

# Promoting Cross-Border Entrepreneurial Competence

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## Abstract

As a result of increasing globalisation, universities are being confronted by the challenge of adapting their teaching standards to meet the demands of a more dynamic labour market. Entrepreneurship education provides an important contribution to improving students' entrepreneurial competencies and stimulating innovative work behaviour. Based on the current state of research, as well as on the results of an empirical comparative study at partner institutions of applied sciences, this article describes how the internationalisation of curricula with regards to the academic teaching of entrepreneurship and the promotion of entrepreneurial competence can be structured. An online survey of students carried out within the framework of an EU project, as well as joint class observations, revealed some important differences in study-related matters, which emphasises the need for stronger cooperation in terms of cross-border employability. With regards to the promotion of entrepreneurial thinking and behaviour, it appears appropriate to intensify the use of case-based instructional designs within teaching standards, to extend the supportive offers to students and to enable engagement with entrepreneurship in various courses of studies.

**Keywords:** entrepreneurship education, entrepreneurial competencies, university teaching standards, cross-border cooperation.

## Introduction

Against the backdrop of increasing globalisation, universities are facing a major challenge in terms of adapting their teaching to the fluctuating conditions of the open EU labour market. Particularly in the European border regions, where many people commute across borders, it seems necessary to develop common academic standards for some disciplines in cooperation with foreign education institutions in order to increase mobility and further develop the European labour market. Within this context, there is great potential in the teaching of entrepreneurship, which can make an important contribution to the ability of students to carry out their own entrepreneurial activities (entrepreneurship)

and stimulate innovative work behaviour (intrapreneurship, Messmann and Mulder 2012) independent of cultural differences in companies (Krämer 2007; Schmette 2007).

In addition to imparting business management expertise (e.g. start-up financing, choice of legal form, human resources management), the tasks involved in the teaching of entrepreneurship include increasing interest in entrepreneurship and promoting entrepreneurial thinking and behaviour (e.g. recognising and assessing opportunities and risks, conflict management, building up and using networks). In this respect, the teaching of entrepreneurship requires a combination of experience-based learning, the strengthening of entrepreneurial competence and support for unconventional ways of thinking (Wilson 2008).

In January 2017, a joint three-year EU project entitled "Entrepreneurial Competencies in the Czech-Bavarian Labour Market" was launched by the Ostbayerische Technische Hochschule Regensburg (OTH) and The Institute of Technology and Business in České Budějovice (VŠTE) with the long-term goal of strengthening the academic teaching of entrepreneurial thinking and behaviour. The focus of the project is on cooperation in the area of start-up qualification and the ability of companies to innovate, the internationalisation of curricula for entrepreneurship education and an increase in cross-border employability in the open labour market (Caha et al. 2017).

Based on the theories of the origin of entrepreneurial intention (Aldrich and Cliff 2003; Becker 1993; McClelland 1961, 1987; Ajzen 1991), the findings of interest (Krapp and Prenzel 2011) and competence research (Biggs and Tang 2011; Mandl and Hense 2004; Müller 2013; Renkl 2015; Weinert 2001) and the findings of empirical studies (e.g. Audretsch et al. 2016; Barnir, Watson and Hutchins 2011; Brandstätter 2011; Brännback and Carsrud 2017; Heinrichs 2016; Heinrichs and Jäcklin 2017), an attempt has been made in this article to analyse the basic entrepreneurial competencies that can be effectively promoted within an academic context.

The competence model of entrepreneurial thinking and behaviour published by Mandl and Hense (2004) hereby serves as a basis. In accordance with the aim to identify relevant differences in study-related matters at both cooperating institutions of applied sciences, an online survey of students was conducted within the framework of the project. In addition, modules were analysed and classes observed in order to obtain detailed information about the didactic concept for the mediation of entrepreneurial thinking and behaviour (Caha et al. 2017).

