

Chapter 2

The Assessment of Entrepreneurial Education



Abstract According to Biggs' theory of constructive alignment, when designing and delivering a course (not only of entrepreneurship) educators should consider a coherence between the learning outcomes, the teaching and learning activities and the assessment practices. Assessment in this context is defined as an educational practice serving to fill the gap between the desired outcomes and what the student has actually achieved; not only is assessment essential to promote learning in students, but also permits teachers to reflect on and enhance their programmes. This chapter concentrates on how to assess a sense of initiative and entrepreneurship (SIE) among students, in educational settings. It will do so by drawing on literature of key competences and entrepreneurial education. The key finding is that assessment cannot be a 'one size fits all' process, but should be tailored to the institution and environments, with the active collaboration of the stakeholders. The final part of the chapter shows three best practices of entrepreneurial education in Ohio with a focus on assessment and the development of the SIE questionnaire for the evaluation of the way teachers educate for a SIE.

Keywords Assessment · Entrepreneurial education
Sense of initiative and entrepreneurship · Key competences
Competence-based education

This chapter explores the relevant literature on assessment through three streams: the assessment of competence, the assessment of key competencies and the assessment of entrepreneurial education. Within this scope, assessment is different from evaluation; while the former implies the learner's appraisal, the latter refers to the appraisal of providers, training methods or educators. The first section presents competence assessment with a suggested switch from psychometric to edumetric approaches, and the second describes the assessment of key competencies. In both assessments of competence and key competencies, formative assessment ('for' learning) plays a key role. The third section continues with the assessment of entrepreneurial education at secondary and tertiary level, with the literature evidencing an existing gap in assessment practices especially at secondary level. In enterprise, education forms

of assessment ‘as’ learning should take place, with students choosing their own objectives and later rating the extent to which they have met them.

To this end, the chapter shows examples of entrepreneurial education and its evaluation. The fourth section describes three effective entrepreneurial education practices in Ohio, which testify to how the spirit of entrepreneurship can be integrated into a vibrant and rural context. The three examples deal with an introductory course in entrepreneurship, a course in social entrepreneurship, and a module in grant writing. These cases are examples of ‘through’ approaches to entrepreneurial education, with a focus on summative and formative assessment practices. Moreover, the three examples highlight the possibility for students to choose the ideas and values they want to pursue towards an ‘as’ learning approach and developing their autonomy. The fifth paragraph describes the development of the SIE questionnaire to evaluate the extent with which secondary teachers educate and act with a sense of initiative and entrepreneurship (SIE). By showing the strengths and weaknesses of the teachers, the SIE allows for the establishment of a baseline for the study shown in this book, thus paving the way for a formative intervention that would make the teachers more entrepreneurial.

Although there is much confusion concerning the terminology (Lackeus, 2015), and it is sometimes difficult to set apart the different forms of education, this chapter tries to rely on the following definitions of entrepreneurship: (1) entrepreneurship education represents the functional view of entrepreneurship, that is venture creation, (2) enterprise education embeds a broad educational view of entrepreneurship, a proactive mindset to turn ideas into action useful in many contexts and in a lifelong learning perspective; (3) entrepreneurial education is the general unifying term for the other similar terms; (4) the key competence of initiative and entrepreneurship represents the outcome for enterprise education.

2.1 The Assessment in Competence-Based Education

The fact that the curriculum and its assessment have a strong relationship causes both benefits and drawbacks (European Commission, 2012). The disadvantages are that when only some of the subjects are assessed, the assessment restricts the focus of the school programme causing the omission of the subjects that are not assessed. Similarly, if only some aspects of a topic are assessed, the assessment alters the topic itself. When the teacher only assesses the knowledge related to a subject, the student learning of attitudes and skills is at best incidental. Since the link between knowledge, skills and attitudes is not linear nor uniform, the information concerning one component cannot be merely achieved by assessing another component as proxy (Pepper, 2011). However, the close relation between the curriculum and its assessment also brings advantages. It informs about what is important to be learnt, not only what can be assessed with ease. Moreover, the assessment can result in more effort and time being spent on what is negotiated by students and teachers as important in the curriculum. Assessment can also support a switch from what is taught in a

topic to how it is taught; this change would imply a shift to the pedagogies being in line with a flexible approach to teaching and learning, which is essential to develop students' key competences.

Any assessment method distinguishes between the stimulus format and the response format. The former is the type of task given to the individual to be assessed; the latter is the way the response is collected. Research highlights that what is measured is more dependent on the stimulus format than the response format. Hence when designing an assessment, educators should pay more attention to the stimulus format (van der Vleuten, Sluijsmans, & Joosten-ten Brinke, 2017). Another distinction made in education is between formative and summative assessment. During a period of instruction, formative assessment (also known as 'for' learning) uses the information obtained to encourage the student's learning (European Commission, 2012) so that teachers and students know what learning is taking place. Formative assessment provides feedback essential for teaching, since the efficacy of teaching methods is related to the formative feedback they can provide. It is a meaningful teaching and learning activity that uses the recognition of error to correct it (Biggs & Tang, 2011). Since it is closely related to learning, it promotes the development of the key competence of learning to learn (European Commission, 2012). At the end of an instruction period, the summative assessment (also called 'of' learning) summarises the student's learning (European Commission, 2012). The outcomes are utilised to grade students, the aim being to determine how well learners have acquired what they were expected to learn (Biggs & Tang, 2011). Summative assessment can be internal or external. Internal means that the assessment is used by the educational institution for internal purposes, for example to inform teachers, students and parents. External summative assessment refers to the use of assessment, for example in reviewing accountability, recruitment or certification (European Commission, 2012). An assessment task can be used either formatively or summatively and both are needed; it is imperative, however, that the learner knows for which purpose it is being used (Biggs & Tang, 2011).

