

Entrepreneurial Learning and Teaching

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Abstract

Entrepreneurship is defined as a central educational competence in an EU context, being one of the eight key competences in the European framework for lifelong learning (European Union 2006).³ Furthermore, entrepreneurship has become an important element of school curricula in many European countries. Entrepreneurial education focuses on the one hand on teaching entrepreneurship – in a sense of founding and managing enterprises – and the other hand on developing an entrepreneurial mindset within the meaning of life skills. The article shows in two theory based examples, how entrepreneurial thinking and acting can be lived and supported as integrative element in all subjects.

Zusammenfassung

Die EU definiert Entrepreneurship als zentrales Bildungsanliegen und legt dieses als eine der acht Schlüsselkompetenzen im europäischen Rahmen für Lebenslanges Lernen (European Union 2006) fest. Darüber hinaus wurde Entrepreneurship ein wichtiger Bestandteil von Lehrplänen in vielen europäischen Ländern. Entrepreneurial Education fokussiert einerseits das Lehren von Entrepreneurship – wie beispielsweise Unternehmensgründung und Management – und andererseits die Entwicklung einer unternehmerischen Geisteshaltung im Sinne des Erwerbs von Lebenskompetenzen (Life Skills). Im Artikel wird anhand von zwei theoriebasierten Beispielen aufgezeigt, wie unternehmerisches Denken und Handeln als integrativer Bestandteil in allen Unterrichtsfächern gelebt und gefördert werden kann.

Keywords:

Entrepreneurial Education
 Didactic Model
 Learning Process
 Life Skills
 Technical Schools

Schlüsselwörter:

Unternehmertum
 Didaktisches Modell
 Lernprozess
 Life Skills
 Technische Schulen

1 Introduction

Entrepreneurship is regarded a major engine for economic growth and job creation (Wong & al., 2005). The increasing complexity and uncertainty within globalised economic and social environments demands entrepreneurial competencies in people and organisations (Gibb, 2002). Entrepreneurial activities also have effects on students' as well as employees' engagement and motivation in both education (Surlemont, 2007) and in work life (Amabile & Kramer, 2011). Finally, entrepreneurial education is seen as a means to empowering people and organisations to create social value for the public good (Volkman & al., 2009).

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³ European Union. 2006. The Key Competences for Lifelong Learning – A European Framework is an annex of a Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning that was published in the Official Journal of the European Union on 30 December 2006/L394.

Within the context of education, an entrepreneurial mindset could be perceived as a means to enhance interest, joy, engagement and creativity among students (Lackéus, 2013). Furthermore, entrepreneurial education can contribute to increase perceived relevancy of subjects taught among learners, motivation and engagement, and alleviate problems of student boredom and dropout (Deuchar, 2007; Surlemont, 2007).

There is growing interest among young people to engage in tackling societal challenges (Youniss & al., 2002). “Social entrepreneurship” as a promising starting point and integral part of curricula (Tracey & Phillips, 2007) can foster deep learning and put theoretical knowledge to practical work in meaningful contexts for students.

There are substantial arguments for an entrepreneurial education. This article answers the question, how a learning and teaching environments on different levels, as are classroom, school and curricular, can foster entrepreneurial competences. After defining entrepreneurial education, the second chapter describes a learning and teaching model, conducted by the European project YEDAC (Young Entrepreneurship Developing in Action). The main goal of YEDAC was to implement entrepreneurial education in all subjects. The third chapter shows a more specific access to entrepreneurial education in technical schools in Austria. There, entrepreneurial teaching can be seen as an intersectional approach: How to learn entrepreneurship is how to fill an empty shell as complex and multi-faced as the people are who do so.

1.1 Defining Entrepreneurial Education

Gartner (1990) defines entrepreneurship as a characteristic of entrepreneurial individuals creating innovative organisations that grow and create value, either for the purpose of profit or not. Using a constructivist approach, Bruyat and Julien (2001) link, over time, the entrepreneur to the value created, the environment within which it takes place, the entrepreneurial process itself.

