FROM CREATIVITY TO INITIATIVE
BUILDING ENTREPRENEURIAL COMPETENCIES IN SCHOOLS

ENTREPRENEURSHIP360 GUIDANCE NOTE FOR: POLICY MAKERS
DRAFT VERSION

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GUIDANCE NOTE
FOR POLICY MAKERS

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OECD
BETTER POLICIES FOR BETTER LIVES

European Commission
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INTRODUCTION

Education plays a key role in providing young people with an early orientation about future occupational choices. Being entrepreneurial can mean many things. It does not exclusively refer to the creation of new firms (entrepreneurship) but also to how employees approach their tasks (intrapreneurship), and how individuals act in their everyday lives, and in society. The European Commission has defined eight key transversal competencies, which can and should be developed through formal education and lifelong learning activities. One of them is the sense of initiative and entrepreneurship, which refers to the willingness and ability of individuals to "turn ideas into action. Entrepreneurial individuals demonstrate initiative, they learn through trial-and-error processes, rely on their own judgements, while taking into account other opinions and being aware of likely consequences; and they create their own job environments. Developing in schools the underlying set of attitudes, skills and knowledge – which we summarise as entrepreneurial competencies – will be beneficial for all learners.

There are significant differences across Europe and the OECD area as to how relevant young people perceive the role of school education in developing a sense of entrepreneurial spirit, ranging from above 75% in Portugal, Norway and Brazil, to less than 20% in Japan (OECD, 2013). This suggests that it matters "how" entrepreneurial competencies are developed in schools, that is, the content, format and learning environments of entrepreneurial education, and the actors shaping these. In the framework of Entrepreneurship360 – a common initiative of the OECD LEED Programme and the DG Education and Culture of the European Commission – more than 100 activities were reviewed for common success factors and lessons learned at school and single programme/course level to build effective learning environments for entrepreneurial competencies. We found that school managers and teachers play crucial roles in building learning environments that nurture these in an integral, transversal and progressive way across all aspects of education. To achieve this, systemic changes are needed to delegate greater decision-making power to individual schools in the organisation of education, and to create incentives for effective local partnerships, which build on the resources, interests and activities of different actors. A guidance note (OECD, 2015) was produced for teachers and school managers to enhance organisational change with regard to educational design, learning environments, the role of the teacher, and the school's collaboration with its surrounding environment.

This Guidance Notes is addressed to policy makers, who work with schools on the introduction and expansion of entrepreneurial learning. The note is organised in three parts. It starts with a general presentation of the rationale for and several approaches on develop entrepreneurial competencies in general, and skills for entrepreneurship in particular. In the following, the role of public policy in supporting schools to organise entrepreneurial education is reviewed, in particular with regard to collaboration with the surrounding world, professional development for teachers, and the introduction of institutional guidance and quality management frameworks for schools. Selected examples of good practice are presented. In the concluding chapter, key criteria of good practice are presented which emerged from the analysis of more than 100 current practices, are presented. The reader is pointed towards selected examples of good practice which illustrate these criteria.

DEVELOPING ENTREPRENEURIAL COMPETENCIES AND SKILLS FOR ENTREPRENEURSHIP THROUGH EDUCATION

Promoting entrepreneurial competencies through education requires sufficient space in the curriculum to accommodate the two overarching and co-existing learning objectives: "being entrepreneurial" and "becoming an entrepreneur". This is best achieved with a progression model, which allows for a gradual change of content, pedagogy, learning outcomes and assessment strategies, according to the needs, readiness and interests of the learners, and the extent to which the school provides occupational orientation (European Commission, 2010; Blenker et al., 2011; Rasmussen and Nybye, 2013).

A progressive approach to entrepreneurial education

Applying a progressive approach to entrepreneurial education means that learning objectives will be different for primary, secondary, higher levels of education and for vocational education and training. The Entrepreneurship360 background report (Lackeus, 2015) presented a progression model (Figure 1) with three steps building on the notions of educating through entrepreneurship (first step), about & through (second step), and about, for & through (third step).

Figure 1. Three-step progression model of entrepreneurial education

![Figure 1. Three-step progression model of entrepreneurial education](source: Lackéus (2015).

In the first step, which could start at the age of 6-7 years, students learn to take actions to address societal challenges and everyday problems based on their own interests and ideas. Here, entrepreneurial education is integrated into the core subjects and not treated in a separate subject. The aim is to develop entrepreneurial competencies in the form of critical thinking, problem solving, social skills, perseverance, creativity and self-control, which, in turn, spur deep learning. This responds to the claim that primary education plays an important role in developing and nurturing non-cognitive skills,
initiative and entrepreneurship as a key competence (European Commission, 2011), which has been taken up in education practices throughout Europe.²

The second and third steps are located in secondary and vocational schools, where the aim is to prepare students for their successful labour market entry or continued education. Here, students continue with activities that build entrepreneurial competencies but with a greater focus on subject knowledge, for example, financial literacy. In addition and for those students, who are interested in learning more about how to start and run a firm, additional activities are offered with a greater focus on business language, practices and entrepreneurship skills. A common format is the so-called "mini companies" (European Commission, 2005)³ where students start and run their own simulated or real businesses, supported by teachers, for a certain amount of time (e.g., one per week for one school year). In these entrepreneurship-specific activities, the teacher plays a central role in enhancing the technical knowledge and skills of students to create and manage a firm, such as, for example, understanding financial break even points and undertaking effective market research. Buying and selling can render financial decision-making more relevant to the learner not only through the actual handling of money, but also through handling group dynamics. As Penaluna and Penaluna (2015) pointed out, it is less important for teachers to be able to give exact answers, as almost certainly the complexities of real-life situations makes any formal / advisory role unrealistic, but more to be aware of, and to explain the implications of issues such as copyright, trademarking, design rights, patenting, and the role of ethics in doing business.

Finally, in the third step, students are prepared to make an informed choice about their future professional careers. Education activities are more focused on business knowledge and entrepreneurship skills. Especially, in vocational education and training, and in higher education, students should learn about innovation management, business growth models and internationalisation in order to be able to become, if it is their choice, an "intrapreneur" in an existing organisation or to start a new or take over an existing firm.

