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Emotional competences in vocational education and training: state of the art and guidelines for interventions

Florinda Sauli[1*], Matilde Wenger[2] and Marina Fiori[2]

*Correspondence:
Florinda.Sauli@hefp.swiss

[1] Swiss Federal University for Vocational Education and Training (SFUVET), Via Besso 84/86, 6900 Lugano-Massagno, Switzerland
Full list of author information is available at the end of the article

Abstract

Interventions in emotional competences and scientific studies of emotional competence are flourishing in the educational context. However, we find very few programs in Europe involving emotional interventions in vocational education and training (VET) and a dearth of scientific contributions. Our purpose with this paper is twofold: a) we provide the state of the art on existing international scientific publications about emotional training interventions in VET and a summary of existing programs at the European level; b) by relying on the analysis of relevant cases in the educational literature, we provide guidelines about how scientifically-based interventions in emotional competences in VET could be developed. Ultimately, our goal is to open a discussion of emotional training as a novel domain of research for VET scholars and practitioners, and of how emotional competences could be introduced in a vocational curriculum.

Keywords: Apprentices, Emotional competences, Emotional interventions, Soft-skills, Vocational education and training

Introduction

The world is facing an unprecedented change due to technological innovation, the globalization of products and trade, and demographic shifts that are significantly impacting the way of working and the characteristics required to work productively (International Labour Organization [ILO] 2019). In the face of such challenges, individuals need to develop additional soft or transferable skills that can be applied to working regardless of the specific function occupied. In particular, those competences that pertain to individuals' emotional aspects, namely emotional competences, may be particularly helpful in times of challenges and high uncertainty, such as when entering the job market for the first time. In the case of apprentices, they face the difficulty of approaching an employee position while still being a learner, which may be experienced not only as a source of stress, but also as a demanding situation that requires developing novel types of relationships with superiors, co-workers, and clients. Emotional competences may help to better manage emotional reactions in oneself and with others and, for this reason, they

are considered part of the twenty-first century skills needed for succeeding at work and, more generally, in life (Bughin et al. 2018).

Emotional competences or skills[1] may comprise different characteristics depending on the framework employed. The different theoretical frameworks all attribute primary roles to emotional self-awareness, i.e. the ability to understand one's own emotional reactions and their effects on thinking and behavior, which may support more thoughtful decision-making; to self-management (or self-control), which ensures a better capacity to cope with uncertainty and the pressure of everyday life; and to empathy and social awareness, which impact interpersonal relationships by creating more profound connections with others and an improved reciprocal understanding (Petrovici and Dobrescu 2014). These competences have proven to be critical factors accounting, *inter alia*, for better social adjustment and higher employability (Amdurer et al. 2014; Nelis et al. 2011). As adjusting to the social environment and being able to successfully enter and retain an employment are among the fundamental characteristics for succeeding as a VET student and apprentice, with this manuscript we aimed to investigate the development of interventions that foster emotional competences in this population of young adults.

Theoretical frameworks for emotional competence interventions

The literature that has offered a theoretical framework for developing interventions aimed at improving emotional competences is that of emotional intelligence (EI). EI is broadly defined as an array of abilities and self-perceptions related to the awareness, expression, understanding, and management of emotions. EI represents emotional characteristics of the individual that are more stable and inborn, but which may nevertheless be trained and improved. In such case they become (emotional) *competences*. Hence, when referring to the outcome of interventions, we use the term emotional competences (EC), and when referring to the emotional characteristics of individuals, we talk about EI.

In psychology, there have been three different approaches to studying EI: ability EI, trait EI, and mixed models. The first defines emotional intelligence (EI) as a cognitive ability composed of four subcomponents: the ability to perceive emotions in oneself and others; the ability to use emotions to support thinking; the ability to understand emotions in oneself and others; and the ability to manage emotions in oneself and others (Mayer and Salovey 1997). In this approach, EI can be measured with objective tests, such as the Situational Test of Emotion Understanding (STEU; MacCann and Roberts 2008). The second approach defines EI as a personality trait and encompasses models such as Petrides' and Furnham's (2003) four-components model of well-being, sociability, self-control, and emotionality. In this approach, EI can be measured with self-report scales, such as the Trait Emotional Intelligence Questionnaire (TEIQue; Petrides 2009). The third approach conceptualizes EI as a mixture of personality traits, dispositions, and competences and is represented by several models; one of the most well-known of these, developed by Goleman (1998), includes five components: self-awareness, self-regulation,

[1] In the VET literature, there is no clear distinction between *competences* and *skills*; for this reason in this review we included research on both competences and skills.

motivation, empathy, and social skills. It can be measured with self-report questionnaires, such as the Emotional and Social Competence Inventory (ESCI; Boyatzis and Goleman, 2007).

Emotional competences and employability

Educational institutions are increasingly concerned about increasing students' employability, defined as "a set of achievements—skills, understandings and personal attributes—that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy" (Yorke 2006, p. 8). Successfully entering the job market after schooling requires having clear ideas about what a certain job entails as well as a professional attitude combined with good interpersonal skills. Emotional competences may foster employability in many respects: they may reduce career decision-making difficulties by lowering the emotional pressure of making a career decision and by providing emotional clarity about the ambivalent emotions associated with the choice of a certain profession (Di Fabio and Saklosfke 2014). In addition, emotional competences may provide the emotional foundation for positive interpersonal relationships, based on understanding of other people's emotions and the capacity to provide emotional support to others in different situations (Petrovici and Dobrescu 2014).

Research results support the association between emotional competences, in particular EI, and employability. For example, Di Fabio and Kenny (2015) found that trait EI as well as perceived social support from teachers and friends were positively associated with general resilience, perceived employability, and decision-making self-efficacy. Another study found that trait EI was negatively associated with decision-making difficulties and perceived employability through the construct of career adaptability, which refers to a set of personal resources that may help individuals to manage career transitions (Udayar et al. 2018). Nelis et al. (2011) showed a positive effect on career-related variables of an 18-h program meant to develop the four abilities identified in Mayer's and Salovey's (1997) EI model. The results showed that the training group, but not the other comparison groups, increased significantly in EI and received higher scores in a mock job interview simulating the recruitment process for a potential employer.