Entrepreneurship occurs not solely from the entrepreneur, but is as much about the change and learning that the individual entrepreneur experiences by interacting with the environment as the change and value creation the entrepreneur causes through his actions. Thus, learning and value creation are two critical aspects of entrepreneurship, making this conception better aligned with the learning-focused aims of educational institutions than other definitions of entrepreneurship. Entrepreneurial competencies will be developed by letting students try to create value to stakeholders, regardless of whether successful value creation is being achieved or not. “Learning-by-creating-value” has been proposed to label this approach grounded in the field of entrepreneurship (Lackéus & al., 2013). Following this definition, entrepreneurial education uses pedagogical intervention to let students learn to create value for other people (own group and teachers excluded). This can either be achieved by actual value creation for other people as formal part of the curriculum (a preferred teaching “through” approach), or by learning about how to create value to other people (a less effective teaching “about” approach).

1.2 Understanding in the European Union

The 2012 Eurydice report (EACEA/Eurydice, 2012) identifies a “sense of initiative and entrepreneurship” as one of eight key competences, based on the 2006 (European Parliament and Council, 2006) Recommendation of the European Parliament and the Council on Key Competences for Lifelong Learning:

“Sense of initiative and entrepreneurship refers to an individual's ability to turn ideas into action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. This supports individuals, not only in their everyday lives at home and in society, but also in the workplace in being aware of the context of their work and being able to seize opportunities, and is a foundation for more specific skills and knowledge needed by those establishing or contributing to social and commercial activity. This should include awareness of ethical values and promote good governance.” (European Parliament and Council, 2006)

Different ways can be identified how countries have integrated entrepreneurship education into the curriculum. It is increasingly recognised as a cross-curricular goal in primary education, but most commonly taught in upper secondary education. It is often integrated in other subjects, namely in social sciences, economics and business. Also, it is often taught as a separate subject, sometimes within optional subjects. Entrepreneurship education is less likely to reach all students when taught in optional subjects, and where it is not a cross-curricular theme. (EACEA/Eurydice, 2016, p. 12)

2 YEDAC – Young Entrepreneurship Developing in Action

The YEDAC⁴ project, funded by the European Commission under the Competitiveness and Innovation Framework Programme (CIP), was implemented from 2012 to 2015. The main goal of the YEDAC project was to develop a trans-European frame definition of the key competence “personal initiative and entrepreneurship”. Based on this definition, a European didactic model was designed, claiming to develop students’ skills and methods in applying entrepreneurial learning to different teaching subjects and to different contexts in daily classroom settings. The expectation was that entrepreneurial education does not only enhance entrepreneurial competences, but also supports the students’ academic development in general. To meet this expectation, the YEDAC models have been developed to assure and enable the teachers in their planning and practicing of entrepreneurial education.

The target group were students on secondary level (age 13 to 16), teachers, teacher trainers and policy makers. A further aim was to integrate the model into national curricula. Therefore, all partners in six countries⁵ conducted teacher trainings and a pilot for entrepreneurial workshops in classes. Additionally, each partner invited a regional consulting team, consisting of representatives being successful in economics, education and policy. That should secure the dissemination of the results on one hand, and provide insights into real-world economy and entrepreneurship on the other hand.

Based on a European knowledge management system, existing successful national models as well as methods and experiences of the project partners were integrated. Teachers and students personal initiative, entrepreneurship and networking should be encouraged either by international cooperation facilitated by electronic learning platforms, social media or face-to-face meetings. A website providing documents on theoretical backgrounds, project information and a toolbox for teachers was created. Materials for the participants were produced as dynamic E-books, consequently they were printed in practical handhelds as method cards and a handbook. At last, YEDAC policy recommendations were presented to an auditorium of European stakeholders in Brussels.

2.1 Entrepreneurial Learning

The process model of entrepreneurial education (Bessant & Tidd, 2011) describes the phases of setting goals in the entrepreneurial context. These phases are recognizing an opportunity, finding resources, developing a venture, and creating value. Entrepreneurial goals in the context of availability or scarcity of resources, talent, opportunities, infrastructure and support are additionally profoundly affected by the education, training experience and aptitude of individuals as Bessant and Tidd have clarified.

The learning outcomes that have been identified in the YEDAC project, are based on literature, and also on the conclusions derived from focus group discussions. The following table shows the comparisons between the learning outcomes of the YEDAC project and the phases described by Bessant and Tidd.

