

Discourse and Communication for Sustainable Education,
vol. 11, no. 2, pp. 121–136, 2020

Establishing Entrepreneurial Thinking and Acting in Swiss Vocational Colleges

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Abstract

Switzerland has one of the best ecosystems for entrepreneurship. However, there is a blind spot with regard to vocational colleges: A systematic integration of the topic is currently missing. The initiative “Entrepreneurial Thinking and Acting in Swiss Vocational Colleges – Economic, Social and Ethical Dimensions” aims to address this blind spot. The vision of the initiative is to ensure that all 75,000 young people entering vocational colleges each year in Switzerland are given the opportunity to acquire entrepreneurial skills to enable them to play an active role in positively shaping the economy and society of the future. In the article, we focus on three key aspects of the initiative: (1) the pedagogical approach of the entrepreneurship program that allows students to develop personal initiative, entrepreneurial competences, and an awareness of sustainability; (2) the continuous evaluation of the program and the teacher training; and (3) the parallel bottom-up and top-down approach chosen to integrate entrepreneurial thinking and acting in the vocational education and training system.

Key words: entrepreneurship education, vocational training, vocational colleges, vocational schools, VET, Switzerland, personal initiative, sustainability, sustainability education.

Introduction

Switzerland has an excellent ecosystem for innovation and entrepreneurship. This includes, for example, government policy conditions (e.g., the tax regime, labor market regulation), R&D transfer conditions, or government programs to support new and growing firms (Baldegger, Alberton, Gaudart, Huber, & Wild, 2018). In addition, support for university students is highly advanced in most institutions of higher education. Students enrolled in universities can gain knowledge in entrepreneurship courses; those who have ideas are supported and offered consulting and coaching services; there are plenty

of opportunities for networking; and a variety of financing options are available for spin-offs (Iliško et al., 2017).

However, there is a blind spot. There is no systematic entrepreneurship education in vocational education and training (VET) at upper secondary level. While a number of excellent initiatives exist that allow students of VET colleges to gather entrepreneurial experiences¹, these have one thing in common: Only select schools offer such opportunities, and they are not integrated into the curricula but typically offered as part of extracurricular activities. In the last few years, politicians have identified entrepreneurship as a relevant, professional competence and as a possible driver of innovation against the backdrop of the digital transformation of the economy and society (Kollmann & Schmidt, 2016; Heasley et al., 2020). Yet, Switzerland has so far failed to implement a coherent concept for strengthening entrepreneurial skills in VET. This is of particular concern considering the importance of VET for Switzerland: Every year, more than two thirds of secondary school graduates – around 75,000 adolescents – commence vocational training.

The neglect of entrepreneurship education in VET might also be one reason why “Switzerland is significantly below average in terms of youth entrepreneurship as well as individual attributes and societal values regarding entrepreneurship among the younger population” (Baldegger et al., 2018, p. 73). The total entrepreneurial activity rate of people aged 18–24 in Switzerland is merely 3%. Compared to the other 24 countries labelled “innovation-driven economies” in the Global Entrepreneurship Monitor study (Baldegger et al., 2018), only France scored lower than Switzerland.

To address this situation, a consortium of representatives from vocational schools, universities, and the industry joined forces and launched an initiative called “Entrepreneurial Thinking and Acting in Swiss Vocational Colleges – Economic, Social and Ethical Dimensions”. This initiative aims to systematically integrate a validated entrepreneurship program called “myidea.ch” within the Swiss VET system. A pilot project to introduce the entrepreneurship program in four cantons (Bern, Solothurn, Ticino and Valais) in three language regions is supported by the *Swiss State Secretariat for Education, Research and Innovation SERI*. The pilot project started in fall 2018.

In this article we emphasize three issues that are key to the program. First, we will introduce the pedagogical approach of myidea.ch which is characterized by working on one’s own idea, the intertwining between knowledge input and application, the consideration of social and ecological aspects of the business idea, as well as the transmission of negative knowledge, that is, understanding how something is *not* working (Oser & Spychiger, 2005). Second, we will provide an overview of the comprehensive evaluation of both the teach-the-teacher approach (teacher training and training of multipliers) and myidea.ch and how the empirical data are used to continuously develop both. And third, we will report on the parallel bottom-up/top-down approach, which is intended to support the integration of entrepreneurship education in the swiss VET system. We conclude the article with the “bigger picture” that lays out our vision and explains how our endeavor fits into the national initiative “Vocational Training and Education 2030” (Berufsbildung, 2030) that aims to anticipate the changes in both the job market and society to adapt the VET system accordingly.