The following are strategies and tools particularly effective for formative assessment (van der Vleuten et al., 2017). Firstly, as students' self-directed learning is promoted by continuous reflection and feedback, effective feedback is the most powerful tool to turn an assessment into a formative assessment. Feedback is characterised by information given to the student to modify his or her thinking and behaviour with the aim to improve learning. Effective feedback involves two types of data: verification, a simple judgement whether the answer provided is right or wrong; and elaboration, a message providing useful data to lead the learner to the correct response. The consequence is that the teaching staff should be trained not just to be 'objective', but to give learners effective feedback. Second, self-assessment is another important assessment strategy: to become good learners in a lifelong learning perspective, students need to learn to keep up with the latest discoveries in the field and perform a variety of actions to promote their continuous improvement. The third instrument is peer-assessment defined as a process where groups of learners rate their peers. The fourth tool is rubrics with grids allowing teaching staff to have a coherence between levels of performance and criteria.

Within a position paper, Birenbaum et al. (2006) criticise the evaluation practices across Europe because they do not meet the demands posed by a knowledge society and economy. This document argued that assessment practices tend to concentrate on assessment 'of' learning instead of assessment 'for' learning. Summative assessment becomes unauthentic, uneconomical, inflexible, context independent, thus resulting in demotivation for teachers and students. By contrast, the assessment 'for' learning is flexible, embedded in the context, authentic, integrated into the curriculum and multidimensional. Since research has shown that there is no better impulse for learning than assessment, new methods are called for to assess how students develop their competence (Baartman, Bastiaens, Kirschner, & van der Vleuten, 2007). It is therefore necessary to switch from a 'testing culture' to an 'assessment culture', meaning to move from a psychometric approach, to an 'edumetric' approach of assessment (Baartman et al., 2007); the following paragraphs explain the differences between these approaches.

The testing culture is based on a behaviourist view of learning and instruction, with the learner being considered a passive receiver of knowledge, with the teacher being considered the source of knowledge. Assessment and instruction are separated up to the point that external experts design the assessment tools to be used by teachers. In a testing culture, summative assessment prevails and tends to favour the result over the process. Moreover, this form of assessment targets basic skills and is based on reproducing the contents of class lectures and books, thus resulting in the focus of pedagogy and student learning switching to 'teaching to the test'. The most common testing instrument is the choice-response format (matching items, true and false, multiple choices) administered with paper and pencil tasks. The test is taken in class with time limits, and without the help of tools or materials. Concerning the quality evaluation, the testing culture leans on psychometric models of interpretation, scoring and development of tests. It is often used during high-stakes tests, and it is led by the need of fairness and objectivity in testing. It calls for high standardisation levels with the aim of searching for stable personal traits.

By way of contrast, the assessment culture was born from the growing critiques made on the traditional testing methods, given the unauthentic nature of tests and a loss of trust in them as valid tools to quantify learning. Constructivist learning theories ground this culture, with the learning process considered actively constructed by the individual. The learner cooperates with the teacher and the other students and shares responsibility for the learning process with reflection and self-evaluation practices. The assessment criteria are developed—and shared with—the help of students. An assessment culture also calls for varied assessment forms which are often not as standardised as in the testing culture. Assessment is both formative and summative; the process, not only the product, is assessed. The goal that is cultivated by this culture is the development of competence in both teacher and student. Rather than a stable trait, competence is expected to develop in the learner over time.

A competence assessment programme combines element of both testing and assessment cultures. Baartman et al. (2007) suggest thinking of assessment as programmes; since competence is a multifaceted whole of knowledge, skills and attitudes, a variety of methods are necessary to grasp its essence. The combination of

methods that are used comprises a balance of formative and summative forms; the assessment methods vary and are functional to the goals of the educational programme. In competence-based education, assessment is criterion-referenced rather than norm-referenced (Biggs & Tang, 2011). While in norm-referenced assessment the goal is comparing learners to each other, in criterion-referenced assessment the aim is deciding if the student is competent or not. Assessing competence always involves the judgement by an expert. The reliability of judgment is often dealt with in terms of consensus among experts (van der Vleuten et al., 2017). Moreover, a consistent finding in research is that regardless of which method is used to measure competence, the results are context bound. The consequence of this finding is that diverse contexts should be sampled to make a proper inference or judgement. Hence, to be reliable an assessment should involve all stakeholders, with a pool of assessors and observations from diverse contexts.

Basing on the detailed literature review, Baartman et al. (2007) found ten criteria for competence assessment programmes:

1. **Authenticity:** a competence assessment programme should mirror the competences needed in future working life.
2. **Cognitive complexity:** a competence assessment programme should comprise high cognitive skills.
3. **Fairness:** all the learners should have the chance to display their capacity and increase their potential.
4. **Meaningfulness:** a competence assessment programmes should be significant for both students and teachers.
5. **Directness:** assessors should be able to directly interpret the results of the assessment.
6. **Transparency:** a competence assessment programme should be intelligible to all learners.
7. **Education consequences:** the extent with which an assessment affects instruction and learning.
8. **Reproducibility of decisions:** the decision made on the student is performed by means of multiple assessments, with a variety of assessors on diverse occasions.
9. **Comparability:** a competence assessment programme should be the same for all participants, and the scoring should be consistent.
10. **Cost and efficiency:** the participants should find the assessment task feasible, and the investment in resources and time should be justified by the benefits for example in teaching and learning.