Employability skills refer not only to the ability to successfully transition to a job, but also to retain it. Emotional competences may help in this respect because they foster collaborative work and more positive interpersonal relationships. The ability to understand another person's perspective and the capacity to react to such understanding with empathic behavior and respect for the other's feelings may lead to more satisfying relationships and mutual collaboration in the workplace. Being able to adequately express certain feelings experienced on the job—such as confusion about the tasks assigned or frustration at not being able to fully employ one's competences—may contribute to the development of trustworthy relationships with superiors and colleagues. In support of these claims, EI was found to be associated with retention in a sample of 241 employees in the hotel and tourism sector, with the relationship being moderated by job involvement (Judeh 2013).

Overall, these results confirm the utility that EI and training in emotional competences may have on employability skills.

Emotional competences for VET students and apprentices[2]

The development of emotional competences is particularly important for a population that faces frequent emotional ups and downs: that of adolescents. In particular, VET students and apprentices are experiencing a sensitive period in their life: their transition from adolescence to adulthood is condensed compared to other adolescents because they are required to become independent (financially and psychologically) earlier than students who pursue tertiary education (Masdonati et al. 2007). Hence, they are exposed to intense emotional reactions, such as those related to the fear of social exclusion, and to social environments (including peer pressure and the job context) that may be perceived as stressful. Emotional competences may foster resilience through the facilitation of stress regulation (Davis 2018) and by supporting better self-management and more effective interpersonal relationships. The benefits of interventions in emotional competences for students are numerous, such as better conflict management and emotional management, which may reduce youth violence and bullying (Brown et al. 2011; Schoeps et al. 2019), and reduced dropout rates and stronger support in becoming more effective students, also from the point of view of social adaptation (Dowling et al. 2019; Nathanson et al. 2016). The positive features of interventions in emotional competences seem particularly suitable for VET students and apprentices, with a potentially increased effect due to the emotional characterization of this group of adolescents, as mentioned above.

Purpose of the study

With our contribution, we aim at analyzing the state of the art of existing programs for emotional competences in VET, and of scientific publications reporting the results obtained. Relying on successful interventions that have improved emotional competences in educational contexts, we provide guidelines about conducting scientifically based interventions to promote the development of emotional competences in VET.

Literature review on EI training in the VET context

We conducted a literature search to explore existing articles about EI training in the context of vocational education and training.

Inclusion and exclusion criteria

We selected the literature according to the following inclusion criteria: the studies had to a) involve a training program aimed at improving emotional competences; b) be in the VET context; c) date from 2000 to 2021; d) be written in English; and e) include measures of emotional intelligence using either trait, ability, or mixed approaches. The latter criterion was applied to identify interventions that had a clear theoretical framework. As we will discuss later in the paper (Sect. 5.1, Definition of a theoretical framework), the lack of a conceptual framework may lead to unfocused interventions that do not have proven utility in improving individuals' emotional competences.

[2] We speak about both VET students and apprentices to highlight the dual aspect of VET (alternating between vocational school and training company), but also to include countries where VET does not have a training component.

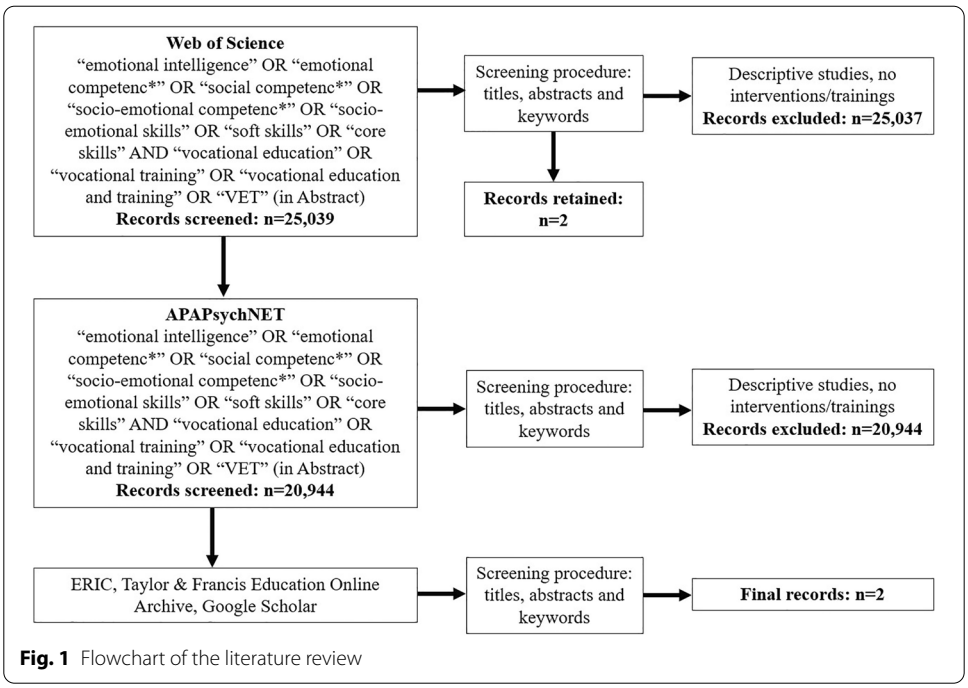

Fig. 1 Flowchart of the literature review

We excluded studies with pathological components (e.g., mental diseases), studies with persons from other educational contexts than VET (e.g., compulsory school or workplace learning) or studies assessing other outcomes, such as work performance or readiness. We also excluded studies that had a different purpose, such as testing for the correlation between EI and personality traits (e.g., the Big Five model).