The Initiative “Entrepreneurial Thinking and Acting in Swiss Vocational Colleges – Economic, Social and Ethical Dimensions”

Origins of the Initiative

The initiative “Entrepreneurial Thinking and Acting in Swiss Vocational Colleges – Economic, Social and Ethical Dimensions” evolved from a research program conducted jointly by researchers from the universities of Fribourg and St. Gallen. The main goal of the research program was to create a better understanding of entrepreneurship education in vocational college settings. The first phase (2009–2012) of the research program focused on developing a compact, four-day entrepreneurship program and later test student outcomes with regard to intentions, beliefs, knowledge, and competences in a pre-post-study design (Volery, Müller, & Oser, 2012; Volery, Mueller, Oser, del Rey, & Näpflin, 2013). In the second part (2012–2018) of the research program, the main research objective was to find out whether including the teaching of cases of failed start-ups increased students’ knowledge about what can go wrong throughout the process of venture creation (Mueller, Oser, & Forsblom, 2018). All projects were financed by the *State Secretariat for Education, Research and Innovation SERI*.

The research demonstrated that the entrepreneurship program could effectively increase entrepreneurship competences and knowledge in vocational college students (Volery et al., 2012). In addition, it became obvious that both students and teachers enjoyed working on the topic, and that the subject of entrepreneurship was, as previously stated, currently missing in most vocational colleges. On these grounds, practitioners from vocational colleges, researchers and industry representatives formed a team to realize the vision to offer entrepreneurship education to all vocational school students in Switzerland.

In a pilot project currently afoot, the team is testing the dissemination of the entrepreneurship program through a teacher training in four cantons and three language regions. To ensure the integration of the program into the existing structures of the vocational college system, the team decided to implement the program in the “General Education” part of the VET system. In the following we will give a short overview of the Swiss VET system and explain the role of general education within that system.

Entrepreneurship Education as Part of General Education

Currently, vocational education students can choose between 240 VET programs that prepare them for work in a particular occupation.² Two types of training programs are offered: a two-year VET program leading to a *Federal VET Certificate* which prepares participants to work in an occupation with less demanding requirements; and a three or four-year VET program leading to a *Federal VET Diploma* (Eurydice, 2020). Learners normally have a contract with a company for the duration of the apprenticeship, and a substantial part of all learners are offered to work for the respective company after they successfully finished the apprenticeship.

VET programs are mostly carried out in a dual system that combines practical training on the job (3 to 4 days a week) and theoretical training at VET colleges (1 to 2 days a week) (Eurydice, 2020). The theoretical training taking place at VET colleges is divided into vocational and general education subjects (“*allgemeinbildender Unterricht*”). In general education, students develop general competences relevant for dealing with

private and professional challenges. With regard to its pedagogical-didactical concept the Framework Curriculum requires general education to be subject, action, and competence oriented. Subjects are taught over several weeks, and the cantons and colleges defining the curriculum have some autonomy in choosing the topics. Typical subjects are, for example, “media and advertising”, “the future of work”, “money and the economy”, “environment and technology”, or “democracy and participation”. Normally, the scope of general education encompasses three learning units of 45 minutes per week. Overall, these settings are ideal for implementing the entrepreneurship program. We recommend teachers to run the program over a period of 7 to 9 weeks, resulting in 21 (7 x 3) to 27 (9 x 3) learning units in total.

Learning Goals

The teaching-learning concept for myidea.ch is intended to promote students’ self-efficacy and personal initiative and offer them practical insights into the process of building a business model by working on a project of their own. In addition, students are required to systematically think about the social and ecological dimensions and consequences of their business models. Successfully developing a business idea facilitates students’ experience of self-efficacy. In this way, they can develop and practice skills which are of enormous importance, especially in view of their preparation for future forms of work. As the latter are driven forward considerably by digitalization and require increasing degrees of self-responsibility, making room for students’ experiences of self-efficacy and personal initiative is key. Ultimately, we want to support students to become responsible citizens who are both willing and able to actively participate in shaping business and society towards a prosperous and sustainable future.

The major learning objectives of the program refer to two areas. First, there are some general, overarching learning objectives. These include:

After the training, students are able to...

- *take initiative in an active and autonomous fashion,*
- *reflect on the social and ecological dimensions and consequences of business activities,*
- *reflect on their own qualifications for and intentions towards their role in the work-place,*
- *make an informed decision whether they might envision becoming independent entrepreneurs.*

The second area refers to start-up specific learning objectives, including:

After the training, students are able to...