2.2 The Assessment of Key Competences

One of the educational issues around Europe is how to measure the attainment of key competencies. Evidence shows that what is effectively assessed in the curriculum is taken seriously and clarified by both learners and teachers (Halász & Michel,

2011). The challenge of assessing key competencies across the curriculum is confined to primary and secondary education, which are central to the European Reference Framework. The experience shows that the cross-curricular or transversal ethos of key competencies is not always perceived by educators, who tend to consider the first block of key competences as subject specific and neglect the second block (Pepper, 2011). The first four key competences are developed and assessed within their specific subjects, such as mother tongue, foreign languages, maths and science, and IT, while they are learned across a variety of contexts. By way of contrast, despite their relevance, the last four key competencies—that is learning to learn, social and civic competencies, SIE, cultural awareness and expression—are not generally associated within specific subjects. Consequently, they are rarely explicitly addressed.

When assessing key competences, there are two main challenges (Pepper, 2011). The first challenge is defining and ‘unpacking’ the learning outcomes, thus providing the basis for the assessment. Not only knowledge and skills, but also attitudes should be taken into consideration. Other factors to be considered are the application of key competences in diverse and authentic situations, and the thresholds at which specific competence levels are considered attained. The challenge is to provide enough details about the key competence that is going to be assessed without reducing the assessment to a series of procedural tasks or losing the cohesion of the key competence. Otherwise, the learners are at risk of not fully understanding the holistic dimension of the assessment. When learning outcomes are overly detailed the holistic nature is lost in favour of micro-tasks, and the assessment and the teaching and learning activities are expressed by pedantic long checklists of behaviours and actions (European Commission, 2012). Another issue to be considered is the aim of the assessment which should be negotiated among the various stakeholders. The second challenge is broadening the methodologies to gather information on the application of competences in diverse settings (Pepper, 2011). Such an assessment, not only able to access data on a wide range of aims and situations, but also capable of enhancing and reporting on their development, should be called ‘assessment’.

Gordon et al. (2009) identified four assessment models of key competences across Europe: (1) cross-curricular subject, with key competences assessed explicitly; (2) cross-curricular subject assessed implicitly; (3) assessment of subject-specific competences; and (4) assessment of knowledge rather than competence. Model 1 and 2 place the most emphasis on cross-curricular competences encouraging holistic learning. Model 1 is used by countries like Belgium, France and Spain that established a set of transversal competences in the school curricula and developed the relative assessment. While the curriculum is still structured by areas or subjects, contexts are arranged within subjects and areas to enhance the key competences in a cross-curricular fashion. The assessment still concerns subjects and areas, but each transversal competence is explicitly assessed within the given subject or area. Model 2 features countries such as Denmark or Sweden which concentrate on enhancing knowledge, skills and sometimes attitudes in each area or subject across the school programme. These countries establish transversal constructs like skills, themes, objectives, and goals which are not an explicit target for assessment, yet are assessed by means of assessment based on the subject or area. In Model 3, countries such

as Germany, Austria and Poland use a competence-based approach to deliver and assess the areas or subjects. However, rather than on transversal key competences, the focus of assessment, teaching and learning is on the competences pertaining to the subject or the area. Model 4 concerns countries such as Portugal and Greece, where the policy intention to reform the education system has been hindered by implementation issues, and knowledge rather than competence is still delivered and assessed. Table 2.1 reports the definitions of key terms: assessment, certification and validation.

The literature on validity can help the assessment of key competence as it provides an overarching criterion for the evaluation of the assessment (European Commission, 2012). An assessment validation starts with an unequivocal statement of the proposed answers and interpretation of the assessment results. With key competencies, the proposed interpretation can be the degree with which the learner has acquired the competences that “all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment” (European Commission, 2007, p. 3). The broad idea of validity also embeds other criteria such as reliability, comparability, utility and equity (European Commission, 2012). Another aspect of validity is the purpose of assessment, which is either formative or summative. A test can be rendered more reliable by reducing its types of questions and formats of response, thus making it unequivocal for learners to answer and for assessors to interpret. By assessing a reduced quantity of behaviour and actions, a summative assessment strengthens reliability; while by assessing a wider range of performances in different contexts, the formative assessment strengthens the overall validity. Moreover, a vast array of methods as well as source and types of information are necessary to help students develop and display their key competences (European Commission, 2012). Although the recommendations above argue in favour of a constructivist approach over a transmissive approach for teaching, the constructivist approach is more resource-intensive especially for teachers and researchers; teachers need time to discuss, reflect and plan. However, a constructivist approach is more in line with student-centred approaches for the development of key competences (Morselli, 2018).