⁴ <http://www.yedac.eu/>

The learning outcomes of the YEDAC project	The phases of setting the entrepreneurial goals (Bessant & Tidd, 2011)
To take initiatives To communicate in different contexts To search and take opportunities	Recognising an opportunity
To sell ideas To take risks and responsibility	Finding resources
To turn ideas into action	Developing a venture
To create value-added products or services	Creating value

Table 1: The comparison between the learning outcomes identified in the YEDAC project and the phases of setting the goals described by Bessant & Tidd

The development of a process model for entrepreneurial education is based on the LbD (Learning by Development) model (Raj 2007; 2013) that describes all the phases leading to achieve new competences as new ways of action.

The process includes

- reflecting on the meanings of previous research findings and solutions;
- predictive recognition and description of processes related to the project, which makes possible both an abductive hypothesis (an initial presumption based on prior clarifications, facts and discoveries) and a personal curriculum;
- acquiring tools that are existing theories and models, subject related concepts, and instruments for acting;
- acting together, which encompasses the creation of new habits of action and problem-solving skills;
- continuous evaluation of the project and personal learning process (the consequences of activities);
- reflecting on shared experiences and creating new meanings, recognising and evaluating achieved competence;
- assessing the impact of the project; and
- sharing, disseminating and productising the outcomes

The activities leading to the achievement of the learning objectives in the LbD are in line with the learning activities identified in the YEDAC project.

The process model is meant to function as a tool in planning and implementing a project-based learning in entrepreneurial education. It aims to clarify the activities that are needed for enabling the achievement of entrepreneurial competences. The workshops within the project have their bases on the identification of participants' activities that enable the achievement of entrepreneurial learning outcomes. The Learning Process Model (Figure 1) starts with teacher preparation. It has been stressed before that the idea is to connect entrepreneurial learning to subject matter learning. That is why throughout all the learning phases at the top there is a reference to subject matter workshops supporting the development of knowledge and skills – to make sure learning is always interdisciplinary. Through all the phases time is provided for reflection, self-evaluation and feedback. The teachers invite the learners to take part in this experience and explain the concept of the key competences. In an entrepreneurship workshop in the exploration phase the entrepreneurial mindset is explored. Thematic workshops focus on issues connected to the subjects and the local environment, researched in partnership between students, teachers and entrepreneurs. The teams select different needs and points of view based on subject matters.

The three workshops in the development phase are organised according to the needs of the learners and their learning process. In idea workshops, students, teachers and entrepreneurs work as partners. Students create and sell new ideas further developed in teams. The ideas with the highest potential are selected and developed through brainstorming, inspiration from others and evaluation. In planning workshops the students develop their ideas further, transfer them into individual learning goals, delegate work, cooperate, use project management tools to allow ideas to turn into products. In production workshops plans are executed and products or prototypes are actually made or services developed. Projects are described in terms of individual learning goals, schedules and roles. Production can be supported by methods like sketching, persona, co-creation and physical prototypes.

In presentation workshops of the third phase students acquire the necessary skills to communicate their ideas and products clearly for teachers and other partners. Presentation techniques include storytelling, user journey, videos and social media. In evaluation workshops the meanings and consequences of the development of projects are reflected in a way that leads to new ways of action and new learning of subject matters. (van Lakerveld & Bauer, 2015, p. 8-9)