Learning by creating value

A variety of concepts and teaching practices are associated with entrepreneurial education. According to Sagar (2015), the greatest similarity exist with authentic learning. Common is the understanding that intrinsic motivation drives the learning process and enhances learning outcomes. Students are considered as self-directed learners and efforts are focused to encourage inquiry, exploration and reflection. Assignments and projects are interdisciplinary, often have close links with the surrounding world, and are curriculum-based but flexible enough to resemble real-life situations. They are meaningful, purposeful and have personal relevance to the student.

Despite potentially enriching, similarity of concepts and teaching practices can, however, also be confusing for teachers and may cause or add to existing scepticism. When a new teaching practice is presented to teachers they may perceive it rather as "popular trend" and something that needs a new name in order to be added to an already crowded curriculum than something genuinely new. To avoid such reactions, it is important to meaningfully distinguish entrepreneurial education from other concepts. Following a growing trend in research (e.g., Lackéus 2015) and practice (e.g., Danish Foundation for Entrepreneurship), we suggest to focus on the purpose of entrepreneurial learning, that

² According to Eurodyce (2012), almost two-third of the 28 EU member countries have entrepreneurship objectives in their primary school curriculum as transversal and horizontal issues. In many countries entrepreneurship is taught as part of history, geography and civic education.

³ See the 2005 EC report on mini-companies in secondary education.
is, "learning-by-creating-value". Students shall perceive assignments and the knowledge and skills generated through them as creating value in the personal, social, ecological, cultural or economic notions. Value can be associated to one-self and/or to others.

Also here a progressive translation into education is important. Whereas creating "value-to-others" applies readily to secondary, vocational education and training and higher education, it may be cumbersome for teachers in earlier levels of education to create such assignments on a regular basis. Here, the focus is on making the students feel "value-to-themselves", which has a positive impact on the student’s inner drive and h/her motivation to learn.

**ORGANISING ENTREPRENEURIAL EDUCATION**

In entrepreneurial education, students are central actors. They are encouraged and supported – in a framework, which is adapted to age and ability requirements – to co-design, co-educate and co-assess education activities. Teachers act as facilitators and coaches and guide the student rather than giving instructions. Assignments and assessments are designed in such a way that students are able to acquire, understand and reflect upon knowledge, which they can then apply in different contexts and situations.

Continuity, constructive feedback and reflection are important to ensure successful learning. Young learners, predominantly because of their lack of concern over failure, are more creative, whereas post-puberty students are more conservative in their thinking styles and unless creativity exercises are regular and enjoyable, their creative capacity will decline. As children get older, fear of failure can also demotivate learning in general (Ordonez et al., 2009). This is because our brain is inherently designed to resist change. If learning is not rewarded, for example by being told that something is wrong as opposed to being told that it "is a useful alternative that requires further consideration", the student is likely to stop an activity. If not used the neural networks that support creative thinking which embraces uncertainty and change simply die off.4

Basing the assessment of learning outcomes of entrepreneurial education mainly or entirely on "norm referencing", which compares student performance within standardised tests and "criterion referencing"5 that compares student performance against specific requirements and criteria, can be major barriers to effective learning as Penaluna and Penaluna (2015) pointed out. What needs to be organised instead is "constructive alignment" (Biggs, 1996). Assessment of learning within entrepreneurial education needs to rely on context, alignment to the learning tasks, harvesting expertise, self-direction and relevance in the eyes of the learners.

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4 For a detailed discussion see Penaluna et al. (2010).

5 The glossary of education reform makes useful distinctions between norm and criterion referencing here: [http://edglossary.org/norm-referenced-test](http://edglossary.org/norm-referenced-test); [http://edglossary.org/criterion-referenced-test](http://edglossary.org/criterion-referenced-test)
The role of public policy in promoting entrepreneurial education in schools

From an educational perspective there is general consensus with the recommendation of the Oslo Agenda to "embed elements of entrepreneurial behaviour (curiosity, creativity, autonomy, initiative, team spirit) already in primary school education". But, how to translate this into daily education practice? Are teachers developing curricula that genuinely put the learner in the driver’s seat, enabling students to make mistakes and to learn from them, and encourage creativity, also through an understanding of the role of emotion in learning? Are school managers embracing and supporting the implied shift in the role of the teacher in applying new teaching methods and shaping contextualised learning environments?

There are three areas, in which public policy can support schools in the organisation of entrepreneurial education, these are collaboration with the surrounding world, professional development for teachers and the introduction of institutional guidance and quality management frameworks for schools. These are introduced in the following, with examples of current practices.

**Collaboration with the surrounding world**

Generally speaking, the situational dimension of learning is crucial for achievement of expected learning outcomes. Sagar (2015) illustrated this with the example of science and technology education in schools, which is generally adjusted to fit into the school organisation and the requirements of assessment rather than being shaped into a simplified version of science with true inquiries, deliberations and based on critical thinking. Moreover, science teachers and their students only rarely have the opportunity to see scientists at work in their usual environments. Consequently, many school activities do not make sense if transferred to "real-life" practices in science and technology. This has a negative impact on the motivation of students, which, however, are interested in the societal relevance of science and technology. Being able to read and understand newspaper articles which discuss certain aspects of science and technology, is an example of a task, which is framed in an authentic or real-life context. It mimics a situation, in which the student in h/er role as citizen needs to possess content knowledge in order to take and maintain a standpoint on factual grounds and to actively participate in debates.

Students who benefit from authentic learning (which, as we said above, is very similar to entrepreneurial learning) – for example, collaborating with scientists on a real task in a laboratory – persevere to a higher degree even if initially they may feel confused and frustrated (Sagar, 2015). They pursue a course of action even in the face of difficulty when there is a proper balance between the challenge and its appropriateness. In authentic learning, students develop the ability to distinguish reliable from unreliable information and to recognise relevant, familiar patterns in unfamiliar contexts. They gain patience to follow longer arguments and the flexibility to work across disciplinary and cultural boundaries. The role of teachers is to translate, remodel, and re-contextualise scientific knowledge to make it relevant for the learner.