This article initially focuses on entrepreneurial thinking and behaviour from the perspective of the applied didactic methods at universities. Against the backdrop of the Bologna reforms and as a fundamental source for the survey conducted, both the concept of competencies of Weinert (2001) and the model of entrepreneurial competencies of Mandl and Hense (2004) will be explained. Based on this, the aims of the study will be set out and the methodological procedure documented. Both the examined random sample and the results of the questionnaire survey will be described. In addition, the analyses

carried out for the study will be examined. Subsequently, the results of the conducted study will be commented on extensively, including their implications for didactic practise

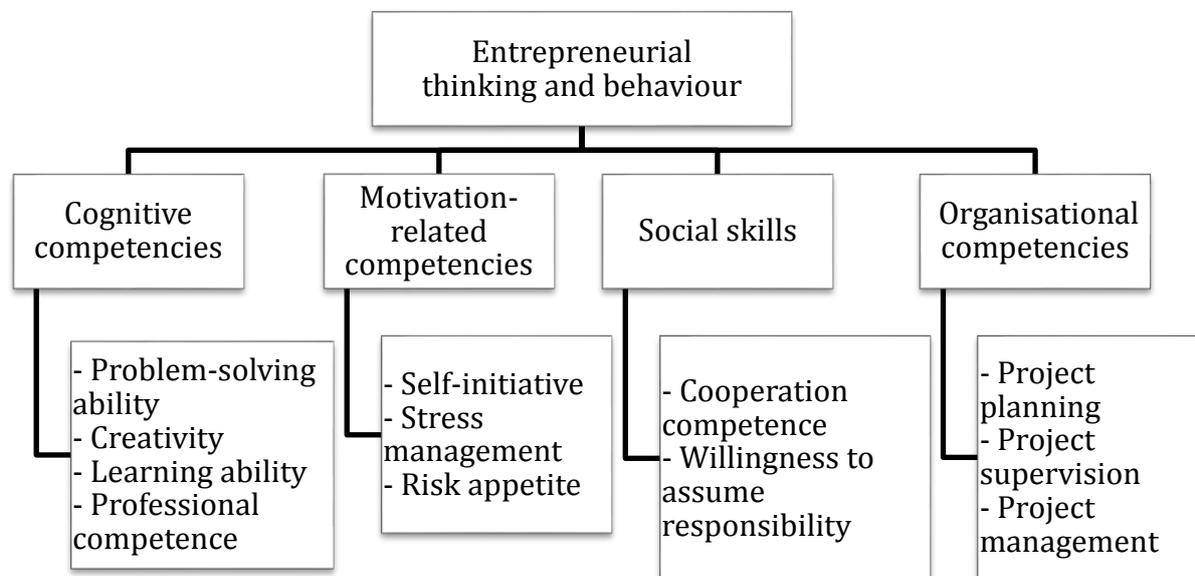
### **Entrepreneurial thinking and behaviour from the perspective of the applied didactic methods at educational institutions**

The establishment of a single European Higher Education and Research Area is one of the central objectives of the Bologna Process. A necessary prerequisite for this comparability, however, is the transparency of the learning outcomes to be achieved with a degree (Hawelka 2013). Transnational standards for learning objectives motivate students to take up study programmes or internships abroad. They also make it easier for them to change universities and to position themselves in the common labour market. The desired, clearly formulated learning outcomes are the basis for the planning of a course of study, as well as for the (further) development of it.

With this in mind, the first stage of this study was to determine a definition of entrepreneurial competence and identify its subcomponents. The focus was on entrepreneurial skills and abilities that can be successfully promoted within an academic context. The definition of competence used in this article is based on that of Weinert (2001), who regarded competencies as being "all the cognitive abilities and skills needed to solve certain problems, as well as the associated motivational, volitional and social readiness and abilities to successfully and responsibly use problem solving in variable situations" (p. 27).

Mandl and Hense (2004) understand entrepreneurial thinking and behaviour to be a combination of different sub-competencies (see Figure 1). In accordance with this definition, Heinrichs (2016) also distinguishes between cognitive, motivational, emotional and volitional aspects of entrepreneurial competence, which are necessary to cope successfully with crisis situations in everyday business life.

Figure 1: Competence model of entrepreneurial thinking and behaviour



Source: Mandl and Hense 2004, p. 9.

Self-reflection, experience (Gruber, Harteis and Rehr 2006) and the opportunity to learn from one's own mistakes (Harteis, Bauer and Gruber 2008) also make a significant contribution to the development of entrepreneurial thinking and behaviour. Overall, within entrepreneurship education, didactic approaches are moving away from being instructional towards creating an activity-based learning environment (this can be seen as a displacement from “learning about” to “learning for”, Rae 2010). However, the effects of the educational measures have not been sufficiently examined yet. A few studies including the pretest-posttest-design and a control group were conducted, for example, by Peterman and Kennedy (2003) and by Souitaris, Zerbinati and Al-Laham (2017). Both studies proved that attending an educational teaching session on entrepreneurship significantly strengthens entrepreneurial intentions.