Literature search

In the literature, emotional intelligence and emotional competences are sometimes grouped under the broader category of socio-emotional competences or more generally social competences/skills (Monnier, 2015).[3] For this reason, we extended our search to keywords referring to social competences as well.

Figure 1 summarizes the literature search process. We started by searching in the Web of Science database, using the keywords "emotional intelligence" OR "emotional competenc*" OR "social competenc*" OR "socio-emotional competenc*" OR "socio-emotional skills" OR "soft skills" OR "core skills" AND "vocational education" OR "vocational training" OR "vocational education and training" OR "VET", obtaining 25,039 results. The screening procedure (i.e., applying inclusion and exclusion criteria) radically reduced the results: only two articles were selected (Madalinska-Michalak 2015; Repetto Talavera and Pérez-González 2007). The first reports the results of a program aimed at developing teachers' emotional competences. The program, based on the ability EI approach, is

[3] Even though emotional and social competences are different concepts, they are often associated because they reciprocally influence each other, as stated by Saarni (1999): "[…] the emotion-eliciting encounter derives its meaningfulness from the social context in which we have grown up, and thus emotional experience is developmentally embedded in social experience; indeed, the two are reciprocally influential" (p. 3). Indeed, individuals who learn to better manage emotions in themselves may observe a positive effect also at the level of interpersonal relationships. Moreover Monnier (2015), comparing key theories about emotional and social competences, noticed that socio-emotional competences share common emotional components and for this reason they should be considered inseparable.

evaluated through teachers' perceptions of the usefulness of the training and the transfer of the knowledge to their workplaces (Madalinska-Michalak 2015). The second (Repetto Talavera and Pérez-González 2007) is characterized by a training in socio-emotional competences through practicums and company internships and is based on a mixed model of EI (Repetto Talavera and Pérez-González 2007). Section 3 further discuss these two studies.

Most of the discarded articles reported discussions in terms of educational policies, such as whether emotional competences should be included in VET curriculum or what kind of emotional competences should be taught and for which kind of professionals. Several articles also reported studies about the association between emotional competences and other outcomes (such as students' performance at school, employability etc.), without analyzing the effect of interventions on emotional competences. Finally, a large part of papers assessed the level of emotional competences in a certain population and advocated for the specific training of such competences.

To obtain a more comprehensive view on the subject, we also searched the APAPsychNET database using the same keywords (found in the Abstract) as for the Web of Science, obtaining 20,944 results. After performing the screening procedure, we found that no articles met the inclusion criteria. In this sense, none of the studies were found to be relevant to our research. We also checked on the ERIC, Taylor and Francis Education Online Archive, and Google Scholar databases, but no article was found to be relevant according to the inclusion criteria.

The screening made it possible to exclude all studies that were surveys on emotional competences rather than interventions or trainings. The literature review shows that currently, in the research about VET worldwide, there are—to our knowledge—very few studies that reported interventions in emotional competences, at least as far as can be determined from scientific search engines. Although we were not expecting a large number of contributions, we were surprised to find that only two reflected our search criteria, which were rather broad. We believe that this unexpected result reflects the scant attention that the VET literature has put on a scientifical approach to interventions in emotional competences.

To understand whether the lack of scientific reports corresponds to a lack of projects on emotional competences in the VET context, we further searched for information regarding emotional competence programs. Here we limited our search to Europe. This choice is supported by the prevalence of VET in this area and by the decision of the European Commission to put on its agenda the promotion of twenty-first century skills,[4] indicating its intention to (also) develop emotional competences. Thus, these aspects might lead to greater uptake of emotional competence programs in the European VET.[5]

[4] More information about the "New Skills Agenda" can be found at the website: https://ec.europa.eu/jrc/en/research-topic/learning-and-skills

[5] Other countries, such as the US, were excluded because they have a long tradition of interventions in emotional competences, but their VET system is very different from the European ones.

An overview of European VET programs for emotional competences

Following the results of the literature review, we extended our search to programs pertaining to emotional competences in VET. We applied some criteria to select the programs most relevant to the aim of our study. In particular, programs had to: take place in Europe, be in VET, and include a training in emotional competences. The search was done according to the following steps: First, two of the selected papers from the literature review (Madalinska-Michalak 2015; Repetto Talavera and Pérez-González 2007) described programs that met our criteria, and therefore they were included in our sample. Second, we carried out a search on Google using the same keywords employed in the literature search. This led to the inclusion of two additional programs (Bundesministerium für Wirtschaft und Energie 2019; Rácz et al. 2015). Finally, websites of some targeted VET networks or institutions were checked: CEDEFOP (European Centre for the Development of Vocational Training) and VETNET (European Research Network on Vocational Education and Training) at the European level; BiBB (Bundesinstitut für Berufsbildung) in Germany, and SERI (State Secretariat for Education, Research and Innovation) in Switzerland. This last step did not lead to the addition of other programs.

Overall, we identified four programs in Europe about emotional competences in VET (a detailed description of each is provided in Table 1). All four programs aimed at enhancing emotional competences among apprentices, vocational teachers, in-company trainers, or other VET stakeholders. The programs slightly differed with respect to the main goals underlying the intervention. For POCOSE (Programa de Orientación en las Competencias Socioemocionales; Repetto Talavera and Pérez-González 2007) the aim was to increase apprentices' employability, for EL4VET (Teachers First: Using Emotional Literacy to Improve VET Teaching in the 21st Century) and SELVET (Social and Emotional Learning in Vocational Education and Training) it was reducing students' alienation and behavioral problems, and for "Socially competent—dually trained" (*Sozial kompetent—dual ausgebildet*) it was a better social and professional integration of refugees and disfavored groups. All projects aimed at improving the learning environment and learning performance through emotional competences.