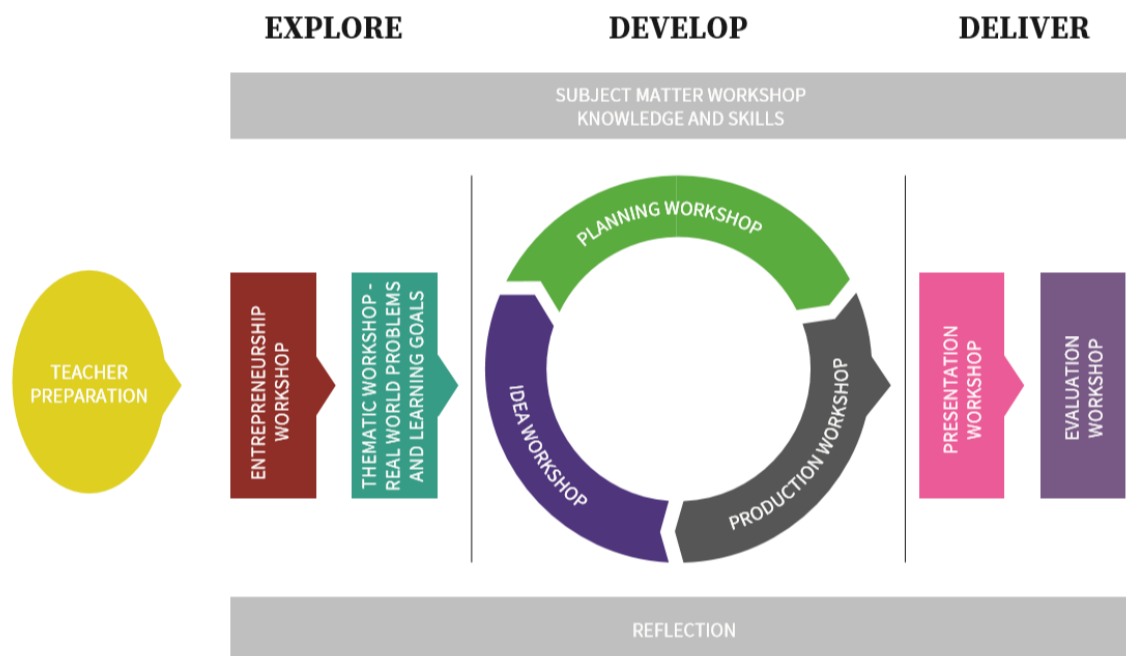


Fig. 1: The process model in entrepreneurial education

2.2 YEDAC – Entrepreneurial Teaching

In the development processes leading to the description of the key concepts and their relationships all the essential elements that are needed in the entrepreneurial education were identified, based firstly on theory knowledge, and secondly on focus group discussions. Knowledge of the theory described above was used as a basis in focus groups discussions. The collected knowledge related to understanding the concept of entrepreneurship as a mindset and a process, the overview of learning theories, the concept of competence as an objective, and the new roles in entrepreneurial education led to identify the key concepts and their relationships in entrepreneurial education.

In the first phase analyzing and categorizing the material related to entrepreneurial mindset as well as the concept of competence led to identify the learning competences in entrepreneurial education as being able to take initiatives, communicate in different contexts, search and take opportunities, sell ideas, take risks and responsibility, turn ideas into action, and create value added products and services. Secondly, discussion material followed by considering learning theories in the context of entrepreneurial education enabled to recognize learning activities that lead to the development of entrepreneurial competences. These include

discovering new ideas, defining a project, networking, acquiring entrepreneurial tools, cocreating, solving problems, experiencing, reflecting on consequences, and developing new ways of action. Thirdly, it was possible to identify a learning environment from very different perspectives such as: an entrepreneurial region, different types of knowledge, entrepreneurial projects, a physical, psychological and virtual environment, workshops and laboratories, and enterprises. Furthermore, it could be seen that the development of entrepreneurial education demands the development of an entrepreneurial culture with the characteristics of participative and transformative leadership, acting together that includes teachers as teams, entrepreneurs, and other stakeholders, as well as learners as equal partners. The key concepts introduce the required elements that together enable the development of entrepreneurial education.

The key concepts explained above were defined in more detail. Based on the concepts of Balanced Scorecard (Kaplan & Norton, 1996; 2001) and realistic evaluation (Pawson & Tilley, 1997) the didactic model was designed. Balanced Scorecard focusses on perceiving the whole system as parts that together form a balanced model. The parts complement each other and fit together to enable the successful movement of the wheels (figure 2). The parts in YEDAC were named learning culture, learning activities, learning environment and learning outcomes (competences). In the development of the didactic model of entrepreneurial education, the draft of the didactic model constructed by applying theories, working hypothesis and expert knowledge is seen as a theory that will be clarified and further developed based on future national pilot experiences. The presented didactic model as a program theory aims to describe what is needed, for whom and under which circumstances.