Table 2.1 Definitions of key terms: assessment, certification and validation

Assessment of learning outcomes: the process of appraising knowledge, know-how, skills and/or competences of an individual against predefined criteria (learning expectations, measurement of learning outcomes). Assessment is typically followed by certification

Certification of learning outcomes: process of issuing a certificate, diploma or title formally of learning outcomes attesting that a set of learning outcomes (knowledge, know-how, skills and/or competences) acquired by an individual have been assessed by a competent body against a predefined standard

Validation of learning outcomes: confirmation by a competent body that learning outcomes (knowledge, skills and/or competences) acquired by an individual in a formal, non-formal or informal setting have been assessed against predefined criteria and are compliant with the requirements of a validation standard. Validation typically leads to certification

Source European Commission, Cedefop, and ICF International, (2014, pp. 28, 43, 288)

Portfolios are an elective tool for the assessment of key competences in a vast array of domains (European Commission, 2012). Teachers should encourage students to gather the relevant evidence on the development of their key competencies across the curriculum. The assessment of portfolios should be performed basing on three elements: the purpose of assessment; the guidelines for the items to be selected; the assessment criteria of the content. Also for Pepper (2011), portfolios are a convenient tool for both formative and summative assessment and should represent a logical collection of the meaningful items produced by the learner. E-portfolios can be convenient to collect evidence on digital competencies; information can be gathered with videos, audios, pictures and texts. The use of ICT for assessment could speed up assessment with targeted and timely feedback, tracking of the advancement, and interactive learning with a simulation of authentic contexts.

2.3 The Assessment of Entrepreneurial Education

In the literature, there is a considerable gap concerning the assessment of entrepreneurial education (Pittaway & Edwards, 2012). This section reviews the few studies on the assessment of entrepreneurial education in secondary and tertiary education with a special focus on the UK, the country that produces most of the literature on entrepreneurship and enterprise education (Blenker, Trolle Elmholdt, Hedeboe Frederiksen, Korsgaard, & Wagner, 2014). Apart from the UK NFER guidelines described below, this paucity is even greater for secondary institutions, given the lack of support from the agencies that are responsible secondary education in UK, and the additional problem of how to assess entrepreneurial pedagogies (Draycott, Rae, & Vause, 2011).

Connected to assessment there is the issue of impact, which is defined as changes detected as a direct consequence of an educational activity at different levels. A review from the European Commission (2015) shows that entrepreneurial education is effective, and similar to any type of education, it has an impact that can be detected on diverse levels: the learner, the institution, the wider economy and society. In the literature review, Mwasalwiba (2010) focuses on studies that measure the impact on learners as a consequence of attending tertiary courses in entrepreneurship education. He finds that because of the selection of success indicators, the outcomes tend to be biased to favour the learning outcomes on entrepreneurship. New venture creation is the most important indicator of success, followed by the students' academic standards and changes in their perception: interest, attitudes, self-confidence, self-efficacy and skills towards entrepreneurship. However, if examined closely, most questions on attitudes concern the students' intention to open their own business, the major rationale of which is to make profit.

Pittaway and Edwards (2012) provide a review of assessment practices in entrepreneurial education at tertiary level. Although the programmes that are surveyed concern the making of profits rather than wider educational entrepreneurship, the methodology they apply helps shed light on the assessment practices especially

in the USA and in UK. The authors' review includes roughly 120 programmes, of which three quarters are delivered in the USA, and only one fourth in UK. To understand assessment practice, researchers should have in mind the different forms that entrepreneurial education can take, since various forms have diverse learning outcomes and call for different assessment methods (Pittaway & Cope, 2007). Entrepreneurial programmes can be classified into four approaches (Gibb, 2002; Lackeus, 2015; Pittaway & Edwards, 2012): 'about', 'for', 'through' and 'embedded'. 'About' approaches are theoretical and guided by content, the aim being to present a general understanding of entrepreneurship. 'For' approaches are oriented to occupation and seek to provide budding entrepreneurs with the required skills and knowledge. 'Through' approaches are often experiential, the aim going through a real entrepreneurial learning process in 'safe' conditions. While 'for' and 'about' approaches are convenient for a subset of secondary and tertiary students whose intention is to become entrepreneurs, 'through' approaches are useful to all students at any educational level (Lackeus, 2015). In 'embedded' approaches, entrepreneurship is delivered within other non-business subjects, the rationale being to endow learners with entrepreneurial experience and awareness relevant for their field of study (Pittaway & Edwards, 2012).

The overwhelming majority of courses which Pittaway and Edwards (2012) inspect make use of 'about' forms, while only one-tenth utilised 'through' forms, and only 3% 'embedded forms'. A major implication of this finding is that most of the courses under review do not prepare the students for entrepreneurial activities. Instead, their aim is to provide knowledge and giving an understanding of entrepreneurship. In 60% of the cases, 'about' forms of entrepreneurship training are underpinned by learning outcomes such as knowledge and understanding. 'For' forms are equally divided into attainment of understanding and knowledge, as well as the development of skills and competences. 'Through' approaches concentrate on relationships, empathy and competences. The majority of assessment methods are business plans and reports, with presentations and in-class assessments being the second most common. The traditional methods by contrast—such as tests, exams and essays—are being used far less frequently. Apart from teachers, the stakeholders seldom have a voice in what the assessment is going to be about, and objective assessment methods prevail with the use of summative assessment methods.

Draycott and Rae (2011) analyse 10 different frameworks for enterprise education. Although these frameworks have in common that they all focus on the delivery of soft skills and on raising the awareness of what enterprise means in secondary education, they differ substantially and cause confusion among educators. Draycott and Rae also note that competence frameworks exemplify a corporate-bureaucratic attitude aiming at standardizing, prescribing and controlling what is learned and taught, and this standardizing attitude may thwart the flexibility, spontaneity and creativity that should characterise an entrepreneurial experience. Komarkova, Gagliardi, Conrads and Collado (2015) suggest that a variety of assessment methods is likely to be the appropriate approach in entrepreneurial education, including formative and summative methods, as well as self-assessment and project work. The assessment of innovation and creativity could be carried out via tasks asking learners to spot

opportunities and challenging norms, and by being adaptable and flexible in situations entailing risks and ambiguity (QAA, 2012). Moreover, constructively aligned curricula should make use of the SOLO taxonomy, thus allowing for unintended learning outcomes entailing creativity (Biggs & Tang, 2011). Assessment of enterprise education has been sometimes performed through written business plans (QAA, 2012); while this form of assignment can be valuable, it is improbable that this tool can detect the whole range of entrepreneurial behaviours (Jones & Penaluna, 2013).