Research on how real-life entrepreneurs learn is still largely disconnected from the educational domain and thus offers, as Lackéus (2015) pointed out, little advice for teachers. However, since the commonly presented argument, also backed by empirical evidence, is that learning through own experience is crucial entrepreneurship-specific education activities (as well as for entrepreneurial education in general), the advice for teachers is to give students assignments through which they seek

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to create value (preferably innovative) to external stakeholders. In this, the students themselves identify the underlying problems and take full responsibility for how they approach the assignment. This will lead to repeated interactions with the outside world, which may also trigger uncertainty, ambiguity and confusion. Nevertheless, this can be a salient source of deep learning, if the levels of difficulty and uncertainty, resulting from the exposure to external actors and their expectations, are encountered by team work, peer learning, assertive feedback, and a protected framework, which allows students to learn from eventual failures and mistakes. It needs time and continuity, preferably months or years, to build this kind of relationships with external stakeholders.

Parents are important role models\textsuperscript{7}. Often they are willing to support students’ progress – especially in earlier levels of education – but they may feel excluded from the education and learning process, whereas the opposite is probably true. Engaging an entrepreneurial parent, who runs h/her own business could is a way of developing new projects, identifying specific learning outcomes and designing new ways of assessment. Acting upon observations is a type of learning that does not require active teaching in the first place but assisted reflection in class. For example, a parent with a small local shop that sells groceries could ask students what new products could go onto the shelf, or offer insights into what sells most and what doesn’t, and for what reasons. A local garage owner could explain how difficult it is to recycle car tyres, and ask students to offer alternatives to landfill that make better use of the day-to-day product that everyone takes for granted.

Today, schools are greatly expanding their connections to the outside world also as response to requests from public policy. An example is the European Commission’s recommendation that all young people should "benefit from at least one practical entrepreneurial experience before leaving compulsory education" (European Commission, 2012). This makes school collaborations with external actors essential for entrepreneurial education. Every school has a unique ecosystem, which involves different actors, their expectations and resources. Bringing all this together into an effective education system, which reflects issues of societal and local relevance, requires a concerted approach of school management, teachers, parents and partners, and the involvement of students to make education relevant (Toutain and Mueller, 2015). To achieve this, the entire school gets connected with its surrounding world with the aim of making education more relevant and effective. Both teachers and students can be key networkers. Another way of connecting the school to its surrounding world, is, as Sagar (2015) presented, to regularly complement school text books with other sources of information, such as expert presentations, newspaper articles, information from businesses and industry organisations, and civil society actors, social media, the Internet, etc. An obvious requirement for students and teachers is the in-depth critical review and reflection in class of this information and its sources.

Establishing and maintaining contacts with the surrounding world and embedding them in the education process is, however, not easy and for teachers and schools. Sagar (2015) concluded from an empirical study of primary, secondary and VET school teachers in Sweden that the main concerns include the need for more time, the role of teachers’ attitudes towards collaboration with external actors, the influence of colleagues, the expectations of external actors, the general social-economic situation, transportation issues, and the role of training and continuing professional development. Non-profit organisations can help schools to successfully connect with the surrounding world. An example is Ready Unlimited, a social enterprise in the UK which has created several hubs across England to improve the collaboration of teachers, parents and the wider community (Box 1).

\textsuperscript{7} Role models imply that people identify with other people that they connect with within social roles, and the matching of psychological and cognitive skills that lead to imitation that is evidenced through patterns of behaviour. See Penaluna and Penaluna (2015) for a detailed discussion.
Professional development for teachers

Adopting an entrepreneurial education design will require teachers to change some of their knowledge structures, for example with regard to classroom management or their pedagogical content knowledge, which brings together content and pedagogy, and the philosophical groundings of educational ends, purposes and values. As Krueger (2015) pointed out, knowledge structures are anchored in our deep beliefs and changing them requires changing deep beliefs, often in discontinuous fashion and through constructivistic approaches to learning instead of the traditional behaviouristic learning model that emphasises content knowledge.

Teachers, who show resistance and hesitation towards entrepreneurial education, may change perceptions and attitudes more easily with the help of open discussions of what entrepreneurship means and what the aims of entrepreneurial education are. To this end, the WEF Global Education Initiative report (Volkmann et al., 2009) suggested that multidisciplinary business content and experiential approaches should become an integral part of teacher training in order to build a good understanding of the changing needs of businesses and society. For example, an internship in a firm will make it easier for teachers to use real-life experiences and engage entrepreneurs and industry people in education (European Commission, 2009). A real change in the teaching will, however, only occur only after the teacher has observed and experienced a positive impact of the change on the students' learning outcome (Guskey, 2002). Therefore, central elements for professional development for teachers are therefore "what to teach", "how to teach", and "what changes in students' learning outcomes can be achieved". Clarke and Hollingsworth (2002) presented a multi-dimensional model for teacher growth through continuous professional development (Figure 3).
Figure 2. Multi-dimensional model for teacher growth

To be effective, changes in teaching will need to happen in several of the domains, that is, in the personal domain of change, based on the teacher’s knowledge, beliefs, attitudes and perceptions, the external domain, including the variety of sources from outside the classroom, the domain of teaching practice, and the domain of consequence, that is, the outcomes of changes on student’s learning, intrinsic motivation and interests. Feedback by peers, in a secure and trust-based environment and following specific aims, can be a powerful tool for professional growth (William, 2012). As Sagar (2015) found, supportive peers and colleagues may also compensate the lack of support from school management. However, since forces in the learning community can be both enabling and inhibiting individual teacher growth, awareness and caution are needed when building learning communities to ensure, as Elmore (1996) suggested, a mixture of sceptical and committed teachers. However, teacher change is highly individual and should thus have individually tailored objectives. Effectiveness as well as the pace and paths of growth will vary amongst trained teachers, even when the external domain of change for them is the same or very similar.