Fig. 2: The YEDAC Didactic Model

3 Entrepreneurial Education in Austria

Entrepreneurial education can be seen as an intersectional approach: How to learn entrepreneurship is how to fill an empty shell as complex and multi-faced as the people are who do so. Entrepreneurial education in Austria can be considered a challenge. With regard to the sector of the higher technical and vocational schools in Austria, this analysis could be seen as a deconstruction that follows an intersectional contemplation. In response to this complex mixture of influencing factors of educationally – as well as economically-motivated pressures, an intersectional approach faces and finally could resolve a nagging issue.

This discussion is structured into three characteristic dimensions that are analysed on three theoretical levels, namely “Fostering”, “Activating” and “Creating”. By looking at actual data the approach seems to be able to explain the big effect of coeducational influences.

- Firstly, intrapersonal effects are based on the individual’s learning and thinking. This way of teaching and learning is based on scientific findings and is crucial for all further steps and interacting based on brain-plasticity.
- Secondly, a perspective rooted in the coaction between the individual, the educational approach and the economic reality is created. This approach is based on the presence of basic knowledge and openness.
- Thirdly, the created perspectives and competences result in newly-created high potentials. Mentoring, real surroundings and the personal construction are mutually dependent and sketch new arrangements and changes.

3.1 Actual statistic data and the present situation of the curricula of technical schools

In Austria, 347 higher technical and vocational schools (2016, Science in Austria, Statistics) are situated. Thus, this type of school represents 50 % of the Austrian secondary system with a total number of institutions in this section of 693 schools (academic year 2013/14). The educational attainment of the population, aged 25 to 64 years in 2014, shows that a notable rate of 15 % had attended a college for higher vocational education, certificate courses at colleges for higher vocational education, academies, schools for master-craftsmen, foremen or construction trades (Statistics Austria, microcensus-labour force survey 2014).

In 2015, 147.316 students attended this school type. The same year, 25.462 students graduated from this school type. These numbers should emphasize the importance of entrepreneurial education in this sector as well as explain the direct connection to all the challenges and the prosperity of a successful Austrian and European economic approach.

The competence approach in curricula has been encouraged since 2003. Nevertheless, already years before teacher education had been affected by a similar leading idea. Issues had been broken down as indicators. Moreover, the transformation of curricular contents had to be broken down into sophisticated levels. The competence approach rebuilt this view, but explicitly faced the outcome.

According to the curriculum for technical schools, entrepreneurial education is a central part of each subject. However, it is especially focused on in the subject “economics and law”. Graduates have got knowledge and economic competences for self-employment, as well as for higher leveled professions. These competences include skills in basic legal areas, organization and management of enterprises. The chart below shows competences and targets of the subject “economics and law” with reference to the curriculum (Lehrplanpaket der Höheren technischen und gewerblichen Lehranstalten 2015, in der Fassung BGBl. II - Ausgegeben am 17. September 2015 - Nr. 262, p. 1-52).

Issue	Content
Law and State	<ul style="list-style-type: none"> • Understatement of basics of economic, social und public contexts • Civil law, rights and obligations of employees, rules for enterprises, commercial law, civil court proceedings
Accounting, Controlling, Financial economy, Taxes, Wage-tax calculation	<ul style="list-style-type: none"> • Cash-based accounting, flat rate bookkeeping, double entry accounting, annual financial statement • Ratios, reference values, profit and interpretations • Cost accounting, calculation methods, break even analysis • Investment, capital, financial planning, cash flow analysis, capital funding, financial investment • Labor costs, social insurance
Entrepreneurship	<ul style="list-style-type: none"> • Organization, leadership, marketing and strategies, business ideas and establishment of companies, business plan

Table 2: Three main issues of the subject law and economics in technical schools in Austria.

The establishment of “Entrepreneurship” as an independent area proves to be unfortunate. This way, it can only be defined as Entrepreneurship in narrower context while marketing, organization, leadership and establishing strategies are part of business studies as well as the other curricular areas. However, entrepreneurship education needs all these issues because each of them is indispensable.

Graduates are able to explain how marketing instruments work, they can characterize the essential processes in enterprises and describe strengths and weaknesses of different kinds of organizations. Furthermore, they should be able to explain different theories of motivation, to compare different kinds of leadership and apply them according to the economic requirements. However, in addition to these key competences, process learning is essential to linking personal knowledge to economic requirements and incentives. That is the way to increase self-employed acting. School education has to provide an interdisciplinary approach and well based academic openness.