Draycott et al. (2011) suggest considering the following aspects when assessing enterprise education in schools: (1) what to assess, (2) where the learning comes from and (3) what are the available assessment forms. Concerning what to assess (1), it is challenging to assess learning outcomes because they are either too general or too specific. An alternative approach could be that the students decided the outcomes with guidance from the teaching staff. This radical approach called assessment ‘as’ learning is explained below. The source of learning (2) should also be considered: since entrepreneurial skills are transversal, they can be learnt in diverse contexts inside and outside the school. Such variety leads to the use of self-assessment tools which raises concerns on validity and reliability when used alone. Regarding the possible assessment forms (3), which can be ‘of’, ‘for’ or even ‘as’ learning. While ‘of’ and ‘for’ forms are the summative and formative assessment forms explained above in this chapter, the ‘as’ learning form is the most radical form of assessment and is probably the most characteristic of an entrepreneurial pedagogy. In this context, students take the lead of their learning and assessment processes; they are responsible for setting their own objectives, monitoring their progress and reflect on their performance. In line with ‘as’ assessment forms of learning, some authors (Jones, Matlay, Penaluna, & Penaluna, 2014; Penaluna & Penaluna, 2015) have suggested a progression model for assessment: from pedagogy, which is teacher-centred, to student-centred andragogy, where there is a certain degree of self-determination on the part of the learner, to student-led heutagogy, where the student is considered to be a self-determined, motivated and autonomous learner who seeks guidance and negotiates access to learning resources.

Returning to Draycott et al. (2011), there are five principles to be followed for the assessment of enterprise education:

- The underlying pedagogy should be flexible, thus enabling learners to choose the targets he or she wants to achieve.
- The learning outcomes should be meaningful and relevant for the learners.
- It should be possible to trace the assessment and consider what was acquired both within and outside the curriculum.
- Students should understand the rationale behind the assessment.
- A mix ‘of’, ‘for’ and ‘as’ assessment forms should be considered.

Moreover, the only guide on how to assess the outcomes for enterprise education specific for secondary schools has been produced by the UK National Foundation for Educational Research (Spielhofer & Lynch, 2008). The focus is on the students, but the entire institution is involved to define the assessment process and the learning outcomes. It is important to note that this process takes time to develop, and a school

should consider embedding enterprise education across the whole curriculum for one year before carrying out the actual assessment. An assessment process should be prepared as follows:

- A clear definition of the learning outcomes should be agreed upon with teachers and students, thus ensuring the commitment of the participants for the development of their enterprising capability.
- The learning outcomes should be written so to consider a progression of achievement levels.
- The teaching staff should be made aware of the ways with which they already teach and assess enterprise education.
- Teachers should also learn other ways to teach and develop an enterprise capability across or beyond the curriculum, for example with extra-school activities.

Concerning the assessment itself, NFER (Spielhofer & Lynch, 2008) recommends considering three aspects: (1) the scope: to improve the students' enterprise capability or just to recognise it, to achieve a recognised qualification; (2) the specific learning outcomes to be assessed; (3) the tools for the assessment, they can be paper and pencil or IT based. The NFER guide also provides six possible examples of assessment. To summarise and turn into practice what has been discussed so far, the following two sections are dedicated to examples of evaluation and assessment. While the next paragraph shows three best practices in entrepreneurial education in terms of learning outcomes, teaching and learning activities and assessment practices, the fifth paragraph considers the features of the teacher educating with the aim of cultivating students' sense of initiative and entrepreneurial attitudes.

2.4 Examples of Best Practices in Entrepreneurial Education

As has been stated in the first chapter, America is the worldwide leader in entrepreneurship both for culture and education. This paragraph describes three best practices in entrepreneurial education the researcher could find during his Fulbright Research Scholarship at Ohio University: (1) a module in grant writing for 15 years' old high students engaged in general education; (2) a course in social entrepreneurship for Bachelor students; (3) an introductory course in entrepreneurship education for non-business Bachelor students. They are examples of "through" approaches to entrepreneurial education that is the creation of an enterprising mindset necessary for each citizen. When possible, the best practices will be described according to Biggs and Tang's (2011) theory in terms of learning outcomes, teaching and learning activities and assessment practices. It is noteworthy that not only are the best practices characterised by formative assessment, but the students have a degree of freedom in choosing the ideas they want to pursue, thus taking an andragogical approach and developing the students' autonomy.

2.4.1 Module on Grant Writing

This module aims to teach the students how to be a grant writer, with the aim of giving them the skills to tackle possible problems or needs affecting their community. The students learn to do so by presenting a grant proposal in groups, pitching it in front of judges—the local business owners. It is delivered in a southern High School in Ohio supported by the Voinovich School of Leadership and Social Affairs and is completed during roughly 15 teaching hours in three weeks. The module is delivered by the English Language Arts teacher who points out a problem that the local community or industry perceives as important, that the students can address. Firstly, the teacher liaises with the local industry to look for entrepreneurs who are willing to spend three hours in collaboration. One hour is for the initial meeting with the teacher to develop a real-life business problem scenario; the second hour is to visit the classroom and engage the students in solving a real business problem; and the last hour is to return to the classroom and give feedback on the students' creative, researched solutions. In exchange, the entrepreneur's business is featured on the school's website.