- *take initial, preparatory steps towards founding an enterprise in an active and autonomous fashion,*
- *identify solutions for problems and recognize opportunities for meeting market needs and use these as a basis for developing a business model,*
- *explain basic process elements of founding an enterprise (business model, Lean Startup, etc.) and implement these in their own project,*
- *test core elements of their business model with potential clients and adapt the business model based on the feedback received,*

- *critically reflect on the social and ecological dimensions and consequences of a business model,*
- *identify options that help decrease the negative and increase the positive social and/or ecological effects of a business model,*
- *pitch and critically discuss their business model in front of an audience,*
- *identify both success factors and challenges pertaining to the startup phase,*
- *describe core reasons why startup enterprises may fail.*

Overview of the Entrepreneurship Program

Three integrated, key building blocks allow students reach the learning objectives stated above: (1) the development of their own business idea throughout the program; (2) the consistent intertwining of knowledge acquisition and application; and (3) working with case studies of successful and failed start-ups. Besides the three key building blocks the topic of “sustainability” is integrated as a cross-sectional theme, that is, taken up at each step of developing the business idea. The development of competences in the area of sustainable development is particularly important for vocational students (Iliško, Oļehnoviča, Ostrovska, Akmene, & Salite, 2017). Thus, throughout the program social and ecological considerations play a role, not on top but rather in an integrated fashion. For example, students must reflect on the social and environmental impact of their business models and think how they can increase the positive and decrease the negative aspects. Figure 1 provides an overview of the program.

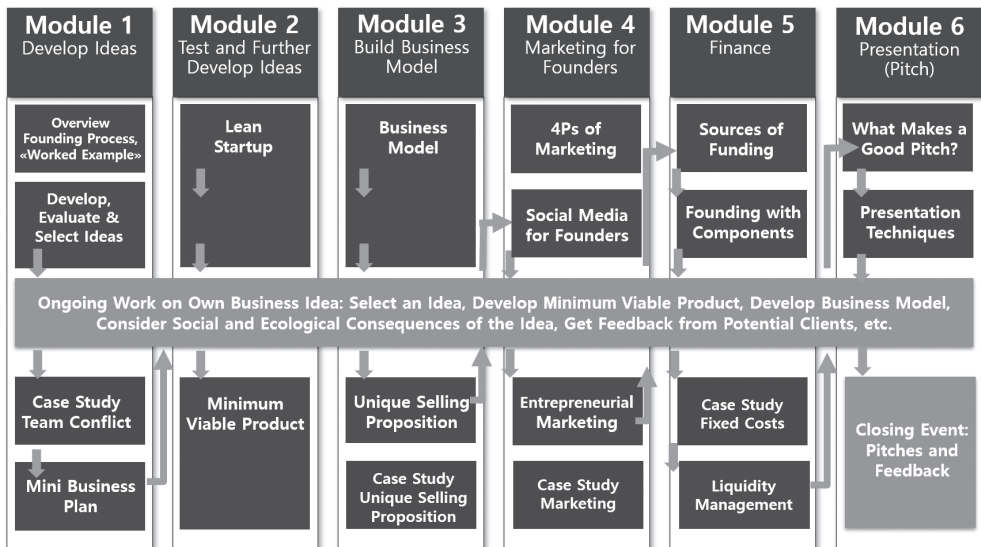


Figure 1. The myidea.ch program: Interplay between knowledge building and ongoing work on own business idea

- (1) **Development of One’s Own Business Idea:** Giving students the freedom to work on their own ideas has an enormous motivational impact. For this reason, a key element of the program is that students develop their own business ideas, typically

in teams of two, throughout the duration of the program. The two concepts of ‘learning through experience’ and ‘situated learning’ provide the pedagogical basis of this part of the program (Dewey, 1997; Lave & Wenger, 1991; Greeno & Nokes-Malach, 2016). At the end of the program, the groups present their respective ideas to an audience. Business ideas developed by learners during the pilot project include, for example, a filter that prevents micro-plastics from flowing into the waste water (“Micro-Clean”)³; a company that “upcycles” old leather clothing; the organization of dance courses for young people; or a craft enterprise that specializes in repairs of old buildings. During previous implementations of the program we experienced that a substantial part of the business ideas has a strong social and/or ecological orientation; students already have a strong desire to engage in activities that can potentially have a positive impact on the world.