Thus, entrepreneurial education is seen as a means to empowering students to create intra- and interpersonal competences based on the result of learning hard facts and the ability to construct individual creative competences in order to enhance entrepreneurial competences in a sustainable way. It is based on connecting scientific disciplines and networking between teachers and students. Within this context, teachers should ensure motivation and support. This approach includes native and foreign languages, history, mathematics, communication and value-oriented personality development.

3.2 Curricular based knowledge meets activators

But how to measure, how to implement? The great opportunity of entrepreneurial education in technical schools is based on the module-based assessment of performance. At the end of each semester, the evaluated marks of each subject are combined. Cooperative teaching should reflect the meaning of networking. Thus, students learn to look beyond one's own nose and teachers can refer to their colleagues' module topics. Furthermore, the teachers' co-working could generate additional pedagogical benefit.

This way, the importance of education in process continues creating economical and moral competences. People can be encouraged to act responsibly in different economic fields. Austrian entrepreneurs need well educated and courageous decision-makers. The measure of success of allowing modularly-organized processes in technical schools, therefore, is not *that* many teachers work together, but *how* much these teachers improve, and how much better all the students do. The experience could lead to improved results and entrepreneurial mobilisation. Unsuccessful entrepreneurial education means economic failing. The most dramatic dimension in failing could be a demobilisation of people, at the worst it could lead to economic downturn and lost entrepreneurial spirit.

In this context the main terms “Fostering”, “Activating” and “Creating” lead to personalized social economic results. These gains apparently stem from teachers' incentives that affect the behavior of students as well as the society.

Steps in Entrepreneurship Education	Meaning	Personal and social results
Key knowledge, interdisciplinary teaching	Fostering	Learning
Self-dependent learning, constructing key based individual competences	Activating	Constructing
Responsible transformation in economic concepts	Creating	Taking part

Table 3: Three steps in entrepreneurship education in technical schools

At least in principle, therefore, learning and teaching can take place with engaged participants. As shown, education has to be seen as a construction. Regarding the module system of technical schools, the constructivist model of “Chreoden” and “Morpheme” (Kösel, 2002, p. 229) shall be mentioned. This model describes the “drifting” from school habitus to the habitus of the world of work by constructing an individual habitus. Life-patterned teaching easily encourages and provides a systemic economic education. Kösel defines this as a “transversal rationality”. According to this, entrepreneurial education based on science abandons the linear causal approach. Systemic learning is a highly-personalized process of the individual. Learning programs that might deliver long-lasting growth in entrepreneurship success are those that depend on the systemic structuring of the learning individual and its surroundings (drift-zone).

3.3 The intersectional model of entrepreneurship education – creating content for an empty shell

On closer inspection entrepreneurship education in technical schools seems to be particularly future-orientated. Such a process can account for continuing economic and moral progress to the final stage of economic and social development ensuring well educated entrepreneurs. In *Moral Consequences of Economic Growth* Friedman states that education and training are important to people’s economic productivity (all the more so in advanced economies) as individuals differ in their natural aptitudes and energies. Thus, which people receive which kind of education matters for an economy’s growth. (Friedman, 2006, p. 333) Insofar as education is concerned, political institutions should tend to foster educational systems so that they are more extensive and more meritocratic.

As mentioned above, Friedman asserts that education is more than just a matter of basic literacy. According to him, it needs a greater degree of economically productive education across a wider share of the population, thereby developing a broader base of productively educated human resources. Central implication for entrepreneurship education therefore may well constitute the most powerful single way in which a rising standard of living and democracy can be promoted. (Friedman, 2006, p. 336)

This approach of aggrandisement allows the following concept of the intersectional model of entrepreneurial education. The systematic influence of teaching and mentoring, the ability of the plasticity of the individual’s brain-constructing according to its natural aptitudes and energies as well as the possibilities of an economic reality regarding greater room for private incentive and initiative make it attractive.

