills are particularly essential in work-based learning environments. All of our participants highlighted the increased need for self-regulatory skills, such as responsibility, the ability to initiate learning and work processes and to actively seek help and guidance, as one of the most important changes in the transition from the school-based to the work-based part of their education. Apprentices are often required to work autonomously and to self-control and self-monitor their work, and they receive support only if necessary (Mikkonen et al. 2017; Pylväs et al. 2018, 2022; Reegård 2015). To become active members of the work community, apprentices are thus in need of strong self-regulatory skills (see also Pylväs et al. 2018). Pylväs et al. (2018) therefore emphasise that apprentices

need space, time and guidance to strengthen their self-regulatory skills during training. Similar conclusions can be derived from our study. Based on our findings, we highlight the importance of learning environments in which apprentices have responsibility for tasks and opportunities to work autonomously. For the apprentices in our study, the responsibility they were given made them feel needed, and fulfilling the assigned responsibility contributed to increased self-efficacy and self-confidence (see also Reegård 2015). Participation in workplace activities and being given trust and responsibility are crucial for engagement and learning during apprenticeship and may thus serve to enhance resilience among apprentices.

Second, in line with the literature (e.g. Aarkrog et al. 2018; Martin and Marsh 2006), our findings point to the importance of goal setting and goal orientation. Having a goal and consciously working towards this goal enhances students' motivation and commitment to learning, also in times of challenges or low motivation. Therefore, encouraging students and apprentices to set goals and showing them how to work towards these goals may be an effective way to support young people who might be at risk of not completing their education. For the adolescents in our study, the goal of getting an apprenticeship motivated them during the school-based part of their education to reduce the number of lessons they missed and improve their grades, and the goal of obtaining a trade certificate kept them motivated during their apprenticeships. Aarkrog and Wahlgren (2022) suggest that goal orientation can be supported by reducing the complexity (i.e. proximate, realistic and obtainable goals), through feedback and by explaining the relevance of subjects or tasks for reaching goals. In addition, support from teachers, supervisors, peers and parents is crucial during this process.

Third, our findings highlight the importance of students and apprentices believing in their ability to succeed. In accordance with previous studies (e.g. Finn and Rock 1997; Lessard et al. 2014; Martin and Marsh 2006), we therefore suggest designing interventions targeted at enhancing students' beliefs about themselves and their educational capacities. Our findings indicate that the students and apprentices in our study managed to strengthen their self-efficacy during upper secondary education, through their own engagement and experiences of success and with the help of teachers and supervisors. Indeed, one of the main sources of self-efficacy is mastery experiences (Bandura 1997). The findings thus point to the importance of learning opportunities and opportunities for success and mastery, both at school and in the workplace. Teachers and supervisors may support students and apprentices in enhancing their self-efficacy by developing realistic goals together with them, gradually creating more challenging learning opportunities and individualising tasks where possible or necessary. For the apprentices in our study, being involved in work tasks and being given freedom, trust and responsibility were crucial for their learning and their self-confidence during their apprenticeships.

To sum up, the analysis from our interview data revealed different resilience promoting factors that contributed to the young people's succeeding in both school and apprenticeship. While the factors identified by our study are widely acknowledged in the literature on resilience in an educational context and described by studies drawing on data from general education contexts (e.g. Cassidy 2016; Finn and Rock 1997; Lessard et al. 2014; Martin and Marsh 2006), the context of our study is specific. As described in the literature, the resilience process differs depending on the specific context and results

from an interplay between individual resources and contextual factors (e.g. Schwarze and Wosnitza 2018; Ungar 2011). For the young people in our study, the development and strengthening of their personal resources (e.g. self-regulatory skills, self-efficacy) was stimulated, supported and promoted by the learning environments they experienced in school and in the workplace. We therefore highlight the role of the learning environments in school and in the workplace in resilience in VET.

Limitations of the study

This study has three main limitations that need to be acknowledged. First, with eight participants, the findings from this small-scale study are necessarily limited in scope and design. Therefore, inferences and generalisations that can be drawn from our study are limited, and further research with larger samples is needed. However, our study provides insights into our participants' pathways through VET at two points in time. A main strength of this study is its longitudinal design, which included interview data from both school-based and work-based learning contexts.

Second, our qualitative study used an exploratory approach to identify resilience promoting factors among vulnerable students and apprentices in VET. However, to test the validity of a construct of resilience in VET, quantitative data are required.

Third, the focus of this study was on personal characteristics, abilities and behaviours of our participants that can be described as resilience promoting factors, while factors related to the students' learning environment at school and their parents' involvement in their education and their support were the focus of a prior part of the study (cf. Schmid 2021; Schmid and Garrels 2021; Schmid et al. 2021). In the current study, we were therefore unable to provide a full picture of the factors that contributed to resilience among the young people in our study. Instead, our study offers a rich description of personal characteristics, abilities and behaviours of our participants that contributed to their succeeding in VET.

Abbreviations

GPA	Grade point average
VET	Vocational education and training

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Author contributions

ES designed the study and conducted the interviews together with two research assistants. Both authors analysed the data (partly jointly, partly independently). ES wrote the manuscript, CLH supported and reviewed. Both authors read and approved the final manuscript.

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Availability of data and materials

The interview transcripts generated and analysed during the current study are not publicly available because they contain data that allows identification of the participants. A limited form of the data can be made available from the corresponding author on reasonable request.

Declarations

Competing interests

The authors declare that they have no competing interests.

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