Furthermore, Weber, von Graevenitz and Harshoff (2009) established proof of the positive effects of the perceived attractiveness and enforceability of forming a business. A research team led by Heinrichs (Heinrichs 2016; Heinrichs and Jäcklin 2017) developed a case-based learning environment (critical incidents in the form of vignettes) which was subsequently implemented and evaluated. The starting point for the conception of a new learning environment was based on the fact that not only “sense of success”, but also “sense of failure” should be transmitted (Oser and Volery 2012). The evaluation results revealed a significant improvement in entrepreneurial knowledge ( $p = .004$ ,  $d = 0.96$ ,  $N = 20$ ,  $M_1 = 3.83$ ,  $SD_1 = 1.07$ ,  $M_2 = 4.46$ ,  $SD_2 = 0.63$ ) as well as a significant increase in entrepreneurial self-efficacy ( $p = .025$ ,  $d = 0.35$ ,  $N = 20$ ,  $M_1 = 4.11$ ,  $SD_1 = 0.99$ ,  $M_2 = 4.52$ ,  $SD_2 = 0.84$ ) (Heinrichs 2016; Heinrichs and Jäcklin 2017).

## **Methods and Data**

The teaching of entrepreneurship can significantly strengthen the development of entrepreneurial intention as well as entrepreneurial thinking and behaviour. Since a firm intention only arises through the interactions between an environment and a person (Estay, Durrieu and Akhter 2013), it is necessary to not only examine the contextual conditions, but also the personal characteristics of the students.

With this in mind, a cross-domain online student survey was conducted at both institutions of applied sciences. The questions focused, on the one hand, on the contextual conditions (e.g. the possibility of specialising in entrepreneurship, the existing offers for those interested in setting up a business) and, on the other hand, on the relevant personal characteristics (e.g. interest in entrepreneurship, management motivation). The aim of the survey was to identify relevant differences between the German and Czech academic environments and in the personal characteristics of the German and Czech respondents.

In addition, the modules of the business degree programmes in which entrepreneurship can be selected as a major field of study were analysed with regards to the promotion of entrepreneurial competence. Conclusions were drawn about the teaching of relevant entrepreneurial skills, thereby taking into account the learning objectives in relation to the teaching methods used and the types of examinations set (constructive alignment approach, Biggs and Tang 2011).

Furthermore, joint class observations were undertaken at the partner institutions of applied sciences on the basis of an observation guide. The aim of the observations was to compare the existing didactic approaches to teaching entrepreneurial thinking and behaviour.

### **Survey of students**

As previously mentioned, a non-experimental cross-sectional field study (questionnaire survey) was planned and conducted during the summer semester of 2017 in order to verify the above-mentioned objective. Details of the web-based survey of students follow below.

#### *Description of the random sample*

The data acquisition took place simultaneously at both institutions of applied sciences through an online questionnaire. In total, 132 students participated in the survey ( $N = 132$ ). At the time of the data acquisition, 57.6% of the respondents were enrolled at VŠTE and 42.4% at OTH. Of the respondents, 66.7% were female and 33.3% male. The majority of the respondents (84.2%) were aged 18 to 24 years. At the time of the data acquisition, 63.6% of the respondents were studying business administration.

#### *Survey materials*

H In order to identify relevant differences between German and Czech students, both features of the academic environment and relevant personal characteristics were

included in the online questionnaire. The main focus hereby was on variables which could contribute to the formation of entrepreneurial intentions. The *academic environment* regarding the promotion of entrepreneurial thinking and behaviour was operationalised through the use of a scale ( $\alpha = .84$ ) consisting of 14 items (exemplary item: “The atmosphere at my institution of applied sciences is inspiring me to develop business ideas for my own enterprise”). An abbreviated and adapted version of the corresponding scale of the Global University Entrepreneurial Spirit Students' Survey (Bergmann and Golla 2016) was used for this purpose. For the students' survey on *entrepreneurial knowledge*, a scale consisting of 10 items was used ( $\alpha = .82$ , exemplary item: “Please assess your previously acquired competencies in establishing a business”) (Bergmann and Golla 2016). In order to measure the subject-specific *interests* of students in entrepreneurship, an adapted and abbreviated questionnaire regarding the interest of study (Schiefele et al. 1993) was used. The scale consisting of three items takes into consideration personal value-oriented valences, as well as the intrinsic character of interest ( $\alpha = .80$ ; exemplary item: “It is very important to me that I can attend entrepreneurship classes”). In order to measure the *interest in leadership*, the interest in leadership scale of Nicholson and Arnolds (1991) was used. The scale, which consists of five items, measures on a seven-point Likert-scale the interest in assuming management responsibly ( $\alpha = .83$ ; exemplary item: “I want to lead employees”).