An example of how teacher training is organised in both pre-service and in-service phases is the “Entrepreneurship for children from 3 to 12 years” project at the Polytechnic Institute of Viana do Castelo in Portugal which trains pre-school and primary school teachers in the country’s northern region of Alto Minho (Box2).

### Box 2. ESVC Teacher Training in Alto Minho (Portugal)

The Polytechnic Institute of Viana do Castelo is part of the network supporting entrepreneurship in the region of Alto Minho in the north of Portugal. It offers teacher training in dynamic, innovative and creative teaching methodologies within the project “Entrepreneurship for children from 3 to 12 years”, which started in 2011. The school environment is the most privileged space to reach this goal for all children, but it implies action and project-based learning environments, giving teachers a crucial role. Teacher training is a crucial success factor as are support of school management, parents and the local community. A distinctive feature of the project is the

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*For more examples, see on [http://www.oecd.org/site/entrepreneurship360/home/](http://www.oecd.org/site/entrepreneurship360/home/).
To achieve the entrepreneurial education of children from 3 to 12 years old it’s necessary to train teachers, both pre-service and in-service teachers.

The project emphasises the acquisition of entrepreneurial skills by the teachers themselves, as part of their personal and their professional training. Thus, teachers can be participating citizens in their community, with a strong social awareness and gearing up for ethical principles, either in their personal, social or professional activity. The project was developed in three stages. First workshops and practical sessions were held for teacher to raise awareness of entrepreneurship using the manual "Having ideas to change the world". In the second stage, training was offered for preschool and primary teachers (grade1 to grade 6), both in-service and pre-service teachers from the Alto Minho region. To in-service teachers this training was a required and certified course with several practical sessions in which participants were trained in entrepreneurial competences. Participants travelled a similar pedagogical path to what they would later set out to travel with children in an educational. Activities included brainstorming, producing narratives for communication projects, workshops for prototype development and reflection seminars. The third stage included teacher interventions in educational contexts. Participants, both trainees and teachers, began to the practical teaching in classes following the course manual (see link below for a summary of the manual).


### Institutional guidance and quality management frameworks

Teachers and school managers may hold their own views of entrepreneurship. It will therefore be crucial to identify and establish a common understanding and to establish the objectives of entrepreneurial education in order to avoid what Leffler (2009) called a "battle fought in the language used, where the economists own the concepts of the entrepreneur and entrepreneurship, and the schools own the concepts of pedagogy". A common understanding of what entrepreneurship means for a specific school will be the result of a long-term process that involves debate, trial and error approaches, and a strong partnership with parents, business partners and the local community.

Once a common understanding is in place or in its formation, resources will need to be allocated in a sustainable way and capacities developed across all subjects. Entrepreneurial education can be organised in single activities, which may or may not be linked with each other and it can be a teaching principle throughout the curriculum. The bandwidth between single activities and curriculum integration may vary from school to school and also amongst teachers within the same school. Institutional guidance and quality management frameworks are important for organising entrepreneurial education in a progressive way, which involves all learners across subjects and cohorts.

Ruskovaara, Piikala and Hoare (2015) refer to this as creating the entrepreneurial school, in which the development of entrepreneurial competencies is part of the school's culture, embedded in the fabric of the student experience, and reflected by an overall "can do" approach both in the formal and in the "hidden" curricula. Such frameworks should be based on a four-fold approach that provides a tool to monitor and evaluate the institutional culture inside the school, and its external environment (e.g., key partners and types of partnerships), student learning processes and outcomes, and the readiness and preparedness of teachers and school managers to change. These frameworks have at least three dimensions, that is, the learner or student perspective, the teacher perspective, and the school perspective, represented by the school manager. To date there are only few examples of institutional guidance and quality management systems that take all of these three dimensions equally into account. More common are approaches that focus on single dimensions, for example the learner's experience with entrepreneurship education, the teacher's preparedness, and the school's support in terms of resources, regulations and learning environments. In the following, seven examples of institutional guidance and quality management systems are presented. Table 1 provides an overview of the dimensions covered by these examples.
Table 1. Overview of selected institutional guidance and quality management systems

<table>
<thead>
<tr>
<th>Name</th>
<th>Geographic coverage</th>
<th>Teacher</th>
<th>School management</th>
<th>Learner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Tool for Entrepreneurship Education (MTEE)</td>
<td>National: Finland; International in pilot testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Standard for Enterprise Education (NSEE)</td>
<td>National: England</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment Tools and Indicators for Entrepreneurship Education, ASTEE</td>
<td>International</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial Skills Pass (ESP)</td>
<td>International</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Entrepreneurial School project (TES)</td>
<td>International</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECEC, the Conscious Entrepreneurial Community School</td>
<td>National: Netherlands</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Measurement Tool for Entrepreneurship Education (Finland)

The Measurement Tool for Entrepreneurship Education is an online tool that contains approximately 140 questions constructed around concepts drawn from a theoretical framework. The tool is used by teachers as a self-evaluation system. It is widely used in Finnish basic and upper secondary-level schools, and pilot testing started in more than twenty European countries as part of the Entrepreneurial School project (TES). The Tool was developed in multiple stages between 2008 and 2012 by the Lappeenranta University of Technology and the Development Centre Opinkirjo. Additionally, a group of primary and secondary-level teachers were involved in the design and development of the questionnaires. The Tool was shaped by participatory action research and a case study; the collaboration and shared expertise of the users (teachers) and the designers (researchers) were central to this project. At the end of 2011, the Tool was launched nationally for Finnish primary and secondary school teachers. The tool gives detailed, personalised feedback to teachers concerning their current entrepreneurship education practices, and it gives ideas on how to develop as an entrepreneurship educator. It covers seven areas from the design of entrepreneurship education activities, pedagogical solutions and networks to the implementation of single education activities and complete courses. The tool also works as a data-gathering system for research purposes; researchers have unlimited access to the data source.9

National Standard for Enterprise Education (England)