The four programs also attempted to increase emotional competences in different ways. For POCOSE and EL4VET an ad hoc intervention was created, including planning, teaching material, and evaluation tools (see for example the socio-emotional competency inventory ICOSE; Repetto Talavera et al. 2006). These two programs were also meant to first test the intervention with a sample and then subsequently diffuse it to a larger group. POCOSE was characterized by a training in socio-emotional competences through practicums (for university students) and company internships (for VET apprentices). Indeed, according to the developers of POCOSE, the best way to develop socio-emotional competences is through experience, appropriate training, and practice under the supervision of a trainer (Repetto Talavera and Pérez-González 2007). While all programs mainly target apprentices, EL4VET is more oriented to their teachers: by improving teachers' emotional competences, it is possible to raise "students' learning achievements and reduce students' alienation and behavioral problems" (Madalinska-Michalak 2015, 75).

In contrast, SELVET and "Socially competent—dually trained" include interventions, activities, or measures that were originally developed elsewhere. Indeed,

Table 1 Description of European emotional programs in VET

Program	Country, promoter, period	Aim	Theoretical framework	Duration and contents	Instruments	Findings/effectiveness
POCOSE—Programa de Orientación en las Competencias Socioemocionales (Guidance Program for Socio-Emotional Competences) No website available	Spain Part of the research project "Orientación y desarrollo de competencias socio—emocionales a través de las prácticas en empresa", financed by the Ministry of Education, (SEJ2004-07648/EDUC) Period: 2004–2007	To train socio-emotional competences, applied within university practicums and internships in companies To encourage personal development and labor placement for students and recent graduates	Mixed models of Emotional Intelligence (Mayer and Salovey 1997)	7 modules of 10 h, structured in 5 sessions of 2 h Each module develops one of the following competencies: emotional self-awareness, empathy, emotional regulation, motivation, assertiveness, teamwork and conflict resolution Each module specifies the objectives, contents, development dynamics, sequence of the sessions, materials used, and the most relevant bibliography (Repetto Talavera & Pérez-González 2007)	Pre- and post-test measurement with Socioemotional Competency Inventory (ICOSE) ICOSE entails two questionnaires: the first evaluates the importance that students attach to socio-emotional competences for their job performance; the second evaluates the degree of presence of these competences in students' courses (Repetto Talavera et al. 2006)	No results available from the web
EL4VET—Teachers First: Using Emotional Literacy to Improve VET Teaching in the 21st Century www.el4vet.eu	Bulgaria, Portugal, Cyprus, Czech Republic, Poland and the United Kingdom Supported by the European Commission's Lifelong Learning Programme, and Leonardo partnership Period: 2010–2012	To test a pilot program designed to support the development of teachers' emotional competence	Ability EI (based on Saarni's concept of emotional competence)	3 modules for a total of 30 h Contents: Introduction to Teacher Emotional Competence; Teacher Emotional Competence and Education; and Development of Teacher Emotional Competence Attributes (Madalinska-Michalak 2015, p. 77)	Survey about teachers' perception of usefulness of the training program and the transfer of the knowledge to the experiences in their workplaces (Madalinska-Michalak 2015, p. 77) Closed- and open-ended questions	Results (only from Poland, Madalinska-Michalak 2015): The participants of the pilot program perceived the program as relevant to their practice and their professional development. The development of emotional competence of the teachers affected the teachers' practice

Table 1 (continued)

Program	Country, promoter, period	Aim	Theoretical framework	Duration and contents	Instruments	Findings/effectiveness
SELVET—Social and Emotional Learning in Vocational Education and Training https://selvet.weebly.com/	Germany, Hungary, Malta, The Netherlands, United Kingdom Supported by the European Commission's Lifelong Learning Programme, and Leonardo partnership Period: 2013–2015	To explore the application of SEL in several countries to provide a rationale for including such programs in VET	Not available, the program is based on SEL interventions	Several projects are reported and described in the *SELVET* report (Rácz et al. 2015)	Several projects are reported and described in the *SELVET* report (Rácz et al. 2015)	In the *SELVET* report (Rácz et al. 2015) there are several good practices concerning interventions on social and emotional competences, however no results about their effectiveness were found
Sozial kompetent—dual ausgebildet https://www.bmwi.de/Redaktion/DE/Publikationen/Ausbildung-und-Beruf/sozial-kompetent-dual-ausgebildet.html https://www.dlr.de/pt/desktopdefault.aspx/tabid-11212/16307_read-47649	Germany German Federal Ministry for Economic Affairs and Energy, as part of the program "Promotion of social competence in dual training, especially for the integration of refugees" Period: 2017–2020	To strengthen social skills and raise awareness of their importance among all the persons involved in VET to better integrate refugees (but not only)	Not available	46 projects and networks, 12 of them are described in the report of the project (Bundesministerium für Wirtschaft und Energie 2019), but without specific information	Development and testing of 46 projects and networks Twelve of them are described in the report of the project (Bundesministerium für Wirtschaft und Energie 2019), but without specific information about the instruments	Development and testing of 46 projects and networks Twelve of them are described in the report of the project (Bundesministerium für Wirtschaft und Energie 2019), but without specific information about the effectiveness of the program

SELVET enhanced existing SEL projects in VET to highlight good practices (Rácz et al. 2015). "Socially competent—dually trained" was launched by the German Federal Ministry for Economic Affairs and Energy to fund new projects with innovative approaches to strengthening social skills in the area of dual VET for both trainers and apprentices (Bundesministerium für Wirtschaft und Energie 2019). Both SELVET and "Socially competent—dually trained" programs were concerned with integrating disadvantaged populations (refugees or VET students and apprentices that often come from a more disadvantaged background).

We draw the following considerations from these four European examples of programs for emotional competences in VET.