- (2) **Consistent Intertwining of Knowledge Acquisition and Application:** The program includes knowledge modules crucial for starting a new venture. Among others, topics taught are idea development, idea evaluation, lean start-up, business plan development, marketing, finances and bootstrapping. The program is structured in such a way that the content conveyed can be directly applied to the idea. This constant switch between knowledge input and application is indicated by the arrows in Figure 1.
- (3) **Case Studies on Successful and Failed Start-ups:** Based on literature research (Kuratko, 2014; Terpstra & Olson, 1993) and conversations with entrepreneurship experts, we identified seven recurring causes why start-ups fail: (1) product development without considering customer needs; (2) an inappropriate unique selling proposition (USP); (3) high fixed costs at the start of the venture; (4) team conflicts; (5) inadequate marketing measures; (6) cash flow problems; and (7) loss of focus. These elements were then used to write case studies of ventures that either failed or succeeded. Four of these case studies were integrated in the program to encourage advocacy learning. The cases related to failure serve to help students build negative knowledge. The theory of Negative Knowledge (Gartmeier, Bauer, Gruber, & Heid, 2008; Minsky, 1994; Oser & Spychiger, 2005; Parviainen & Eriksson, 2006) focuses on an individual’s knowledge about what not to do in a certain situation or context or about wrong solutions or bad strategies. While we tend to think of knowledge in positive terms, and of experts as people who know what to do, a ‘negative’ way to be competent is, simply, to avoid mistakes. This is especially important for entrepreneurship education where success stories are abundant while the reality is sobering: According to the results of a large, international panel study only one third of all ventures become profitable (Reynolds, 2016).

Anchoring and Dissemination of the Program

Introducing a new subject in general education at VET colleges throughout Switzerland is a difficult endeavor. The current version of the Framework Curriculum for General Education does not prescribe specific subjects. Instead, the actual subjects covered in general education are selected on the canton or at the college level (depending on the respective canton). In addition, teachers can sometimes select one or two subjects themselves.

This situation provides both advantages and disadvantages for our endeavor. The advantage is that if the responsible actors at the canton or college level are willing to participate in a test run of *myidea.ch*, they can do so without immediate changes to the (respective) curriculum. The disadvantage is that nationwide dissemination is almost impossible unless the Framework Curriculum indicates that entrepreneurial thinking and acting is a core competence that should be part of general education.

Therefore, our strategy follows a parallel bottom-up and top-down approach: The bottom-up approach includes working with colleges and teachers willing to participate in the pilot phase. The top-down approach includes engaging in activities that help convince relevant stakeholders that entrepreneurial thinking and acting is an important, future-oriented skill and thus work towards a change in the framework curriculum.

Bottom-up: Implementing and Testing the Program in Four Selected Cantons

The overarching aims of the pilot project are to (1) convince teachers and principals of vocational colleges that the entrepreneurship program provides multiple benefits regarding students' competence development; (2) gather experiences in the project team on how to best design the teacher training; (3) understand the kind of support teachers need when they implement the program; and (4) develop the program in such a way as to render it congruent with the general education curriculum and the learning requirements of the students and do so with the help of feedback from teachers and further educational stakeholders. In sum, we want to convince professionals who are actually teaching VET students that this is an endeavor worth their engagement. This buy-in is extremely important if the initiative is to be a success.

In the course of the pilot project we hope that a minimum of 160 teachers – 40 in each of the four pilot cantons – will have participated in the teacher training program, and that the majority of these participants will have implemented the entrepreneurship program with their students in the months following the teacher training sessions.

Following a teach-the-teacher (or train-the-trainer) approach (e.g., Yarber et al., 2015) teacher trainings are conducted in two consecutive sequences. In the first sequence 86 teachers from 29 different vocational colleges were taught by members of the project team in 2019. In all four cantons teacher trainings were conducted in the respective regional language. We estimate that about half of the participants have already implemented the entrepreneurship program, reaching approximately 1,000 learners. The next sequence will be taught by teachers who have already participated in the training and are self-selected to become multipliers. In addition, we also implement the training with prospective Vocational Education teachers (both general and profession-related education). A first group was trained in January 2020 at the Zurich University of Teacher Education. In the next phase, we also want to include prospective teachers enrolled in other universities.

We decided to implement a teacher training because it enables us to build on a network of people who have a common understanding of the entrepreneurship program and how it should be taught. The multiplier or teach-the-teacher concept is necessary to generate a “snowball effect” that makes it possible to spread the program throughout the country in a resource-saving way.