The National Standard for Enterprise Education (NSEE) was introduced by the Centre for Education and Industry at the University of Warwick in 2010 to support schools implementing enterprise education. The Standard helps schools to determine their own vision of entrepreneurship education and, through mentoring, to realise it in a way that suits their students and ethos. It is an audit tool that enables schools to review their existing provision and ‘label’ enterprising activities. The

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9 Ruskovaara, Pihkala and Hoare (2015) provide a detailed description.
The NSEE framework consists of 35 questions with supporting criteria (the CEI 35) and a "lite" version of 10 essential requirements for effective enterprise education, the so-called CEI 10. The review process includes a comprehensive audit of the learning activities provided across the curriculum, with a focus on four themes: (i) vision of enterprise education – concept and communication; (ii) planning and management of enterprise education; (iii) delivering an enterprise education curriculum; (iv) assessing and evaluating enterprise education. The final step requires the provision of a case study of one specific example of good practice in enterprise education, involving pupils in activities covering the four main stages in an enterprise process: identifying a need or tackling a problem, planning, implementation, and evaluation.

Some schools choose to use the documentation for self-review purposes only. Those who decide to submit for formal assessment are asked to put together a portfolio of evidence that confirms that key policies or activities are in place. Schools in England are able to access the National Standard for Enterprise Education free of charge from the Enterprise Village web site. The NSEE is also available as a free-access resource through the Entrepreneurial School project. For example, the NSEE has been trialled in two schools in Finland. Interestingly, the schools, one primary sector and one secondary school, both subsequently celebrated their success with the award and communicated this to a broad national audience. NSEE is a framework that works as well for schools at an early stage of development as for those at a more mature stage, and a diagnostic approach that supports schools when applying for additional funding/resources.

School managers using the NSEE consider it to be a supportive approach that aims to celebrate existing provision and identify opportunities for further development. Too often, frameworks seem to start from the critical stance of identifying problematic/inadequate provision. Instead, NSEE requires a team approach with inputs from a range of staff, including senior managers. Community involvement is also a core requirement, with a realistic approach to the demands placed on schools when they aim to engage and involve employers in the process. It moreover provides for pupil voice and engagement, with students participating in the evidence gathering and analytical processes.

The NSEE requires a certain level of dedication from schools to engage in the process. To be taken into consideration are for example the workload implications for teachers who are already fully committed to other activities and agendas, and the need to engage and justify the involvement of a broad range of school staff, some of whom may fail to understand the relevance of enterprise education to their subject area. The NSEE provides a response to the common "where next" question, particularly for schools that identify and subsequently wish to celebrate their excellence in enterprise education. English schools have access to an enterprise education award scheme as an integral part of the NSEE, which supports schools in building a portfolio of evidence that can be submitted for assessment and validation.

Assessment Tools and Indicators for Entrepreneurship Education, ASTEE

ASTEE is the result of a project co-funded in the period 2012-2014 by the European Community and the Competitiveness and Innovation Framework Programme. ASTEE is led by the Danish Foundation for Entrepreneurship - Young Enterprise Denmark. Teachers, who wish to evaluate their influence of their educational design, that is, their pedagogy, learning environment and teaching content, can use ASTEE for this. Questionnaires can be downloaded from the Internet and administered for pencil and paper completion. An electronic survey and data analysis service is
currently been developed by the Danish Foundation for Entrepreneurship. A booklet, which explains how the effect of different educational designs can be evaluated is available on the website.

In a preparatory research phase key learning outcomes were identified and tested at the primary, secondary, and tertiary levels in several EU countries. Different questionnaires were developed for learners in primary (10-11 years), secondary (16-17 years) and tertiary education (20+ years). The questionnaires cover the areas entrepreneurial knowledge, skills and mind-set, connectedness to education, and to future career (Table 3). The questionnaires are freely available in ten European languages at http://asteeproject.eu. A large-scale test of the questionnaires was implemented in 2014 in 13 countries, resulting in 4 900 responses. The data was subsequently analysed using a number of statistical tests.

### Question areas for learners in primary, secondary and tertiary education (ASTEE)Table 2.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>What is measured</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entrepreneurial knowledge</strong></td>
<td>Entrepreneurial knowledge is measured by a single construct, which focuses on the respondent’s perceived knowledge about entrepreneurship.</td>
</tr>
<tr>
<td><strong>Entrepreneurial skills</strong></td>
<td>Entrepreneurial skills cover both cognitive and non-cognitive skills required in the different phases of an entrepreneurial venture. A number of constructs are used to capture these skills: Creativity, Planning, Financial literacy, Marshalling of resources, Managing ambiguity, and Teamwork.</td>
</tr>
<tr>
<td><strong>Entrepreneurial mindset</strong></td>
<td>Entrepreneurial mind-set is measured by the validated Core Self Evaluation measure, which in three constructs captures the individual’s core sense of being able to perform challenging tasks: General self-efficacy, Locus of control, and Self-esteem.</td>
</tr>
<tr>
<td><strong>Connectedness to education</strong></td>
<td>Connectedness to education focuses on the student-teacher relationship and is measured by a single construct.</td>
</tr>
<tr>
<td><strong>Connectedness to future career</strong></td>
<td>Entrepreneurial intentions and behaviour are measured with questions about the student’s connectedness to future career. This includes questions to their enterprising activities, work experience, preference for intrapreneurial work assignments as well as intentions to start up a company.</td>
</tr>
</tbody>
</table>

Source: ASTEE; [http://asteeproject.eu/results](http://asteeproject.eu/results)

**The Entrepreneurial Skills Pass (ESP)**

The Entrepreneurial Skills Pass (ESP) is an international certificate, issued by CSR Europe, EUROCHAMBRES, JA-YE Europe and its member organisations. It certifies that students, aged between 15-19 years, have gained an entrepreneurship experience and learned entrepreneurial competencies as well as knowledge and skills for entrepreneurship. ESP includes a full year of in-school mini-company experience, a self-assessment and an online examination of business, economic, and financial knowledge.