### *Analysys*

The statistics programme IBM SPSS 24 was used for the analyses. First of all, fundamental analyses of the scales were carried out for the control of distributional assumptions, as well as to verify reliability and validity. Various descriptive analyses were subsequently realised and the assessment of differences in mean values examined using Mann-Whitney U-tests and a t-test.

### **Joint class observations**

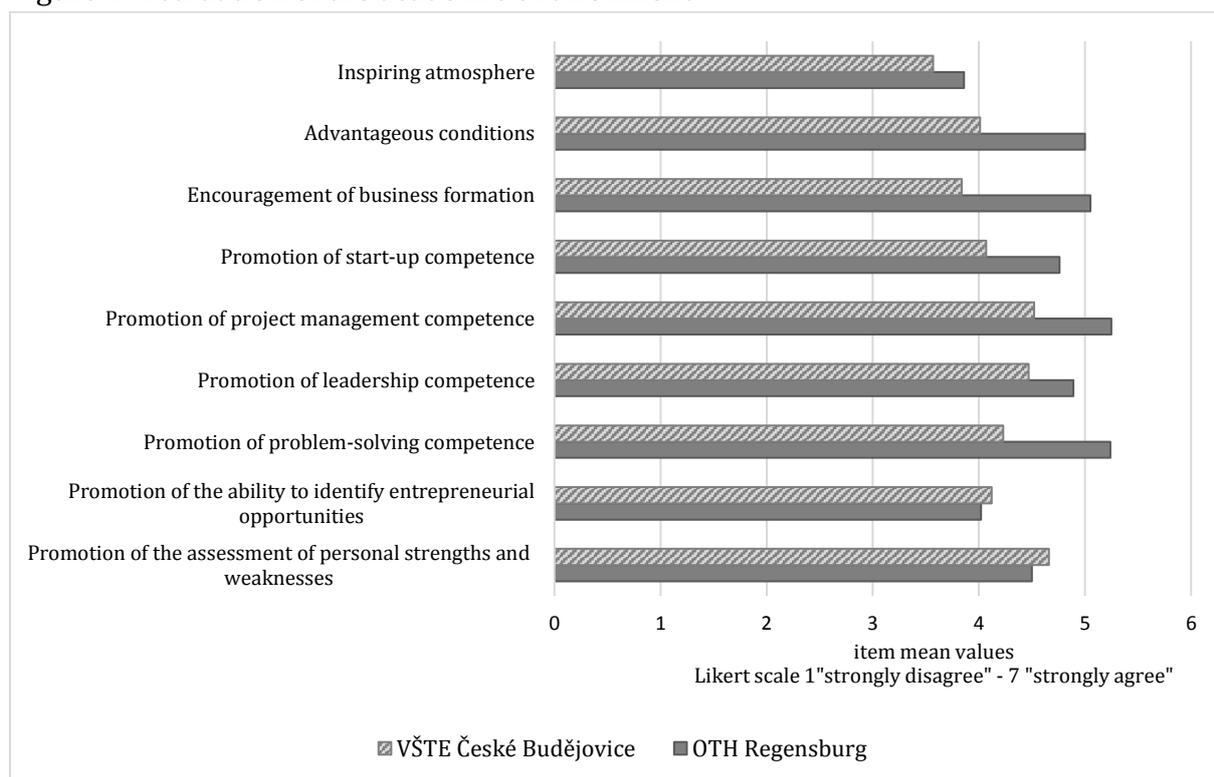
The joint class observations were carried out by two observers based on the approved observation guide of May 2017. The observation guide was developed on the basis of the category scheme for the analysis of qualitative data from the Teaching Analysis Poll. The applied categories are based on the empirically verified aspects of good higher education teaching e.g. interaction management, explicit objectives, the facilitation of experiencing autonomy and competence, and the promotion of learning strategies (Hawelka 2017). The categories were evaluated independently by two observers after every teaching session in written form and subsequently compared.