From a pedagogical-didactical point of view, the teacher training concept is based on the idea that the teachers take on the role of the learners, that is, develop a business

idea, build a business model, develop a business plan, a marketing concept, etc. Thus, they learn about the challenges of the program by doing it themselves. In addition, teachers are provided with additional, elevated knowledge that they will need in their role as teachers and coaches. This includes both pedagogical-didactical knowledge (e.g., the importance of learning through personal experience) and economic knowledge (e.g., knowledge on entrepreneurial teams).

Top-down: Stakeholder Involvement and Curriculum Development

The top-down strategy encompasses two objectives: (1) to involve important stakeholders; and (2) to work towards the integration of entrepreneurial thinking and acting in the curricula on different levels.

With regard to stakeholders it is important to note that a multitude of stakeholders participate in VET: The Confederation, which is in charge of the strategic development of VET in Switzerland, is represented by the *State Secretariat for Education, Research and Innovation (SERI)*, the funder of our pilot project. The cantons, which participate in the development of the VET, are responsible for the implementation of federal legislation. They run the respective educational institutions such as VET colleges and full-time vocational colleges. Also, various professional organizations participate in defining the content and the objectives of the VET program, among them trade associations, industry organizations, and social partners. In addition, various existing organizations foster entrepreneurship education and pursue similar goals to our initiative, albeit with different means. We try to involve the different stakeholders through various means. For example, we established an advisory group, consisting of both practitioners and scientists, that accompanies us throughout the pilot project.

To support the process of anchoring entrepreneurial acting and thinking in curricula, it is our goal that entrepreneurial thinking and acting shall be included as a new educational goal in the revised Framework Curriculum. The process of analyzing and revising the current Framework Curriculum has already started. The revision aims to renew it against the background of digitization and internationalization; topics that, in our view, can easily be linked to entrepreneurship education. However, the revision of the Framework Curriculum is demanding, and we have only a limited influence on it. We do not expect it to come into effect before 2025. What can be implemented earlier are changes in the curriculum of the colleges and the cantons. Thus, we actively encourage different actors to do that and support them in the practical process.

Evaluation and Further Developments

A core task in the implementation of our initiative and the associated teacher training and program for students (myidea.ch) lies in its continuing evaluation to enable its further development. Accordingly, apart from the summative evaluation of effects on the levels of both teachers and students, a special emphasis lies on formative or process-oriented evaluation targeting program monitoring and improvement (Hansen, 2005). In line with the CIPP approach (context/input/program/product) developed by Stufflebeam and Shinkfield (2007; as cited in Frye & Hemmer, 2012), this project phase can be seen as representing the process evaluation study. It “allows an ongoing data flow useful for program management and ongoing effective change” (Frye & Hemmer, 2012, p. 297).

It was important for us to design an “organic” evaluation including both quantitative and qualitative elements, targeting core initiative stakeholders – that is, teachers, students, and docents of the teacher training – and including all relevant levels (teacher training, program for students, training of multipliers) and phases of the initiative (training phases and implementation phases). Accordingly, we decided to use a mixed-methods evaluation approach (Mertens & Tarsilla, 2015) and gave special attention to designing the evaluation elements in such a way as to make them become meaningful parts of the initiative. Thus, most evaluation elements were used not only to collect data, but also to allow participants to assess their preconceptions of and (potential) previous knowledge on entrepreneurial thinking and acting as well as – in the case of teachers – reflect on both their progress and open questions during and after the training⁴.

The resulting evaluation design can be described as mixed-methods, multi-instrument, multi-informant, and fully integrated. The latter indicates that the mixing of qualitative and quantitative approaches “occurs in an interactive (i.e., dynamic, reciprocal, interdependent, iterative) manner at all stages of the study. At each stage, one approach (e.g., QUAL) affects the formulation of the other (e.g., QUANT)” (Teddlie & Tashakkori, 2006, p. 23). In the following sections, we briefly explain the evaluation concept and describe the constructs assessed in the context of (a) the teacher training and (b) the implementation of the curriculum with students. The relationship between the various elements of our initiative and the respective evaluation is depicted as a cycle in Figure 2. The black circles in the model represent the first cycle of development, teaching, implementation and ongoing evaluation. The grey circles show the start of the second cycle that will be initiated by our implementation of the first multiplier training.

Data collection, preparation, analysis, and triangulation are still under way. At this point, we present the evaluation concept for the teacher training and the implementation of the program with students.