The self-assessment includes three tests. Questionnaires are available in Czech, Danish German, Estonian, Greek, Italian, Maltese, Romanian, and Slovak languages. Students undertake the first test prior to the one-year mini-company experience, the second one during, and the third one at the end of the year. JA-YE Europe created an online platform to gather and to compare the survey data. It is expected that in above mentioned countries 250 000 students will participate per year. The final step

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10 The questionnaires for the three age groups are available online in Croatian, English, French, German, Italian, Polish, Portuguese, Romanian, Spanish and Swedish.
of ESP is the online examination, which students can take on the online platform (https://exam.entrepreneurialskillspass.eu/esp/). Teachers use the platform to administer the exam, answer questions, and to deliver the final certificate.

Students who participated in all three ESP elements and correctly answered 70% of the questions in the online examination will get a final internationally issued certificate. The final certificate has a QR code which students can use to download multiple certificates and to embed it in their LinkedIn profile. Human resource managers of private firms and public organisations can use the QR code to check the validity of the certificate.\footnote{See http://entrepreneurialskillspass.eu/components/online-exam/final-certificate.} Giving students a standardised form of recognition of their entrepreneurial skills and competencies provides them with a competitive advantage in entering the job market, and employers recognising ESP benefit from a uniform and certified standard that meets their requirements for qualified and committed staff with basic business skills.

ESP ran as a pilot programme during the school year 2013-2014, with almost 2 000 students from 16 countries participating. Since then national Coordinators have been appointed in Austria, Czech Republic, Denmark, Estonia, Greece, Italy, Malta, Romania, Slovakia, and Switzerland to help school managers and teachers with the one-year mini company programme and additional education activities, which they may choose to offer. Additional learning materials will also be available for both teachers and students in the near future.

\textit{Impact Evaluation Framework (England)}

The Impact Evaluation Framework is a new tool, which is currently being developed by Ready Unlimited, in partnership with the Centre for Education and Industry at the University of Warwick and the Centre for Education and Training at Lappeenranta University of Technology. The project team is working closely with practitioners (teachers and school managers), whose feedback was very valuable for the development of the framework.

The Impact Evaluation Framework captures current achievements and activities related to entrepreneurship education to triangulate the data and information gathered from school management, teachers and learners in order to get a holistic view of what is happening within a school. It is based on what actors at these three levels are actually doing (rather than self-reporting what they think they are doing/their attitudes etc.). This provides a baseline and a measurement for future progress and development with regard to (i) learning outcomes at student level, (ii) education activities (teachers), and (iii) resources, regulations and learning environments (school management).

The Impact Evaluation Framework is currently available only to a group of pilot schools. Early-stage feedback from users suggests that the tool has great potentials because it aims for the triangulation of evidence sources. For example, teachers who have tested the tool commonly reported that capturing student views is "gold dust", which has enabled them to sense-check their own perceptions and reflect on who may and may not be benefitting from their entrepreneurship education activities and adjust their practice accordingly.

\textit{The Entrepreneurial School project (TES)}

The Entrepreneurial School project (www.theentrepreneurialschool.eu) and its Virtual Guide for Entrepreneurial Learning (www.tesguide.eu) is supported by a consortium of 15 partners and co/funded by the EU’s Competitiveness and Innovation Programme. TES hosts a community of practice for teachers from 18 countries, which is expected to grow to approximately 4 000 teachers in
the next couple of years. School managers and teachers can access the above mentioned self-assessment tools (i.e., Measurement Tool for Entrepreneurship Education and National Standard for Enterprise Education), and search a database of more 100 tools and methods of how to organise entrepreneurship education.

Teachers report that using the search facility of TES allows them to easily find what they are looking for in terms of syllabi, teaching material and contacts to peers. Also, the international dimension of TES is highly valued. Many schools today have a "global agenda" and are thus looking for platforms, such as TES, to find twinning partners for teacher and student exchanges. TES also offers teachers the opportunity to share their own materials with other practitioners across Europe. Mapping the development and take-up of this aspect of the project will give a good indicator of the potential for offering teachers this sort of "swap-shop".

**ECEC, the Conscious Entrepreneurial Community School (Canada)**

ECEC is an international network, with headquarters in Québec, Canada, that supports schools in the development of a conscious entrepreneurship culture that encompasses responsibility, ethical and just prosperity, greater social justice and aims to enhance students to contribute to the creation of sustainable economies. Throughout the province of Québec, ECEC supports a network of elementary and secondary schools and maintains effective partnerships with the unions and teacher organisations. ECEC works closely with the school managers of the individual schools and also with the inter-school network of school managers and teachers. It uses for this an evaluation scheme with seven strategic axes and 21 components. The strategic axes are: (1) structural base; (2) pedagogy; (3) quality learning; (4) global health of the child; (5) school-family-community partnership; (6) recognition and appreciation; and (7) shared mobilising leadership and progress monitoring. Schools are accompanied for a period of 12-24 months in making progress in all or several of the strategic axes. After this period, the schools participate as peer-schools providing assistance to other schools in the network.

ECEC regularly assesses the impact of their activities on students and learning environments. 97.5% of teachers observe an improvement of motivation in students, and 66% of students claim to be more interested to come to learn in school. The same proportion of students says that ECEC specific activities help them to improve their academic results. Both groups report that the classroom atmosphere has improved, and educational staff’s motivation, mobilisation, and enthusiasm have grown. Teachers and school managers express their happiness to come to work in their school, and also parents and external stakeholders provide positive feedback on the ECEC engagement of the school.

Table 3 compares the above presented seven approaches to offer institutional guidance and quality management tools for what is measured, the evaluation approach and users and the purpose.