### **Results**

Firstly, an analysis was performed of the entrepreneurial intentions of the students. Only 3.6% of the respondents of OTH ( $N = 56$ ) stated that they would seek business succession directly after graduating. Furthermore, at the time of the survey, none of the respondents at OTH could imagine establishing their own company immediately after graduating. In

contrast, 11.0% of the respondents at VŠTE ( $N = 73$ ) could. However, students were more open to business succession or establishing their own companies (21.4% of the German respondents and 38.4% of the Czech respondents) five years after graduating. Secondly, the differences in the academic environment between OTH and VŠTE were analysed descriptively with regards to entrepreneurial knowledge. The results showed that German students, even though their empirically measured intention to establish a company was lower than that for Czech students, evaluate almost every relevant aspect of establishing a business more positively (Figure 2).

Figure 2: Evaluation of the academic environment



Source: Authors

An analysis was subsequently carried out to determine whether German and Czech students display statistically significant differences in their (a) assessment of the institutional environment with regards to the promotion of entrepreneurial thinking and behaviour, (b) entrepreneurial knowledge, (c) interest in entrepreneurship and (d) leadership motivation. To this end, appropriate Mann-Whitney U-tests and a t-test were performed to obtain independent samples. The results show that OTH students statistically significantly evaluate the establishment of a business and the promotion of entrepreneurial thinking and behaviour at institutions more positively ( $t_{(125)} = 3.44, p < .01, N = 127$ ). By contrast, no statistically significant differences among the two comparative groups could be identified regarding knowledge of business start-ups (respectively entrepreneurial knowledge) and interest in entrepreneurship ( $z = 1.74, p > .05, N = 131$  and  $z = 1.57, p > .05, N = 130$ ). However, the findings show that German

students have a statistically significant higher motivation to adopt leadership roles than Czech students ( $z = 2.64, p < .01, N = 132$ ).

The results of the analyses of business studies modules and the joint class observations show that the teaching of entrepreneurship at both institutions of applied sciences is mainly lecturer-centred. At OTH, various student-centred settings (e.g. business simulation, project work) are also used in the teaching of entrepreneurship. However, such settings are seldom employed at VŠTE. Furthermore, at both institutions, asking questions was identified as the most widely used activating method as was establishing practical relevance in order to motivate students.

## **Discussion**

The results of the online survey reveal that establishing a business directly after graduating is not an attractive option to many students, even though at both partner institutions the environment for establishing a business is evaluated positively. This is particularly true among German students. External factors, such as the very good employment situation, are likely to have an influence on this (Metzger 2017). An additional explanation is that the majority of young people in Europe (compared to the US) attend university in order to secure a safe workplace after graduating (Wilson 2008).

Apart from that, the results of the survey show that the students at OTH statistically significantly evaluate the academic entrepreneurship culture more positively with regards to the promotion of entrepreneurial thinking and behaviour, as well as show a statistically significantly higher leadership motivation than their fellow Czech students. However, in terms of the interest in entrepreneurship and entrepreneurial knowledge, no statistically significant differences could be found. Furthermore, the joint class observations and the analysis of modules reveals high diversity in the aspired qualification aims (Caha et al. 2017). Even though the entrepreneurship education mainly takes place in a lecturer-centred way, there also exist, especially at OTH, alternative student-centred instructional designs (e.g. corporate strategic planning simulation, project work, workshops) and supportive offers (e.g. awards for founders, start-up centres, academic entrepreneur's days). This explains the significantly better evaluation of the entrepreneurship education received by the German students. With regards to the effectiveness of the promotion of cross-domain competencies, it can be stated that the student-centred learning environments are clearly superior to the lecturer-centred ones. For example, the elaborative learning strategy, critical examination, or the ability to cooperate in frontal teaching cannot be imparted and cannot be tested on the basis of a single-choice examination. Various quality assurance measures (e. g. adapted quantitative and qualitative course evaluations) have proven their worth in terms of monitoring the achievement of objectives and the coordination of the teaching and examination methods used (competence orientation). There are already structured guidelines for coding and evaluating qualitative evaluation data e. g. Teaching Analysis Poll method (see Hawelka 2017). At this point, it should be noted critically that, for example, the measurable strengthening of the willingness to take risks, creativity and tolerance of ambiguity is only

possible in specific didactic settings and cannot be convincingly promoted in traditional learning environments. The already existing educational opportunities should be evaluated systematically on a long-term basis and on the basis of comparative criteria. It is only in this way that it is possible to validate which didactic approach has the biggest effect on which target variable. In summary, it should be noted that the results of the research presented in this article revealed the potential for further development in the teaching of entrepreneurship at both institutions of applied sciences.