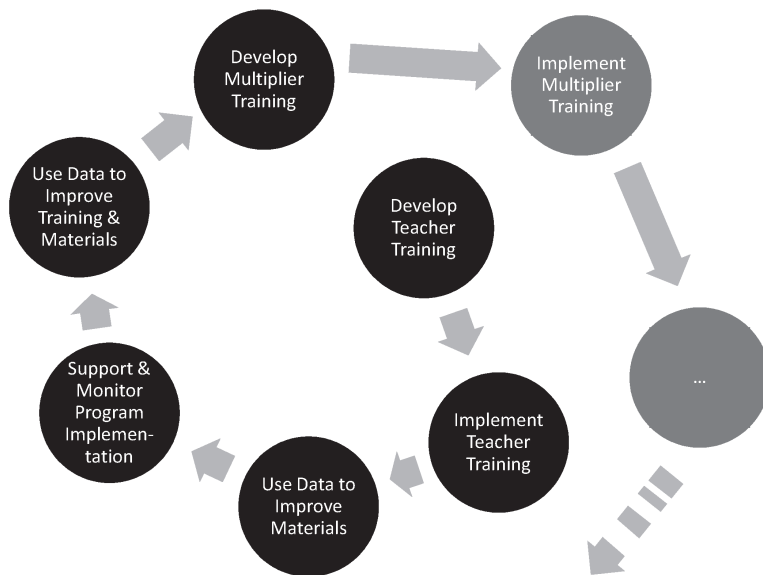


Figure 2. The “Entrepreneurial thinking and acting” initiative: Interplay between the various elements and the evaluation

Evaluation of the Teacher Training

The teacher training was developed to prepare teachers for implementing myidea.ch with their students. In previous phases of our project, the program as developed had been taught by members of the project team. As one main goal of the project as a whole is to spread the program in vocational education colleges across Switzerland, it is crucial to empower teachers to implement the program themselves. Empowering teachers in this context means – as stated in the grant application – that after receiving the training, teachers have a high degree of security in both their sequencing of learning stimulation and the creation of learning opportunities when implementing the program with students (Berger, Müller, Oser, Schneider, Pfiffner, & Heimann, 2018).

Our teacher training can be seen as a special form of a teacher further education program. It aims to prepare teachers to implement specific curricula or programs with their students by combining theoretical work and practical, hands-on experience. Evaluation studies targeting outcomes of teacher trainings (i.e., summative evaluations) have been conducted on varying levels of scientific rigor, ranging from participants' self-reports on content and quality of program delivery and program satisfaction (e.g., Davis, Preston, & Sahin, 2009) to Randomized Controlled Trials (e.g., Murphy, Weinhardt, & Wyness, 2020), the latter often seen as representing the “gold standard” of evaluations of intervention effectiveness (Drabble & O’Cathain, 2015). Process evaluation studies of teacher trainings have used mainly qualitative and mixed-methods approaches (e.g., Ahmed, Flisher, Mathews, Jansen, Mukoma, & Schaalma, 2006).

Our mixed-methods evaluation of the teacher training includes both summative (focusing on outcomes and effectiveness) and formative (focusing on monitoring and improving the ongoing process) goals and involves different instruments. Our main aim was to go beyond the assessment of consumer satisfaction so we could understand the ongoing interactions and mutual influences between the training, the participants, and the docents of the training. Accordingly, we wanted to study teachers' motivation, attitudes, behaviors, insights and reflections, and collect feedback during all phases of the training. Most of the instruments were developed specifically for this study.

Summative Part of the Evaluation. To assess teachers' motivation to participate in the training, their previous (potential) experiences regarding entrepreneurial thinking and acting, their expectations towards the training, as well as their beliefs and attitudes towards entrepreneurship, teachers filled in an online questionnaire including both formatted and open-ended questions before the training. This online questionnaire (pre-test) was matched by a respective online questionnaire after the training (post-test). The pre-test tapped the following areas: previous experience in entrepreneurial thinking and acting, motivation for attending the training, expectations towards the training, and beliefs and attitudes towards entrepreneurship. The post-test covered the following areas: knowledge and skills built during the training, fulfillment of expectations towards the training, beliefs and attitudes towards entrepreneurship, and evaluation of the quality of training elements and materials for preparing teachers to implement the program. Questionnaire data also allow a pre-post comparison regarding expectations towards the training as well as regarding beliefs and attitudes towards entrepreneurship. The former helps to see whether expectations were met and the latter whether the training had an effect on participants' beliefs and attitudes towards entrepreneurship.