An example of a problem proposed by the Voinovich School is “What potential problem does this high school have that could be solved by applying for a small grant to a local foundation or donor?” Elements to be considered or defined in this problem-solution approach are the brainstorming of potential solutions, the search for local grant-providing agencies, the hunt for types of grants provided and the nature of expectations after being awarded, a good value for money idea. The teacher also takes care of the prerequisites for this module, and these are the basic abilities on essay writing, presentations and brainstorming.

The students are divided into groups of four, and by the end of the module, they produce two outcomes for each group. The first outcome is a presentation evaluated by external judges on the prototype of solution, and the students actually produce the idea to be shown to the entrepreneur. The second outcome is a paper that explains in a persuasive way why the idea is the best solution. Hence, the students work in groups and by projects. The students develop, as a team, a timeline of daily goals which they revisit and set at the beginning of each class meeting, so that students learn how to plan their activities and sharing the responsibilities in group work. During the module, an expert visits the school and lectures on the essentials of grant writing, including: the problem/solution equation, finding a funder, researching the funder's mission, the value proposition, the match between the proposal and the grantee, leveraging resources, the budget, as well as the impact and sustainability of the project's goals.

The assessment is completed alongside three activities: an in-class PowerPoint presentation of the proposal, essay on the proposal and quality of group work. These activities are assessed summatively through the use of rubrics, but are also assessed formatively through in-class coaching; for example by asking who is doing what and by checking the individuals' contributions on Google docs, or by giving feedback during the rehearsal of the presentation. For example, the rubrics for the assessment of teamwork features the following criteria: distribute tasks, collaborate and contribute

equitability, manage conflict, effectively reflect on teamwork, build consensus, manage time, set goals, stay on task, come prepared, maintain positive attitude. The rubric for the assessment of the presentation has the following criteria: explanation of ideas, organisation, physicality, word usage and teamwork.

2.4.2 Introductory Course in Entrepreneurship

The introductory course in entrepreneurship is for Bachelor students of any faculty, although primarily for non-business students, and it has no particular prerequisites. It is delivered in 15 weeks, and its aims are (1) raising awareness and curiosity in entrepreneurship, (2) learning key terms and concepts, (3) practicing the process of idea generation and pitching. The course is then equally split into the “about” entrepreneurship with the acquisition of basic knowledge to raise one’s awareness, and “through” approach, to learn the entrepreneurial process in an experiential way. The teaching and learning activities related to the “about” approach are delivered by means of interactive lectures and evaluated with multiple choice tests. In the quizzes, the student has to apply principles of entrepreneurship dealt with during the lectures to answer questions posed in hypothetical fact situations. An example of this form of questioning is the following:

A group of radio stations operating in and around the city of Atlanta form a trade association to lobby against proposed new laws being considered by the state of Georgia which would hurt the stations’ ability to operate profitably. What kind of relationship describes the radio operators’ association? (a) Limited partnership, (b) cooperation, (c) buyer supplier, (d) joint-venture.

Concerning the “through” assessment approach, there are two activities that the students undertake. The first is carried out individually and consists of interviewing an entrepreneur and writing a report. The report states what the student found inspiring, but also the topics dealt with in the class which connect to the interview. The second task is team based and concerns the development of a business idea with a focus on the essentials of a new venture, for example the value proposition. This activity has diverse outcomes that reproduce the entrepreneurial learning process: an executive summary of the idea, a 3-minute elevator pitch to raise money with possible investors, a tradeshow with an orientation to the consumer, a YouTube video also pitching potential investors, and a final report summarising the key elements of a business plan that could be submitted to potential investors. These four outcomes are assessed both formatively with feedback to the groups and summatively with rubrics. Concerning the formative feedback, in the case of pitching students rehearse in front of the class and receive feedback both from their schoolmates and the teacher. In the case of the executive summary, the students receive written comments by the teacher which are also discussed during group coaching.

The rubric criteria for the elevator pitch are the following: (a) overall, with the group’s understanding of the business idea and its value proposition; (b) preparation

and presentation, with the assessment of the teamwork, their preparation and fluency during the presentation; (c) message or content, to assess how well the team conveys the opportunity for an investor, the market opportunity and size, competitive advantage and team qualifications; (d) engagement, to understand how well the presentation conveyed the teams' engagement and enthusiasm in the idea or opportunity. The assessment criteria for the trade show exhibits are (1) the quality of the trade stands with visual attractiveness and prototypes; (2) the engagement with public and judges with the way the team pitches the idea and explain the business, (3) the team understands its product or service, and (4) the team attracting friends and attendants. It is clear from the grading criteria that the focus is not on the viability of the business itself, but rather on the understanding of key parts of the business model and how well the idea is developed and presented. Examples of ideas include an on-campus bike rental service for students at Ohio University; the patenting of jewels which are embedded with technology that allows students to ask for help in case of danger; on-campus smoothie vending machines; the patenting of golf balls with a GPS core that allows for their retrieval.

2.4.3 Course in Social Entrepreneurship

The course in social entrepreneurship at the Voinovich School of Leadership and Social Affairs takes a non-profit sector orientation and embeds the instances of citizenship and active participation for the creation of value for the local community. In other words, it seeks to awaken a civic sense to contrast apathy and helplessness. The targets are Bachelor and Master students of any discipline, and there are no particular prerequisites. The basic principle underpinning the course is that social issues such as poverty do not have efficient solutions. Rather, these phenomena have to be observed in their daily manifestations to be partially tackled concretely at the level of the local community. An example for this could be the lack of a supermarket in town. This forces the poor to shop in the only central venue, a fuel station, which however is missing fresh vegetables and fruits, thus leading to an impoverished diet.