**Table 3. Comparison of the selected institutional guidance and quality management tools**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Users</th>
<th>What</th>
<th>Evaluation approach</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Tool for</td>
<td>Teachers</td>
<td>Education design</td>
<td>Web-based self-assessment with</td>
<td>Provide feedback, measure progress</td>
</tr>
</tbody>
</table>

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### Entrepreneurship Education (MTEE)
- Teaching style
- Embedding of entrepreneurship education in education
- Learning environments
- Automated report over time

### National Standard for Enterprise Education (NSEE)
- School managers, Teachers
- Expert-assessment, printable auditing documents (used by external auditor)
- Online self-assessment tool
- Support schools in implementing entrepreneurship education

### ASTEE
- Students (10-11 years, 16-17 years, 20+ years), Teachers
- Students: Entrepreneurial competences, skills for entrepreneurship
- Teachers: effect of education design on students
- Web-based and printable versions
- Measures impact of entrepreneurship education on students' entrepreneurial intentions, skills, knowledge

### Entrepreneurial Skills Pass (ESP)
- Students (15-19 years)
- Entrepreneurial competences, skills for entrepreneurship
- Online tests and final exam
- International certificate of entrepreneurial experience and associated learning outcomes

### Impact Evaluation Framework
- School managers, Teachers, Students
- Education design
- Teaching style
- Students: Entrepreneurial competences, skills for entrepreneurship
- Printable questionnaires
- Triangulation of education design, teaching style, and students' reactions

### Entrepreneurial School (TES)
- School managers, Teachers, Students
- Education design
- Teaching style
- Students: Entrepreneurial competences, skills for entrepreneurship
- Web-based and printable versions
- Support schools in implementing entrepreneurship education

### Conscious Entrepreneurial Community School (ECEC)
- School managers, Teachers, Students
- Education design
- Teaching style
- Students: Entrepreneurial competences, skills for entrepreneurship
- Expert-assessment
- Support schools in implementing entrepreneurship education

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**CONCLUSIONS**

Teachers, who are agents of change, can be recognised by their impact on the learner and on the school, and, all the same, successful schools and colleges will receive recognition in the same way as their students will. Numerous activities are underway to build effective learning environments for entrepreneurial competencies. Common success factors are leadership and governance, flexibility of curriculum, extra-curricular learning opportunities, community engagement, the involvement of businesses and entrepreneurs in education, and close links with the local entrepreneurship support.
system. However, substantial variations exist between and within countries in whether and how entrepreneurial education is implemented. Differences include the degree to which experiential learning is offered, the accessibility and quality of training for teachers and repositories of teaching materials, incentives for educators and students to engage in extra-curricular activities dedicated to entrepreneurship, and the engagement with external partners. There is a clear role for public policy to address these differences. The aim is not to override existing differences in the education systems, but to build on common success factors in how to organise entrepreneurial education, in particular in terms of the collaboration of schools with the surrounding world and the resources for entrepreneurial education.

Three areas, in which public policy can support schools in the organisation of entrepreneurial education, were discussed in this guidance note. In the following, the key findings are summarised.

The entrepreneurial school

Promoting entrepreneurial competencies through education requires sufficient space in the curriculum to accommodate the two overarching and co-existing learning objectives: "being entrepreneurial" and "becoming an entrepreneur". To design learning environments, which build entrepreneurial competencies in an integral, transversal and progressive way across all aspects of education, systemic changes may be needed to delegate greater decision-making power to individual schools in the organisation of education, and to create incentives for effective local partnerships, which bring together the resources, interests and activities of different actors.

In the entrepreneurial school, students are central actors of education. Within a framework, which is adapted to age and ability requirements, students are encouraged and supported to co-design, co-educate and co-assess education activities. Ideally, all learners get involved, and entrepreneurial education activities progressively build on each other to allow for gradual change of content, pedagogy, learning outcomes and assessment strategies, according to the needs, readiness and interests of the learners and the educational level of the schools.

Table 4 presents criteria of good practice in building the entrepreneurial school and examples of case studies collected and analysed as part of the Entrepreneurship360 initiative. The criteria are explained in terms of their rationale and current practice application in the Guidance Note for Teachers and School Managers (OECD 2015).

Table 4. Criteria of good practice in building the entrepreneurial school

<table>
<thead>
<tr>
<th>Criteria of good practice</th>
<th>E360 Case Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial education is present in all subjects.</td>
<td>• Alakylän Koulu (Finland)</td>
</tr>
<tr>
<td></td>
<td>• Koninklijk Technisch Ateneum (Netherlands)</td>
</tr>
<tr>
<td></td>
<td>• Peetri basic school (Estonia)</td>
</tr>
<tr>
<td>The school offers entrepreneurial education progressively to all learners.</td>
<td>• Veljko Drobnjaković (Montenegro)</td>
</tr>
<tr>
<td></td>
<td>• Alakylän Koulu (Finland)</td>
</tr>
<tr>
<td>Entrepreneurial education is an integral part of the school's identity, ethos and culture.</td>
<td>• Highfurlong (UK/England)</td>
</tr>
<tr>
<td></td>
<td>• Alakylän Koulu (Finland)</td>
</tr>
<tr>
<td>Incentives are in place for teachers to engage in entrepreneurial education.</td>
<td>• Veljko Drobnjaković (Montenegro)</td>
</tr>
<tr>
<td></td>
<td>• VET school Murau (Austria)</td>
</tr>
<tr>
<td>Learners can choose part of their courses, either as</td>
<td>• Internatsschule Schloss Hansenberg (Germany)</td>
</tr>
</tbody>
</table>
extra-curricular activities or as electives.

- San Jose de Calasanz Ikastetxea (Basque/Spain)

There is a leader or a leading team that sustains and promotes entrepreneurial education.

- Alakylän Koulu (Finland)
- Veljko Drobnjaković (Montenegro)

The importance given to entrepreneurial education is widely communicated within the school.

- Highfurlong (UK/England)
- Lenné Gesamtschule Potsdam (Germany)

The importance of entrepreneurial education in the school is widely communicated with partners and the local community.

- Highfurlong (UK/England)
- Landesgymnasium für Hochbegabte Schwäbisch Gmünd
- Drivkraft Söderhamn (Sweden)

The importance of entrepreneurial education is widely communicated with parents.

- Highfurlong (UK/England)
- Alakylän Koulu (Finland)

Cooperation of learners across classes is encouraged.