First, several projects considered also (or primarily) social competences or skills in addition to emotional competences. For example, "Socially competent—dually trained" mainly focused on social skills, although some facets of emotional competences were also included, such as empathy, development of personal responsibility, teamwork, or critical thinking (Bundesministerium für Wirtschaft und Energie 2019). This echoes the results of the literature search: in VET, emotional competences are often associated with social competences.

Second, some projects were not focused on building an intervention, but on highlighting existing practices in training companies and vocational schools that could be used to develop emotional competences (see SELVET or "Socially competent—dually trained").

Third, there was little emphasis on the results or outcomes of the programs, in particular regarding the effectiveness of the intervention. Most information is found in the programs' final reports or websites, which were not very detailed. Very little dissemination through scientific channels was found.

Fourth, most programs did not adhere to a scientifically robust approach. More specifically, data were mainly collected through self-reported measures of usefulness and satisfaction about the intervention, with no objective measure of effectiveness of the intervention, for example with respect to an increase in emotional competences and/or improvements in other aspects of participants' life, such as well-being or the ease of finding a job or apprenticeship. An exception is POCOSE, which developed and validated the socioemotional competency inventory (ICOSE; Repetto Talavera et al. 2006) and used it with a pre- and post-test design.

Overall, the analysis of programs shows that the domain of emotional competences has been approached in VET, although the programs developed in most cases are not publicly available in terms of reports and summaries of the results obtained. Furthermore, the general impression is that these programs were more like first attempts to approach emotional competences in interventions, and did not necessarily adopt a structured and scientific approach in how the intervention was developed and how its effects were analyzed.

Considering the shortcomings of the current approaches, in the next section we present a few cases that may provide good examples of how interventions in emotional competences in VET could be developed. These cases were developed in the broader educational literature, which is an area of research in which scientific approaches to emotional competences interventions are flourishing.

Examples of scientific reports and interventions in emotional competences in the broader educational context

We selected two scientific articles reporting outcomes of emotional (Gilar-Corbí et al. 2018) and social and emotional training (Jennings et al. 2017), and one example of a socio-emotional learning (SEL) intervention called RULER (Brackett et al. 2011; Hoffmann et al. 2018). These studies are particularly relevant because they thoroughly illustrate an effective training approach to improving emotional competences, they follow a scientific approach, and they were developed recently.

Two selected studies on emotional training in the broader educational literature

The two selected studies reflect effective training to improve emotional intelligence. Table 2 provides an overview of the main characteristics of these studies (Gilar-Corbí et al. 2018; Jennings et al. 2017).

In terms of procedure, they both included a randomly assigned experimental group and a control group. One study sampled university students (Gilar-Corbí et al. 2018), while the other sampled primary school teachers (Jennings et al. 2017). Several training modalities were tested: in classrooms, online, with an individual coaching or a combination of these modalities. Both studies included pre- and post-test measures and used scientifically validated emotional intelligence instruments. The results showed, in both studies, that training significantly increased the EI of participants in the experimental groups. Interestingly, the coaching component also played a major role, suggesting that this modality could further strengthen the development of EI. Positive effects were found on several aspects: emotion regulation, mindfulness, and psychological distress. These two studies are interesting because they show that interventions with different approaches (trait, ability etc.) can be effective in both young and adult populations as verified by several different instruments (self-reported assessment, standardized tests, real-life scenarios etc.). The effectiveness of several modalities to develop EI is also useful for adapting interventions to available resources (such as time, teaching personnel, teaching modalities etc.) and target groups. Furthermore, using different methods of assessment to measure EI also increases the reliability and validity of the measurement.

An educational intervention on socio-emotional competences: RULER

RULER is a social-emotional learning (SEL) intervention developed at the Yale Center for Emotional Intelligence that was tested in several contexts, from pre-school to high schools (Hoffmann et al. 2018). It is based on the ability theory of EI and it promotes the teaching of five key skills: Recognizing, Understanding, Labeling, Expressing, and Regulating emotions (RULER; Hoffmann et al. 2018). The idea is to promote a change in school culture: interventions usually start with teachers and school staff and only afterwards are extended to students. Enhanced emotional skills, a better class atmosphere, and quality relationships are supposed to also improve students' engagement and achievement. The intervention draws upon several tools and educational practices that are progressively integrated into the school curriculum (Brackett et al. 2011). Four anchor tools—the Charter, the Mood Meter, the Meta-Moment, and the

Table 2 Overview of the main characteristics of the studies of Gilar-Corbí et al. (2018) and Jennings et al. (2017)

Study	Aim	Sample	Instruments	Procedure	Findings/ effectiveness
Gilar-Corbí et al. (2018)	To develop emotional intelligence in students	192 Spanish university students Random assignment to 3 experimental groups (classroom, online and coaching modality) and a control group	Measure of both: Self-reported trait EI with the short version of the Emotional Quotient Inventory (EQ-i:S; Bar-On 2002). Five dimensions of EI (intrapersonal intelligence, interpersonal intelligence, adaptation, stress management and mood, 51 items) Ability EI with the Situational Test of Emotional Understanding, STEU and the Situational Test of Emotion Management, STEM; (MacCann and Roberts 2008). The STEU and STEM measure individuals' abilities to understand their own and others' emotions (the STEU) and the ability to manage emotions effectively (the STEM). Real-life scenarios are proposed and, for each situation, one correct answer is identified	All the participants completed pre-test questionnaires, in particular measuring their (initial) level of EI, then the experimental group had three different kinds of training: a) a classroom-mediated modality –two-hours sessions—combined with an online e-learning platform; b) only the e-learning platform, with virtual materials being available online; c) a coaching-mediated modality—20 min per week—combined with the e-learning platform and the classroom sessions In the three modalities, there were individualized online tutorials and for a) and c) modalities, also face-to-face tutorials The training lasted seven sessions of 2 h each, once per week	Results showed that EI scores between the pre-test and the post-test increased for both self-reported and ability measures for the three experimental groups compared to the control group. Moreover, in the experimental groups, the scores of the group with the coaching modality increased the most compared to the other two experimental groups. These results allowed the authors to conclude that it is possible, through several modalities, to learn and improve emotional competences