Instead of seeing development as filling gaps, the approach aims at the development of the already present assets. Rather than searching for grants for solving the issues identified as important, which would open the issue of sustainability, it is better to look for the most convenient use of the already available resources. This attitude requires the activation of the individual who looks for enterprising opportunities for change. Social entrepreneurship is thus defined as convincing people about ideas that are worth pursuing, and this criterion is the driving force behind the rubric to grade the course participants.

The course lasts 12 weeks and has three main teaching and learning activities. While the first two activities are carried out individually and aim to make emerge the student's values and orientations towards social entrepreneurship, the third activity is performed in groups and concerns the application of value and orientations to concrete problems affecting the local community. The first activity is called the

“about me” assignment. Using a picture of him or herself and in whatever media desired, the student has to convey to the teacher who they are: what they do, what they like, and their aspirations. The second assignment entails reading a book on social entrepreneurship. In a sort of pitch, the student has five minutes to present the content to their schoolmates; the focus on the lesson learnt, why they liked (or disliked) it, and why it would be worth reading. The last activity is a project on the collective co-creation of value. The teacher starts by telling motivating stories from around the world of problems that have been tackled by making the best use of available resources. The group has first to spot something that could be tackled in their community and then elaborate a plan about how to use the resources that could be marshalled to solve it. The final product is a presentation that has to be as convincing as possible from the teacher and expert’s perspective.

2.5 The Characteristics of Entrepreneurial Teachers, Assessing the Way They Educate for a Sense of Initiative and Entrepreneurship. The SIE Questionnaire

The SIE questionnaire seeks to measure how secondary teachers educate for the key competence of the SIE as cross-curricular subject. Any teacher could therefore teach for a SIE while teaching their subject. One possible way to do that is to teach in an entrepreneurial way, thus becoming a role model for their students (European Commission, 2014; Penaluna, Penaluna, Usei, & Griffiths, 2015). Based on an extensive literature review, Morselli (2017) evidenced five characteristics of the entrepreneurial teacher:

The first feature is embedding the SIE learning outcomes and student-centred assessment practices within the teaching of a subject. Learning outcomes need to be delivered horizontally, across the curriculum, and vertically, to ensure progression through all levels of compulsory education (European Commission, EACEA, & Eurydice, 2016). It is maintained that coherence should be sought between learning outcomes, teaching and learning activities and assessment as suggested by the theory of constructive alignment (Biggs & Tang, 2011). Learning outcomes should be a balanced mix of knowledge, skills and attitudes and should not be so fragmented as to lose the holistic nature of the key competence (Pepper, 2011). Teachers should consider using a variety of assessment forms: ‘of’ learning, ‘for’ learning and ‘as’ learning. Assessment could move progressively from pedagogy to andragogy and to heutagogy, with students selecting the goals they want to achieve and self-assessing the extent with which they have been met.

The second feature of teachers undertaking cross-curricular education for a SIE is a focus on active teaching, for example experiential learning, group work, project work, problem-solving and mentoring. These can be combined or varied according to the subject taught.

The third feature is educating for entrepreneurial attitudes. Active teaching should aim at developing an entrepreneurial mindset with attitudes such as creativity, risk-taking, autonomy and responsibility in the individual depending on their progress.

The fourth feature of teachers undertaking cross-curricular education for a SIE is networking activities between and between school and work. Partnerships can be both within schools with other colleagues, subjects and courses, and outside the school, to engage students in meaningful activities and avoid the ‘encapsulation’ of knowledge acquired at school. In vocational subjects, teachers having a working relationship with the industry connected to the vocation or subject taught are regarded in a positive light, as the teacher has up-to-date competencies and knows the needs of industry, and can therefore plan activities for students that cross the boundaries of the school, the course and the subject.

The fifth feature is seeing entrepreneurialism as a lifelong learning pursuit, namely inside and outside the school context and throughout professional development. The entrepreneurial teacher participates in specific courses on entrepreneurship but also in broader ways develops his or her own SIE, for example through new ideas for promoting creativity, risk-taking, autonomy and responsibility. Discussion about pedagogical entrepreneurship with other teaching staff and colleagues is also a good indicator of the extent to which the topic is felt to be important in the school.

These five dimensions are used in the SIE questionnaire and adapted for the specific environment that is an Italian vocational secondary education teachers and workshop assistants. Table 2.2 shows the content of the SIE questionnaire.

The questionnaire has been administered to 21 teachers facilitating the courses of surveying and logistics, of which 10 are technical teachers, seven are workshop assistants and four are humanities and science teachers. Table 2.3 shows the results.

From the results, it could be argued that teaching staff educate for different aspects of the SIE. For example, although technical teachers teach mostly by means of lectures, they are the most entrepreneurial in life, and the individuals to cross the boundary between school and work the most with a second job in industry. Not surprisingly, workshop assistants are the most willing to use active didactics: learning by doing, mentoring and project work; they also are the most entrepreneurial inside the school. Concerning humanities and science teachers, they are the only ones who go sometimes beyond assessment ‘of’ learning, as they prefer to use assessment ‘for’ and ‘as’ learning.