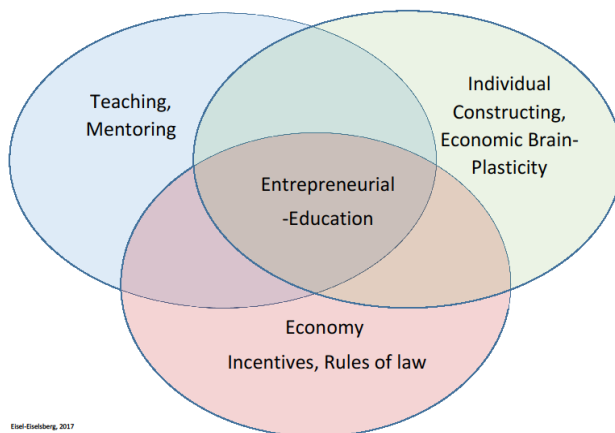


Fig. 3: Intersectional model of entrepreneurship education

Fostering, Activating and Creating always have to focus on three major areas:

- The first area “Teaching, Mentoring” seems to be limited by the curriculum, especially in technical schools. Still, it assures basic knowledge of economics and law that reflects structures of real life.
- The area “Individual Constructing, Economic Brain-Plasticity” is always under construction. Here, the idea of the so called “drift-zone” (by Kösel) could serve as an excellent illustration. The tendencies of interaction lead to new brain-construction and reconstruct an adapted pattern of the recognized.
- The third area, “Economy, Incentives, Rules of law”, represents the influence of real economy. This reality holds on power when governments design curricula, when they adapt law rules and influence the economic activities by money and fiscal policy. It holds on power when the players have the ability to finance investment in their economies by borrowing or attracting foreign capital. It holds on power by creating start-ups and creating new jobs. Maybe it holds on power by regulation to ensure safety of either workers or consumers or to protect the environment.

Therefore, entrepreneurial education is represented as an intersection in the middle of **Error! Reference source not found.** However, the relationship between the three fields means that the development of entrepreneurial education is bounded by consequences of interaction by the players. The point is not to train to achieve a middle level. The point is the acceptance of the importance of how students learn to think and behave in and through the developing world, in already industrialized societies. Entrepreneurial education supports the economic and social development of a society. Economic development heightens people’s awareness of enforcement of income and wealth. The “empty shell of entrepreneurial education” should be filled according to these assumptions in order to guarantee economic education and success.

4 Conclusion

Entrepreneurship is a multidisciplinary competence and, facing the importance of growing information in a digital working world, will have to be approached accordingly. Students will have to be given the opportunity to connect to each other and to people outside the school. The learning process of acquiring an entrepreneurial mindset and competence necessarily includes such connections. Furthermore, many entrepreneurial activities include also an element of production, of prototyping and of experimentation in the sense of innovative value creation. The school will have to provide the rich/powerful learning environment that allows for such initiatives.

As entrepreneurial education is an integrated element in school curricula on secondary level, it is perceived as an effective and easy-to-use pedagogical approach alongside other progressive pedagogies such as research learning, project work, apprenticeship learning etc. Infusing value creation experiences across the entire curriculum can be one of the most important contributions entrepreneurship can make to education in the future. The YEDAC didactic model and its additional materials as well as learning environments in vocational schools, having inherently a close connection to working and professional environments, are options to tackle this claim.

Further research desiderata lie in the development of assessment strategies that can be put to use by teachers in daily practice, allowing for detached and individual assessment of an inherently collective, social and emotional learning process. Therefore, action research can provide a systematical model and methods to fulfil this challenge. Ways to manage and reduce the complexity of entrepreneurial education should be found as well as strategies for embedding creative learning by activity orientation into curricula overloaded with content and theory.