Table 2 (continued)

Study	Aim	Sample	Instruments	Procedure	Findings/ effectiveness
Jennings et al. (2017)	The program aimed at developing the social and emotional competences of teachers by giving them a training in emotional competences. The aim was to improve classroom interactions as well as the teaching experience of teachers, and to reduce teachers' distress	224 elementary school teachers from 36 schools in the region of New York City Double randomization process (across schools and teachers): Experimental group Control group		Participants completed a pre- and post-intervention measure Participants in the experimental group received training from the CARE (Cultivating Awareness and Resilience in Education) for Teachers program (Jennings et al. 2013) The study participants took part in a five-day training course, six hours per day (for a total of 30 h of instruction). In addition, they were provided with a workbook and audio recordings to practice learning, as well as three individual calls from a coach to deepen and support the teachers' lessons	The results showed that the CARE teachers scored higher on the various measures of the program, including higher levels of emotion regulation and mindfulness, than the control group. In addition, the level of distress among the CARE teachers was lower than among the other teachers. Overall, this study demonstrates the effectiveness of training aimed at improving emotional competences in a teachers' sample

Blueprint—characterize the RULER approach and develop the above-mentioned five key skills.[6] These tools are adjustable to each school or classroom environment and can be used sequentially or independently.

We selected RULER because it has already been tested with several populations and, more specifically, with adolescents (Hoffmann et al. 2018). Adolescence is a period of identity search, where emotions and moods tend to be very extreme. For this reason, raising awareness of emotional reactions among adolescents is an indispensable task

[6] The Charter is an agreement between students about the feelings required to build a good climate for learning and about what to do in case such agreement is violated. It helps in labelling and expressing emotions and in creating a good learning environment.
The Mood Meter is conceived to recognize emotions and to understand how they can affect thinking through a graphical plot. Emotions are described through two of their properties: "energy" (low/high) and pleasantness (unpleasant/pleasant feelings). For instance, feeling calm belongs to the low-energy, pleasant-feeling quadrant. The Mood Meter can be used for example before a class to check how students are feeling.
The Meta Moment helps in emotion regulation. The strategy consists in taking some time between an event and the reaction to this event. It basically teaches analyzing one's own feelings and automatic reactions to a certain event and modifying these reactions if needed.
Finally, the Blueprint is a set of questions to manage emotionally charged situations that is meant to improve perspective-taking through the encouragement to adopt a different perspective when approaching conflictual situations (Brackett et al., 2011; Hoffmann et al., 2018).

that relates to the development of adolescents' autonomy and their vision of their future career (Hoffmann et al. 2018). Hoffmann et al. 2018 emphasize that when applying the logic of SEL interventions to adolescents, it is important to consider the many changes that take place during this period, such as emotional instability and physical variations. A large part of VET students and apprentices are adolescents. Therefore, RULER constitutes an example of intervention that could be adapted to this population.

Proposed guidelines for VET

In light of the considerations in the previous sections, we suggest below some guidelines for the implementation of interventions aimed at improving emotional intelligence and developing emotional competences in VET. The following recommendations are partially based on aspects of the literature discussed above, while adding inputs specific to the VET context.

Definition of a theoretical framework

Identifying a theoretical framework is crucial for establishing aspects such as training goals, contents, and criteria for training effectiveness. In fact, having a well-defined theoretical framework allows the definition of the concepts to be trained and the right variables to evaluate them. As previously mentioned, some evaluation constructs may be closer to the theoretical framework, while others may be more distant but still allow for the reporting of the effectiveness of training. For example, in the case of EI training, changes in participants' aspects broadly related to the theoretical framework, such as general well-being or self-efficacy, may be observed together with improvements in the specific competences targeted by the intervention, such as emotion regulation.

Defining and employing a clear theoretical framework helps also to meet the criteria of reliability and validity of training. This means that the same type of training repeated over time and under the same conditions should yield the same results (i.e., reliability); furthermore, a clear framework ensures that the training addresses precisely the competences it is supposed to address (i.e., validity).

Quality is more important than duration of training

The studies reviewed on interventions in emotional competences in the educational settings show that the length of an intervention is not a critical factor for success.

Contrary to what one might imagine, the duration of a training course is not directly related to its effectiveness, nor to the quantity of competences a participant may develop, as long as a minimum duration is ensured. For example, in the context of interventions aimed at improving emotional competences, a training course lasting only 12 or 14 h can be just as effective in terms of learning as a longer course (Corcoran and Tormey 2012). In addition, the quality of the training seems to be more relevant than its duration: positive results can already be observed following an effective short training. This aspect is particularly salient in the context of dual VET, which combines training both at a vocational school and at a training company. In such context, training time is often lacking, and training programs are increasingly intense. In this sense, being able to guarantee effective training in a short time is a central aspect of improving emotional competences. Apprentices undertaking a 4 h training (i.e., half a day) for three weeks may

already observe improvements in their emotional skills. Whereas a minimum length of 12 h may be sufficient to obtain immediate effects, a longer training may be recommended for ensuring more durable effects, which is an additional aspect to consider when planning a follow-up of the results.

Employment of a control group

A control group is a group of individuals representing a standard for comparison for those who participated in an intervention, i.e., the experimental group. The employment of a control group helps to identify whether the observed effect can be attributed to the intervention or to other factors.

Participants may be randomly assigned to one of several groups (i.e., in the case of an experimental design) or assigned not randomly but based on convenience, such as a group of employees who have to undertake mandatory training because of their company's requirements (i.e., quasi-experimental design). The presence of a control group in a training program strengthens the scientific validity of the intervention.