- Internatsschule Schloss Hansenberg (Germany)
- Alakylän Koulu (Finland)

Building effective educational links beyond classrooms

Open and continuing debates, involving parents, education partners, other teachers, school management, and students are crucial for the establishment of a common understanding of entrepreneurship and adequate learning environments. They are also a good starting point to build educational links with the surrounding world.

With the aim of making education more relevant and effective, the entire school gets connected with its surrounding world. Every school has a unique ecosystem, which involves different actors with their expectations and resources. Bringing all this together into an effective education system, which reflects issues of societal and local relevance, requires a concerted approach of school management, teachers, parents and partners, and the involvement of students to make education relevant. In this the role of support organisations, which provide assistance to schools in can help schools to successfully connect with the surrounding world.

Table 5 presents what constitutes good practice in building and maintaining educational links with the local community, civil society and entrepreneurs. The reader is pointed to (OECD 2015) for a discussion of the rationale and current practice applications of the criteria.

Table 5. Criteria of good practice in connecting with the surrounding world

<table>
<thead>
<tr>
<th>Criteria of good practice</th>
<th>E360 Case Studies</th>
</tr>
</thead>
</table>
| The school knows the actors of its local environment, their respective roles, interactions and potentials for collaboration. | - San Jose de Calasanz Ikastetxea (Basque/Spain)  
- Veljko Drobnjaković (Montenegro)  
- Evangelisches Ratsgymnasium (Germany) |
| The school actively shapes a positive image towards its local environment and seeks regular feedback about how this image is perceived. | - Alakylän Koulu (Finland)  
- Anatolia College IBDP (Greece)  
- Landesgymnasium für Hochbegabte Schwäbisch Gmünd |
| The school has established relationships with a variety of external actors that provide useful and valuable contributions to education. Teachers take a leading role in this. | - San Jose de Calasanz Ikastetxea (Basque/Spain)  
- Internatsschule Schloss Hansenberg (Germany)  
- Transport Academy (Slovak Republic) |
Partners are involved in the design and delivery of entrepreneurial education activities, in the definition of learning outcomes and in assessment.

- Academy of Lilles (France)
- Evangelisches Ratsgymnasium (Germany)
- Drivkraft Söderhamn (Sweden)

Learning spaces are available for collaborative activities of learners, teachers and partners.

- Anatolia College IBDP (Greece)
- Alakylän Koulu (Finland)

Building sustainable resources for entrepreneurial education

Time is a key resource for entrepreneurial education. It takes time to adjust to new ways of thinking and teaching and to build more cross-subject synergies. It also takes time for teachers and school managers to change professionally related perceptions and attitudes. In particular, for teachers not having enough time to try out new teaching styles and education designs, to evaluate and re-design them before they are formally added to the teaching requirements is a common concern. This does not necessarily mean the need for extra time. As Sagar (2015) pointed out, what counts is to have the flexibility to prioritise the time given both individually as well as collectively. Here, organisational changes can facilitate synergies across different subjects and cohorts and with the surrounding world. Time, in this sense, together with pedagogical discussions, peer learning and continuous professional development can enhance teacher growth in entrepreneurial education.

Adopting an entrepreneurial education design will require teachers to change some of the above mentioned knowledge bases, such as for example, classroom management, pedagogical content knowledge, which brings together content and pedagogy, and the knowledge of the philosophical and historical grounds of educational ends, purposes and values. Teacher change is highly individual and should thus have individually tailored objectives. Also, effectiveness as well as the pace and paths of growth will vary amongst trained teachers, even when the external domain of change for them is the same or very similar.

Table 6 presents good practice criteria in building sustainable resources for entrepreneurial education. The criteria are explained in terms of their rationale and current practice application in the Guidance Note for Teachers and School Managers (OECD 2015).

### Table 6. Criteria of good practice for sustainable resources for entrepreneurial education

<table>
<thead>
<tr>
<th>Criteria of good practice</th>
<th>E360 Case Studies</th>
</tr>
</thead>
</table>
| The education policy framework provides enough flexibility for schools to organise novel approaches in education. | Veljko Drobnjaković (Montenegro)  
Alakylän Koulu (Finland)  
San Jose de Calasanz Ikastetxea (Basque/Spain) |
| The school manager has created an atmosphere, in which teachers feel confident to experiment and develop own projects. | Veljko Drobnjaković (Montenegro)  
Internatsschule Schloss Hansenberg (Germany)  
Academy of Lilles (France) |
| Sufficient and stable financial and human resources are available for entrepreneurial education. | Highfurlong (UK/England)  
Alakylän Koulu (Finland) |
| There is flexibility to allow for extra time for pedagogical discussions dedicated to entrepreneurial education. | Veljko Drobnjaković (Montenegro)  
VET school Murau (Austria) |
| Modern technology resources are used in education. The school supports teachers to use digital learning materials and open educational resources. | Internatsschule Schloss Hansenberg (Germany)  
San Jose de Calasanz Ikastetxea (Basque/Spain) |
| Professional development and training are available for teachers who are interested in entrepreneurial education | VET school Murau (Austria)  
ESE-IPVC (Portugal) |
|---|---|
| Good quality teaching and learning materials are available for entrepreneurial education. | VET school Murau (Austria)  
Landesgymnasium für Hochbegabte Schwäbisch Gmünd |
| Collaboration for teachers across subject and education levels is facilitated to teacher peer learning. | Alakylän Koulu (Finland)  
San Jose de Calasanz Ikastetxea (Basque/Spain) |
| Team building of committed and sceptical teachers is facilitated. | ESE-IPVC (Portugal)  
Highfurlong (UK/England) |
REFERENCES


Case studies


Alakylän Koulu (Finland), Entrepreneurship360 case study, http://www.oecd.org/site/entrepreneurship360/home/.

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Veljko Drobnjaković (Montenegro), Entrepreneurship360 case study, 
http://www.oecd.org/site/entrepreneurship360/home/.

VET school Murau (Austria), Entrepreneurship360 case study, 
http://www.oecd.org/site/entrepreneurship360/home/.
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