References

- Amabile, T. & Kramer, S. (2011). *The progress principle: Using small wins to ignite joy, engagement, and creativity at work*, Harvard Business Press.
- Bessant, J. & Tidd, J. (2011). *Innovation and entrepreneurship*. John Wiley & Sons, Ltd, United Kingdom.
- Bruyat, C. & Julien, P.-A. (2001). Defining the field of research in entrepreneurship. *Journal of Business Venturing*, 16, 165-180.
- Deuchar, R. (2007). *Citizenship, enterprise and learning: Harmonising competing educational agendas*, London, Trentham Books.
- European Parliament and Council (2006). *The European Reference Framework of Key Competences for Lifelong Learning*. 2006/962/EC
- European Commission/EACEA/Eurydice (2016). *Entrepreneurship Education at School in Europe*. Eurydice Report. Luxembourg: Publications Office of the European Union.
- Friedman, B. (2006). *The moral consequences of economic growth*. First vintage book edition.
- Gartner, W. B. (1990). What are we talking about when we talk about entrepreneurship? *Journal of Business Venturing*, 5, 15-28.
- Gibb, A. (2002). In pursuit of a new 'enterprise' and 'entrepreneurship' paradigm for learning: creative destruction, new values, new ways of doing things and new combinations of knowledge. *International Journal of Management Reviews*, 4, 233-269.
- Kaplan, R.S. & Norton, D.P. (2001). *The Strategy focused organization. How Balanced Scorecard companies thrive in the new business environment*. Harvard Business School Press, Boston.
- Kaplan, R.S. & Norton, D.P. (1996). *The Balanced Scorecard, Translating Strategy into Action*. Harvard Business School Press, Boston.
- Lehrplanpaket der Höheren technischen und gewerblichen Lehranstalten 2015, in der Fassung BGBl. II - Ausgegeben am 17. September 2015 - Nr. 262
- Kösel, E. (2002). *Die Modellierung von Lernwelten, Band I. Die Theorie der Subjektiven Didaktik*, Bahlingen: SD Verlag für Subjektive Didaktik.
- Lackéus, M., Lundqvist, M. & Williams Middleton, K. (2013). *How can Entrepreneurship Bridge Between Traditional and Progressive Education?* ECSB Entrepreneurship Education Conference. Aarhus, Denmark, 29–31 May 2013.
- Lackéus, M. (2015). *Entrepreneurship in Education. What, Why, when, how*. Entrepreneurship 360. Background Paper
- Pawson, R. & Tilley, N. (1997). *Realistic evaluation*. London: Sage.
- Raij, K. (2007). *Learning by Developing*. Laurea Publications A-58, Laurea University of Applied Sciences.
- Raij, K. (2013). *Learning by Developing in Higher Education*. *Journal of Education Sciences*. Issue II, 6 – 21.

- Surlemont, B. (2007). Promoting enterprising: a strategic move to get schools' cooperation in the promotion of entrepreneurship. In: Fayolle, A. (ed.) Handbook of Research in Entrepreneurship Education: Contextual perspectives. Cheltenham, UK: Edward Elgar.
- Tracey, P. & Phillips, N. (2007). The distinctive challenge of educating social entrepreneurs: A postscript and rejoinder to the special issue on entrepreneurship education. *Academy of Management Learning & Education*, 6, 264-271.
- Volkman, C., Wilson, K.E., Mariotti, S., Rabuzzi, D., Vyakarnam, S. & Sepulveda, A. (2009). Educating the Next Wave of Entrepreneurs - Unlocking entrepreneurial capabilities to meet the global challenges of the 21st Century. Geneva: World Economic Forum.
- Wong, P.K., Ho, Y.P. & Autio, E. (2005). Entrepreneurship, innovation and economic growth: Evidence from GEM data. *Small Business Economics*, 24, 335-350. Young.
- Youniss, J., Bales, S., Christmas-Best, V., Diversi, M., McLaughlin, M. & Silbereisen, R. (2002). Youth civic engagement in the twenty-first century. *Journal of research on adolescence*, 12, 121148.

Sources from internet:

- Raij, K., Munkholm Davidsen, H., van Lakerveld, J., Bauer, Ch. & Skovmand, K. (2014). YEDAC. Theoretical background http://www.yedac.eu/media/4190/Theoretical-background_v2.pdf retrieved 25.10.2017
- Science in Austria, Statistics (2016). Bundesministerium für Wissenschaft, Forschung und Wirtschaft https://wissenschaft.bmfwf.gv.at/fileadmin/user_upload/wissenschaft/publikationen/BM_WFW_Wissenschaft_2016_WEB.pdf retrieved 25. 10. 2017
- van Lakerveld, J. & Bauer, Ch. (2015). Teacher Guidelines. Compiled, authored and edited using material from the Yedac-project and texts http://www.yedac.eu/media/6363/1210_teachersguideline_01.pdf retrieved 25. 10. 2017