Formative Part of the Evaluation. To gain a closer insight into the day-to-day processes of the training, we collected further data on the levels of both participants (teachers) and docents. To help teachers reflect on their experience and at the same time gain feedback whether (and what) adaptations of the training were necessary, participants wrote a log entry after each training day and also participated in a focus group session. The former served to stimulate participants' individual reflection, with open prompts used to facilitate the process. The latter was used for group reflection between participants (in 3–4 subgroups) and gave participants the opportunity to give feedback in the role of experts, that is, of teachers who have been teaching vocational college students for some time and bring both methodological and didactical expertise to the training. Further, following the Experience Sampling Paradigm (e.g., Hektner, Schmidt, & Csikszentmihalyi, 2011), we asked teachers to fill in a very short one-minute questionnaire (formatted questions) to assess their actual degree of motivation and stimulation during each half-day.

Furthermore, at the end of each training day, the docents had long and intensive discussions on how the training went, what feedback on the part of participants had to be used to adapt the rest of the program, and what such adaptations included. For example, in one course, teachers said early on that they did not have much knowledge or previous experience regarding entrepreneurial thinking and acting, and that therefore many technical terms were unfamiliar, so they did not know how to teach them to their students. Accordingly, the docents included systematic glossary work with teachers, which in turn could later be implemented with their students.

Finally, docents collected work products created by teachers, for example, by taking pictures of teachers' initial ideas or having teachers send them the slides of their final pitches. These materials were especially helpful in giving docents insights into teachers' process of developing a business idea. Furthermore, they were used (anonymously) to give participants from other courses an idea of what such products might look like. As most teachers assessed themselves as "novices" in the area of entrepreneurial thinking and acting, these examples helped them understand that it was indeed possible also for them to develop and pitch a business idea. First "flashlight" insights from post-test data and from teachers' ongoing feedback indicate that the majority of teachers saw the training as a positive experience. They found the training stimulating and appreciated the substantial materials made available to them for their own implementation of the curriculum, although they knew they had to make some adaptations for their own classes. They found the development and presentation of their own business idea very challenging and indicated that they better understood what it meant to be in the role of the learner (as their students would later be). Critical remarks and open issues related primarily to the contextual conditions of their local colleges and the general education curriculum when it comes to implementing the program with their students, like time, resources, support, etc.

Ongoing Evaluation of the Implementation of the Program with Students

As with the evaluation of the teacher training, our mixed-methods evaluation of the implementation of the program with students includes both summative and formative (process-oriented) goals and involves different instruments.

Summative Part of the Evaluation. To evaluate students' attitudes and beliefs towards entrepreneurship, the level of personal initiative, and prior knowledge on entrepreneurial thinking and acting, students filled in an online-questionnaire including formatted questions before starting their work in the program. After the post-test, they filled in another online questionnaire including the same scales plus some questions (both formatted and open-ended) to indicate their specific activities during the program. Accordingly, pre-post comparisons will be possible for all scales. Most of the items and scales we used stem from the previous project "The Impact of Negative Knowledge to Develop Rescue from Entrepreneurial Failure Competencies: An Intervention Study at the Upper-secondary Level" (Müller, Oser, & Forsblom, 2018). It was important for us to keep the online questionnaires as short as possible so as not to take away too much time from the program.

Formative Part of the Evaluation. To gain a closer insight into the ongoing process of implementation, we have been collecting further data. To understand both how students and teachers interact and how students work with the materials, we have been conducting half-standardized observations during hospitation sessions (one session per teacher)⁵. Our focus lies on students' motivation, engagement, and achievement, teachers' creation of an enriched learning environment, and suggestions for potential changes to the program. To capture teachers' experiences and feedbacks, we have been organizing reflection workshops for teachers implementing the program at the same college. Finally, after reflection workshops, we have teachers fill in a checklist (mostly formatted items) to learn what specific elements of the program they had implemented and what changes they had made. These accumulating data relating to the implementation process in turn are currently being used to both revise the program for students and develop and refine the training program for multipliers, that is, teachers who will later train other teachers and enable them to implement the program with their own students. This latter step illustrates the circular, process-oriented nature of our program development, with the formative part of our evaluation playing a crucial part therein.

We believe that the design of the evaluation provides us with the necessary empirical data to continuously improve the myidea.ch program and thus reach our goal of enabling future generations of entrepreneurs to play an active role in shaping both the economy and society. This is a crucial part of our vision.