## **Conclusion**

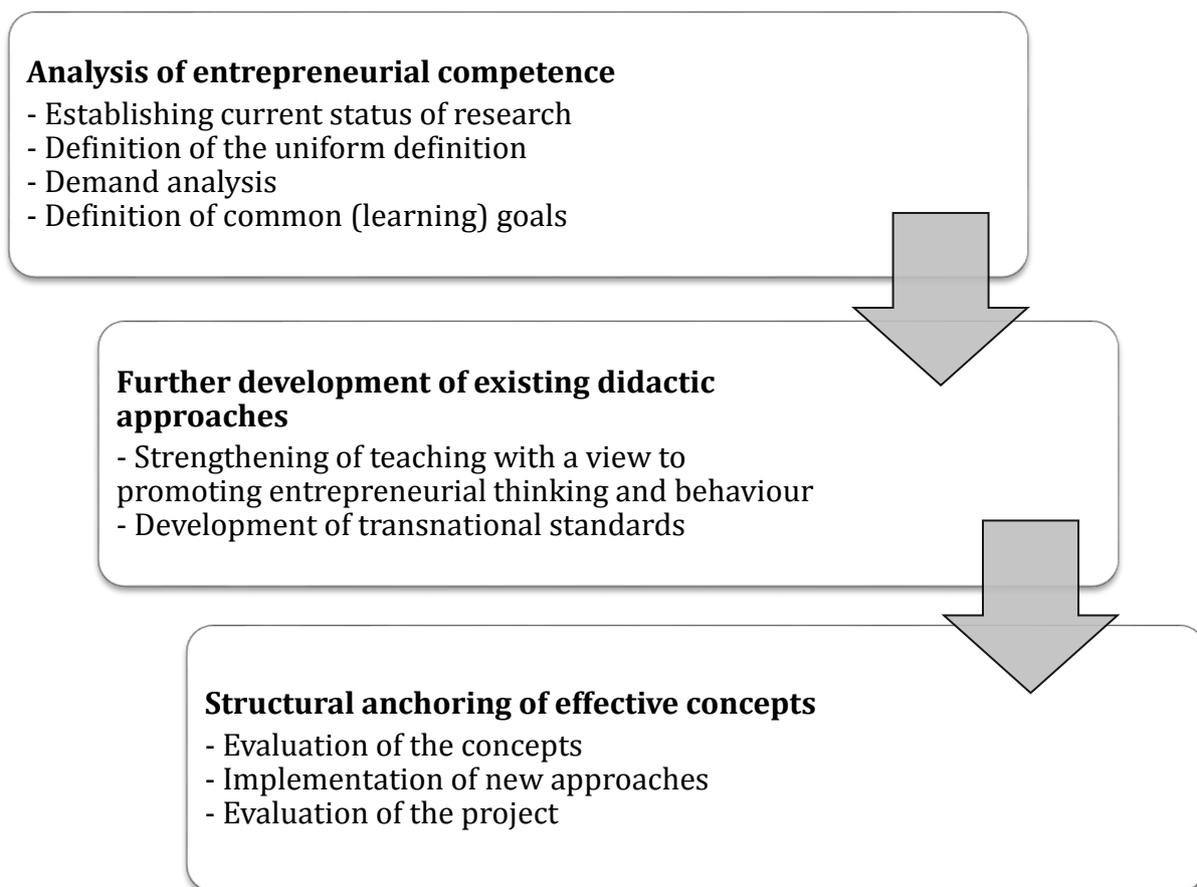
On the basis of the initial findings of the survey it is possible to draw important conclusions regarding the further development of the project and for institutional practice.

The online survey of students revealed important differences in study-related issues at both institutions, which emphasises the need for stronger cross-border cooperation. The development of common educational standards in the border regions can contribute to more intensive student exchange programmes and to an increase in the number of (future) entrepreneurs. In addition, the results reveal that the teaching of entrepreneurship at both institutions is mainly lecturer-centred, even though other instructional designs (e.g. case-based learning environments for the better identification of critical incidents in the post-foundation phase, Heinrichs 2016; Heinrichs and Jäcklin 2017) for the mediation of entrepreneurial thinking and behaviour would be more auspicious. As the acquisition of comprehensive decision-making can hardly occur through direct instruction (Mandl and Hense 2004; Renkl 2015), it is necessary to implement to a greater degree activating and problem-oriented methods of teaching and learning, preferably embedded in a real, authentic situation, within the Entrepreneurship Education Programmes.