The use of the SIE questionnaire displays the strengths and weaknesses of the teaching staff. The strengths of this group are that they see value in educating students for responsibility and autonomy, and to some extent embed in their teaching active didactics like mentoring and problem-solving. Furthermore, they are entrepreneurial in life and in the school environment. However, the results also show weaknesses and issues that should be dealt with in order to enhance the way teachers deliver a SIE as cross-curricular subject. The most significant drawback evidenced by the results is that the teachers use lectures as main didactics with corresponding assessment forms ‘of’ learning which tend to turn learners into passive receivers. The teachers’ attention is geared towards the product and immediate concrete goals rather than on the process with educational aims in a lifelong learning perspective. This can be seen a ‘teaching

Table 2.2 Five dimensions of the SIE developed into a questionnaire

<p>Entrepreneurial learning outcomes, and ‘as’ and ‘for’ assessment forms</p> <p>1. The sense of initiative and entrepreneurship has been a goal of my curriculum</p> <p>2. I have assessed the sense of initiative and entrepreneurship of my students</p> <p>3. I have developed assessments where the student chose their objectives and later self-evaluate their performance</p>
<p>Active entrepreneurial teaching</p> <p>4. What is the percentage of your teaching you generally deliver through lectures?</p> <p>5. I have organised practical experiences through learning by doing</p> <p>6. I have organised class activities according to group work (e.g. cooperative learning)</p> <p>7. I have organised in class activities according to project work</p> <p>8. I have organised didactics based on problem-solving</p> <p>9. I have utilised mentoring (e.g. by going to the students’ seats and giving them advice on their work)</p> <p>10. I have organised discussions to transform the classroom in a place of debate</p>
<p>Educating for entrepreneurial attitudes</p> <p>11. I have taught my students how to deal with the risk connected with to be entrepreneurial, and learnt how to accept failure</p> <p>12. I have sustained my students’ initiative, for example by accepting their proposals</p> <p>13. I have prepared activities where the students could express creativity and innovation</p> <p>14. I have encouraged my students to take responsibilities and to be autonomous</p>
<p>Networking activities</p> <p>15. I have established partnerships with industry/the outside world</p> <p>16. I have involved experts during in-class lessons</p> <p>17. I have organised school visits to places of interest</p> <p>18. I have organised interdisciplinary projects with my colleagues</p> <p>19. I work outside the school for the local industry</p>
<p>Being entrepreneurial as a lifelong learning pursuit, professional development</p> <p>20. I have taken part in endeavours or courses stimulating my own sense of initiative and entrepreneurship</p> <p>21. I have discussed entrepreneurial education with colleagues and experts</p> <p>22. During my school life (in class and in the school), I show my sense of initiative and entrepreneurship</p> <p>23. In my life outside the school, I show my sense of initiative and entrepreneurship</p>

to the test’, that is teaching for knowledge instead of competence. Although most vocational teachers have a second job in the vocation they have also been trained in, they seldom cross the boundaries between their school and other forms of work, by way of initiating interdisciplinary project, partnerships and inviting experts to school to lecture. Furthermore, the participants seldom participate in training that develops their SIE and never discussed the possibility of implementing entrepreneurship with their colleagues.

From CHAT point of view, the three entrepreneurial education *best practices* are examples of ‘linear interventions’ (see Engeström & Sannino, 2010) with a clear starting point, objectives, and with the students expected to participate in the intervention with no resistance. Part of the success of these courses depends on the fact

Table 2.3 Outcomes of the SIE questionnaire $N = 21$)

Area	Question	Average $N = 21$	Technical teachers $N = 10$	Workshop assistants $N = 7$	Humanities and science $N = 4$
Entrepreneurial learning outcomes, and ‘as’ and ‘for’ assessment forms	Goal of the curriculum	1	1	1	1
	Evaluation of key comp	1	1	1	1
	Evaluation ‘for’ and ‘as’	1	1	1	2
Active entrepreneurial teaching	Lecture	50%	60%	40%	50%
	Learning by doing	2	2	4	2.5
	Group work	2	2	2	3
	Project work	2	2	3	1,5
	Problem-solving	3	3	2	2,5
	Mentoring	3	2,5	4	3
	Negotiation– debate	2	2	2	2.5
Educating for entrepreneurial attitudes	Risk management	1	1.5	1	1.5
	Initiative	2	2	2	3.5
	Creativity and innovation	2	2	2	2
	Responsibility and autonomy	3	3	3	3
Networking activities	Partnerships with industry	2	2	1	1,5
	Involvement of experts	1	1	1	1
	Company visits	2	2	2	1.5
	Interdisciplinary projects	1	1	2	1.5
	Second job in industry	Yes	Yes	No	No
Being entrepreneurial as a lifelong learning pursuit, professional development	Courses and initiatives on entrepreneurship	2	1.5	1	2.5
	Discussion with colleagues	1	1	1	1.5
	Entrepreneurship in school	3	2	3	2.5
	Entrepreneurship in life	3	3	3	2

Legend

Medians: 1 = Never; 2 = Sometimes; 3 = Often; 4 = Always

that they were delivered in America which is considered the most entrepreneurial friendly environment. The use of the SIE questionnaire, however, can be useful to establish a baseline for a formative intervention to support a change process. Such intervention could lead to the generation of an *emerging practice* with pedagogical renewal, thus making the teaching staff more entrepreneurial. Moreover, if repeated throughout the years, such *emerging practice could become the new costumery way to do things, a best practice*, thus showing a possible circularity between formative

and linear interventions. The next chapter explains the difference between formative and linear interventions and shows the theoretical underpinnings of the Change Laboratory to foster expansive learning.

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