Conclusion and Bigger Picture

We are now about two years into our project and the team is in a position to draw a positive interim balance. The feedback from teachers is predominantly positive, and general education experts have repeatedly confirmed that the subject of entrepreneurial thinking and acting fits into the VET general education curriculum. Moreover, we discovered that several teachers experimented with teaching-learning formats and found innovative ways of integrating entrepreneurial thinking and acting into their general education curriculum. For example, some teachers let students work on an entrepreneurial topic for a term paper that lasts over several months.

What also became clear was that the idea of implementing such a new subject in VET colleges nationwide is more of a marathon than a sprint. We therefore aim to establish a new organization, a Swiss Center for Entrepreneurial Thinking and Acting,

with the help of the “Conference of Swiss VET-College Directors”⁶. In the center, we will pursue the following vision as a milestone towards realizing our long-term vision:

We are committed to ensuring that all apprentices in Switzerland – 75,000 young people who enter basic vocational training each year – have the opportunity to acquire entrepreneurial skills. They are empowered to play an active role in positively shaping the economy and society while they to put their ideas into practice.

The main task of the center will be to make sure that a Swiss-wide implementation of the program is possible. This will necessarily target both the strategic and the operative levels. On the strategic level, it will be important to engage in lobbying for the topic with the relevant stakeholders. It is necessary to impress upon them that the implementation of a national strategy is highly desirable. Switzerland would benefit from a coherent educational strategy for entrepreneurship education that encompasses all educational levels; kindergarten, secondary and tertiary. Most educational systems in Europe have such a strategy in place. A study that included 38 national and regional European educational system showed that 29 had such a strategy in place, either as a specific entrepreneurship strategy or as a wider strategy that encompasses entrepreneurship education (European Commission/EACEA/Eurydice, 2016). For example, in Austria, entrepreneurship education is part of a national strategy on lifelong learning (European Commission/EACEA/Eurydice, 2016).

On the operational level, the envisioned center will be responsible for ensuring a high quality of teacher trainings, engage in the continuous evaluation of the program to allow for an empirical, research-driven optimization of the entrepreneurship training, and provide up-to-date and modern learning and teaching materials. Also, the organization will be responsible to build a network of certified colleges embracing entrepreneurship education. A role model here is Austria, which certifies its schools according to the TRIO model (Lindner, 2019). Additionally, the center will be in charge of helping entrepreneurial talents succeed. This will include helping learners who want to continue working on their business idea to find suitable support. Finally, the center is intended to be an active member of the YouthStart-Network that brings together young entrepreneurial talents from various European countries (www.youthstart.network).

Entrepreneurship education with a strong focus on sustainability combines professional, interdisciplinary, and general education knowledge and skills. This helps provide the right answers to the rapid changes in both the economy and society in view of megatrends such as digitalization and globalization and the related social and ecological challenges. As tomorrow’s entrepreneurs, today’s young professionals will help maintain and expand Switzerland’s prosperity and innovative strength in the future while at the same time attending to the social and ecological dimensions.

The current strategic initiative, “Vocational Training and Education 2030” (Berufsbildung 2030), pursues the vision of securing and maintaining the prosperity of society on the basis of a labor market-oriented, attractive, open and recognized VET system. To this end, vocational education and training must provide skills that meet the needs of society and are based on an optimal mix of vocation-specific and transversal skills; this is exactly what our initiative can provide.

Notes:

¹ Examples of initiatives promoting entrepreneurship in adolescents are, among others, the “Wirtschaftswochen” offered by the *Ernst Schmidheiny Stiftung*; the “Company Program” offered by *Young Enterprise Switzerland* which is part of the international program *Junior Achievement*; or regional initiatives such as “fondounimpresa” in Ticino or “Apprendre à Entreprendre” in Valais.

² <https://www.becc.admin.ch/becc/public/bvz/beruf/grundbildungen>

³ The team that developed the idea “MicroClean” was able to present their business ideas at the “YouthStart European Entrepreneurship Award 2019”, an international competition in which a total of 13 teams from 10 European countries took part. They achieved second place in the category “Idea Challenge”.

⁴ Students also reflected on their progress and open questions, but we did not systematically collect data on that level. However, in the course of lesson hospitations, we conducted half-standardized observations and paid specific attention to students’ cognitive activation, involvement, and engagement.

⁵ Unfortunately, the Covid-19 crisis forced us to stop school visits and hospitations.

⁶ The “Conference of Swiss VET-College Directors” (German: “Schweizerische Direktorinnen- und Direktorenkonferenz der Berufsfachschulen SDK-CSD”) is an organization of 140 directors of VET colleges representing the interests of its members in the field of basic and higher vocational education and adult education.

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