One of the tasks of teaching entrepreneurship is to increase students' long-term interest in entrepreneurial independence. By broadening the range of teaching and support programmes for students and alumni, institutes can highlight the important role of entrepreneurship and innovation in society and thus promote the development of interest in setting up a business. Within this context, it would seem sensible to allow specialisation in entrepreneurship in later semesters not only for business administration students, but also for those of other subjects. In order to ensure that this specialisation offer is positively received by students, it is also necessary to support the development of interest in entrepreneurship through a broad range of higher education teaching opportunities. In addition, a wide range of events focusing on entrepreneurship, especially for students of STEM subjects and social sciences (e.g. reasons in the social environment, start-up workshops), can contribute to stabilising interest. The promotion of entrepreneurial thinking and behaviour should also continue to take place through various support programmes such as counselling, exchange of experience, guest lectures and specialist conferences.

The next project phase (Figure 3) involves the further development of existing approaches to strengthen entrepreneurial thinking and behaviour, taking into account the current status of research (Audretsch et al. 2016; Barnir et al. 2011; Brandstätter 2011; Brännback and Carsrud 2017; Heinrichs 2016; Heinrichs and Jäcklin 2017), the constructive alignment approach (Biggs and Tang 2011), the results of the study carried out, and examples of best practice.

Figure 3: Project phases and measures



Source: Authors

Case-based learning has great potential in terms of promoting entrepreneurial thinking and behaviour (Heinrichs 2016). Accordingly, lecturers are expected to ensure that knowledge is accumulated in the learning environment, but that the learning takes place on the basis of practical situations. The students should engage with complex, authentic tasks. It is advisable to use precisely defined problems as a starting point for the attainment of knowledge. The tasks used for this can be taken from everyday company situations (e.g. lack of support for the founder from the entrepreneur's family, conflicts between employees, Heinrichs 2016). Based on the design principles of problem-oriented learning and the constructive alignment approach, the corresponding pilot courses should be developed and implemented as part of the project.

Students' interest in entrepreneurship is often neglected both in research and in the development of measures to promote entrepreneurial skills and abilities. Various programmes and interventions are carried out (but not evaluated) to increase the entrepreneurial self-efficacy, creativity or team spirit of the students. However, students will not use their acquired competencies to start a business if they are not interested in this field. Based on the insights of interest research, in which interest is defined as a specific relationship between a person and an object (person-object theory of interest, Krapp and Prenzel 2011), it makes sense to offer numerous opportunities to engage with entrepreneurship at institutions of higher education. The students' interest in entrepreneurship can result only from direct engagement with this topic. The first points of contact can be created through various courses (e. g. seminars, guest lectures, workshops, holiday academies, competitions or business start-up days). As a result, the (initially) unsteady situational interest becomes a steady interest over time and under favourable conditions. Favourable conditions exist if there is a broad spectrum of offers for students and an understanding that entrepreneurial thinking and behaviour are worthwhile in society.

The developed teaching approaches should be implemented in the academic practice of both institutions within the framework of the project and subsequently tested for effectiveness and acceptance. The aim is to structurally anchor, evaluate and adapt the successful concepts on an ongoing basis. The final stage is the evaluation of the overall project.

The realisation of the project "Entrepreneurial Competencies in the Czech-Bavarian Labour Market" contributes to the internationalisation of teaching entrepreneurship, the development of common academic education standards in the border regions, as well as the promotion of entrepreneurial thinking and behaviour at the partner institutions. However, further action is needed to establish uniform standards for teaching other key competencies such as scientific and technical competence or intercultural competence. Within the framework of the cooperation, existing didactic teaching approaches for the promotion of key competencies can be compared and further developed. Against the backdrop of the constant change in the open European labour market and an increasingly networked world, higher education institutions are making a significant contribution to increasing the employability of their graduates through internationalised curricula.

## **Acknowledgement**

We would like to thank all the students of The Institute of Technology and Business in České Budějovice and OTH Regensburg who took part in our online survey and made the empirical investigation possible. We would also like to express our sincere thanks to all the lecturers at The Institute of Technology and Business in České Budějovice who gave us the opportunity to jointly observe classes.

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