For example, in the case of a VET intervention, participants may be randomly assigned to: (1) emotional learning conducted in a classroom; (2) online training (two experimental groups); or (3) no training at all (control group). Before the training, one would measure, among other things, capacities related to the regulation of emotions in all the three groups. At the end of the training one would again measure capacities in emotion regulation and should expect to observe more progress in the groups that have undertaken emotional learning in comparison to the control group. The employment of a control serves to rule out the possibility that simple maturation rather than the intervention itself has led to the improvement of emotion regulation—in such a case the control group would have improved as well.

Evaluation of training and inclusion of a follow-up

At the end of an intervention, an evaluation of the results obtained is necessary for understanding whether the intervention produced the expected changes in participants. Changes and improvements may be expected at the level of (a) acquired knowledge and competences, (b) applicability of such new knowledge and competences to the domain of study/work of the participants (transfer), and (c) other broader benefits to the participants not directly related to the subject of training (such as an increase in self-esteem). The most frequently used measure of effectiveness is a self-report questionnaire in which participants indicate the extent to which they felt they improved in the effectiveness criteria. Subjective perceptions may provide relevant information regarding how much the training was appreciated and valued by participants. However, subjective feedback is a relative index of effectiveness, because it is strongly affected by factors external to the intervention itself, such as the classroom climate or the trainer's pleasantness. For this reason, more objective measures could also be employed, such as a test to verify acquired knowledge; ratings of external observers regarding changes in the behavior of participants, for example in the work context; or objective indicators of success (e.g., key performance indicators) or indicators of general well-being.

These three criteria for the effectiveness of training can be measured right after the end of the training and after a lag of a few months (typically 3- or 6 months follow-up).

Unlike the duration of an intervention, the inclusion of a follow-up is a central element of assessment because it provides information on the transferability of the competences: over what period of time do participants continue to develop competences? The research has shown mixed evidence; in some cases the time lag after a follow-up does not have an impact (Awoniyi et al. 2002), in other cases it does because apprentices need time and opportunity to practice what they have learned (Grossman and Salas 2011). In general, a follow-up too close to the training may be ineffective, because participants still need time to reflect and integrate the competences acquired; a follow-up too far away in time could show no effects, because any such effects have already vanished.

In the case of the VET system, follow-up could take place at regular intervals, such as at the end or at the beginning of each year of training: this would allow a certain homogeneity of follow-up in terms of time (every year or even each semester) and in terms of the population (apprentices, teachers, and trainers could in fact all have a follow-up at the same time). Otherwise, a temporal lapse of three to six months starting from the end of the training should provide enough time for observing immediate and distant changes in participants' characteristics and competences. The length of the follow-up should be planned according to the length of the training. As previously mentioned, shorter training may have more limited-time effects.

Ultimately, evaluating the effectiveness of training right after the intervention and at a few months' distance is fundamental to understanding whether training should be repeated/extended and whether the time and resources employed were worth it, following the logic of a return on investment (ROI). For example, funding agencies may require objective proofs of effectiveness of a training intervention to decide whether similar interventions will be financed in the future.

Adjusting interventions to different occupations

The VET domain relates to various occupations and emotional competence training needs to be adapted to their specificities, such as the professional identities they entail. In addition, the level of centrality of emotional competences varies depending on the specific profession (Monnier et al. 2016). For example, in occupations where contact with people is fundamental—such as clerks and nurses, dealing everyday with customers and patients respectively—emotional and social skills might be a fundamental competence to acquire/develop, with benefits ranging from higher satisfaction of customers/patients to improved sales performance or effectiveness of treatment. Indeed, the study of Duemmeler et al. (2017) shows the centrality of emotional competences for retail clerks: the quality of contact with customers contributes to the construction of their professional identity and to the ability to effectively cope with difficult working conditions. In fact, in occupations where contact with customers or patients is part of everyday activities, the development of emotional competences is usually included in training programs. However, in occupations where the contact with customers or patients is less frequent (e.g., carpenter or lab technician), training might address other aspects of emotional competences, such as the capacity to keep oneself motivated to work and use emotions to support behavior and performance. Thus, it would be important to consider differences among professions to offer the most suitable training for the various occupations.

Adjusting interventions to the VET population and VET learning context

As mentioned before, the dual VET population has some peculiarities: it involves several types of stakeholder, especially vocational teachers, in-company trainers, and apprentices, who are active in different learning contexts (such as vocational schools and companies). Hence, training of emotional competences should be adapted to the specificities of each type of population and context. Vocational teachers usually already hold a pedagogical background (Vaudroz et al. 2015) and are more likely to have received training involving some aspects of emotional intelligence (e.g., management of emotions towards hostile students). Hence, teachers are probably not starting from scratch on this topic. In-company trainers instead usually hold higher expertise in hard skills and have a more practical orientation and less pedagogical preparation. Thus, a basic and hands-on training in emotional competences would be more suited for in-company trainers.

As was highlighted by EL4VET and RULER, training in EI is particularly effective when it is supported and promoted at the institutional level. Concretely, this means that teachers, in-company trainers, and other stakeholders involved in the training process (e.g., school principals) should be first trained and equipped with emotional competences themselves to be able to teach and pass on such competences to apprentices.

In addition, as illustrated in the study of Gilar-Corbí et al. (2018) and in the Spanish program POCOSE (Repetto Talavera and Pérez-Gonzaléz 2007), incorporating the presence of a coach (or a tutor) into training aimed at improving emotional skills seems to have a significant impact on emotional intelligence improvement. The added values of coaching are an individualized feedback on the participants' progress in the acquisition of emotional competences, the adaptation to their specific situation at school and at work, the application to professional practice, and the reflection on the outcomes obtained following the intervention. In the VET context, such a role could be assumed by teachers and in-company trainers, which brings us back to the importance of developing emotional competences at the institutional level as well (Hoffman et al. 2018).

Such findings are interesting for a dual VET context because they highlight two fundamental aspects: (1) apprentices need to connect the experiences and competences acquired during training to different learning contexts; and (2) they need to be supported by teachers and in-company trainers in making such connections (Sappa et al. 2018). Teachers, in-company trainers, or other "coaching figures" may represent a sort of "bridge" between school and company: they may create an interface between these different learning contexts and connect in a more coherent and meaningful way the experiences of apprentices at school and on the job. In summary, in planning an intervention about emotional competences for apprentices, we highlight the importance that different stakeholders at the interfaces of learning contexts (such as teachers, in-company trainers, or school mediators) may have in promoting the effectiveness of training. This is particularly relevant for the category of apprentices, who are young adults reflecting adolescent attitudes, and who experience the dual condition of being partially employees and partially school students.

The steps involved in planning a training on emotional competences are summarized in the figure below (Fig. 2):

(1) Definition of a theoretical framework: which concepts will be trained in the intervention and how will they be evaluated (e.g., trait or ability EI)? (2) Choice of the

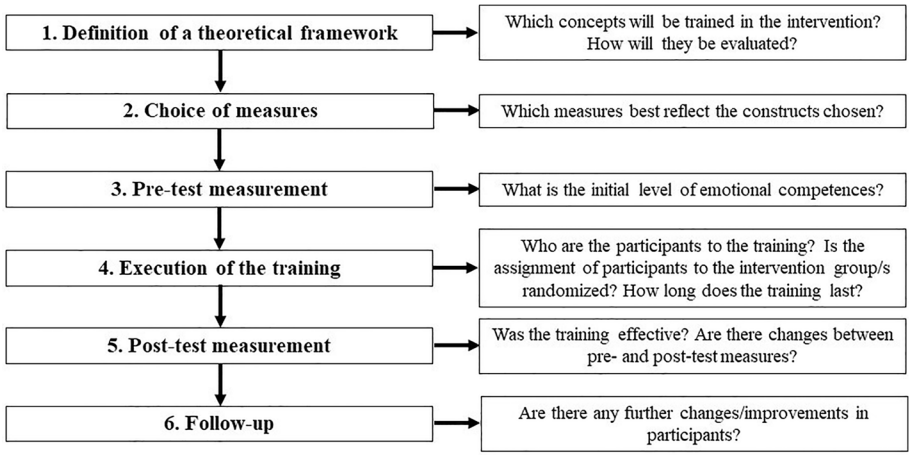

Fig. 2 Intervention steps

measures reflecting the constructs of interest (e.g., TEIque rather than STEM); (3) Measurement of the construct of interest before the intervention (i.e., pre-test measurement); (4) Execution of the training (Who is the target of the training? How many groups? Are participants randomly assigned? How long does the training last?) (5) Evaluation of training effectiveness through the measurement of the construct of interest right at the end of the intervention (i.e., post-test measurement): changes observed between pre and post measurement? Which measures should be employed, subjective and objective measures? (6) Follow-up (3–6 months): are there any further changes/improvement in participants? More distal indicators (self-esteem, overall well-being)?

Conclusion

Emotional intelligence describes how individuals understand their own and others' emotions, and how they express, recognize, and regulate them. Emotional intelligence can be improved and hence become a competence that can be trained and developed in various VET actors, in particular VET teachers and apprentices. Because training in emotional competences is known to have multiple positive effects (e.g., improved performance, better employability; Kaur et al. 2019; Masole and van Dyk 2016) in the educational domain, several interventions aimed at improving these competences already exist.

In this article we looked at emotional competences in an educational context that is particularly relevant to Switzerland: that of vocational education and training. We conducted a literature review on the topic, in particular searching for scientific articles describing training in emotional competences in VET. Acknowledging the dearth of scientific contributions (only two), we extended our search to programs developed in Europe. We found that there are only a few training programs on emotional competences in VET developed so far, and, based on the materials publicly available, they seem to lack a rigorous scientific approach. To foster research in this area, we provided practical guidelines to conduct scientifically based interventions adapted to the VET context. Our approach is both exploratory and proactive, describing the state of the art of existing contributions on emotional competence interventions and providing concrete directions for future interventions of this kind. We drew primarily on psychological

approaches to emotional competences to provide a theoretical framework that is rich in assessment methods and scientific evidence. These approaches require adaptation to the specificities of the VET context and to its literature of reference. To this end, we hope that this contribution can add a different point of view in the discussions about whether and how emotional competences should be added in a VET curriculum. Ultimately, we hope to raise interest and awareness about emotional training and to encourage VET actors to benefit from this type of intervention.

Abbreviations

BiBB: Bundesinstitut für Berufsbildung; CARE: Cultivating Awareness and Resilience in Education; CEDEFOP: European Centre for the Development of Vocational Training; EC: Emotional competences; EI: Emotional intelligence; EL4VET: Teachers First: Using Emotional Literacy to Improve VET Teaching in the 21st Century; ESCI: Emotional and social competence inventory; EQ-i:S: Emotional quotient inventory; ICOSE: Socio-emotional competency inventory; ILO: International Labour Organization; POCOSE: Programa de Orientación en las Competencias Socioemocionales; ROI: Return on investment; RULER: Recognizing, understanding, labeling, expressing, and regulating emotions; SEL: Socio-emotional learning; SELVET: Social and Emotional Learning in Vocational Education and Training; SERI: State Secretariat for Education, Research and Innovation; STEM: Situational test of emotion management; STEU: Situational test of emotion understanding; TEIQue: Trait Emotional Intelligence Questionnaire; VET: Vocational education and training; VETNET: European Research Network on Vocational Education and Training.

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Declarations

Competing interests

The authors declare that they have no competing interests.

Author details

[1]Swiss Federal University for Vocational Education and Training (SFUVET), Via Besso 84/86, 6900 Lugano-Massagno, Switzerland. [2]Swiss Federal University for Vocational Education and Training (SFUVET), Av. de Longemalle 1, 1020 Renens, Switzerland.

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