

# STAND UP–IT’S ALL ABOUT THE TEAM? THE COMPOSITION OF ENTREPRENEURIAL TEAMS IN ENTREPRENEURSHIP EDUCATION AT A GERMAN UNIVERSITY

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## ABSTRACT

*“Team work makes the dream work”–this saying of John C. Maxwell could not be described in a better way especially for creating new business companies. But how does such a team should be structured, especially in the entrepreneurship education in a university context? Is it: “Birds of a feather flock together” or rather “Opposites attract”? Moreover, entrepreneurial traits and the composition of entrepreneurial teams are not investigated as a whole in the academic context so far. To contribute to this research, a first focus is set on entrepreneurship education in general. Therefore, recommended approaches from theory and other studies are compared with the developed concept of an entrepreneurial education program at Bielefeld University that is mostly in accordance with theoretical recommendations. Hence, to identify entrepreneurial traits in the academic context, 43 students took part in a questionnaire within the framework of the “Practice in Entrepreneurship” at Bielefeld University in spring 2018. So, a profile of the personage and motives in entrepreneurship and team behavior were investigated. In addition to the questionnaire, an examination of founding teams in the same “Practice in Entrepreneurship” was conducted. At this juncture, 61 students formed 14 entrepreneurial teams working on a business idea and finally pitching it in front of an expert jury that evaluated and ranked the teams. It was investigated how different attributes like gender, study courses, and age, as well as the team size influence the final ranking. Both the findings concerning the entrepreneurial traits and the results concerning the composition of entrepreneurial teams show much congruence with the existing literature leading to following implications: A successful entrepreneurship education program at a university should consist of theoretically and practically oriented elements involving different external stakeholders. Students taking part in such an entrepreneurship education program show many entrepreneurial traits that should be developed further within this program. The composition of student founding teams should not be predetermined, except for a recommended team size of four to six students.*

**Keywords:** Education, Entrepreneurship Practice, Entrepreneurial Teams.

## INTRODUCTION

Entrepreneurship is presumed to be one of the central topics of the 21<sup>st</sup> century: It has become more and more important in the last years and will be even more relevant in the future because especially entrepreneurial thinking is going to play a major role in the future world of working by being decisive for occupational success (Obschonka et al., 2017). A similar increase in entrepreneurship education, reflected by a remarkable growth, can be noted. At the beginning

in 1998, there only existed one professorship for entrepreneurship in the German academic landscape, but the number has risen continuously over time in such a way that 138 professorships for entrepreneurship could be counted in December 2018 (Knaup, 2018). A similar development is also internationally visible, especially in the United States (Katz, 2003). Entrepreneurship education can be embedded into a whole entrepreneurial ecosystem with a long development history, but it is also highly topical (Malecki, 2018). Such an ecosystem is characterized by cultural, social, and material attributes, the latter being resolved by universities offering entrepreneurship education to students.

Although research on entrepreneurship education is rooted in the last century, many research gaps are not closed until now. This paper contributes to an enlightenment in the two fields of (1) the role and concept of entrepreneurship education and (2) the entrepreneurial attributes and composition of entrepreneurial teams in the academic context in the following way:

1. The importance of entrepreneurship education is mostly uncontroversial, but a research gap consists of a missing overall concept to teach it. Solely differentiations concerning theoretical and practical courses in entrepreneurship education (Piperopoulos & Dimov, 2015) involve the contents of teaching (Yu, 2018) and recommendations for the involvement of specific stakeholders (Bischoff et al., 2018), but these concepts are developed independent of each other and have not been proven as a whole very often in practice. Thus, within the first aim of the paper we want to show that universities may play an important role by offering entrepreneurship education for developing entrepreneurial ecosystems. So, the first research contribution of the paper is to align the theoretically and practically oriented approaches of entrepreneurship education recommended by theory and other studies with the existent practiced entrepreneurship education concept at Bielefeld University.
2. Concerning entrepreneurial teams that are highlighted as a second pillar in this paper the question arises: Is the *“lonely hero”* still presumed to be the only player in entrepreneurship? Definitely not. The reputation of whole entrepreneurial teams is emerging (Chowdhury, 2005). In entrepreneurial teams, some entrepreneurial traits are reckoned to be the most likely. From theory and other studies, these various entrepreneurial traits can be identified (Hayes & Richmond, 2017). But a research gap can be identified within the scope of a missing verification of these traits in the academic context of entrepreneurship education. In addition to these traits, the formation of entrepreneurial teams is based on different aspects like demographic attributes, gender, study courses, and age (Hoogendoorn et al., 2013; Hellerstedt et al., 2007), as well as the additional determinant of team size (Clarysse & Moray, 2004). Also in this case, research on these team attributes in the academic context of entrepreneurship education is still missing. Therefore, the second aim of this paper is twofold: First, it is imperative to verify the entrepreneurial attributes in the academic field with the help of a survey conducted in a course of an entrepreneurship education program at Bielefeld University. The survey was performed with a questionnaire filled out by the participating students. Second, we show that the structure and composition of entrepreneurial teams plays a central role, as shown in the special application of Bielefeld University, too. By examining the student entrepreneurial teams at Bielefeld University, the effects of demographic attributes, gender, study courses, and age, as well as the additional determinant of team size, on the final ranking of the teams, judged by an expert jury, were investigated in practice.

In accordance with the target achievement, we provide a state-of-the-art literature review concerning entrepreneurial ecosystems, entrepreneurial education, and entrepreneurial teams before describing our use case at Bielefeld University. In our discussion, we combine theoretical recommendations and practical elements and give explicit implications as well as an outlook for further research tasks.

## LITERATURE REVIEW

### Entrepreneurial Ecosystems

The terminus of entrepreneurial ecosystems consists of two components: “*entrepreneurial*” can be described as a process in which the creation of new products and services is investigated, evaluated, and finally realized (Schumpeter, 1934). The “*ecosystem*”, originating from biology, where the interaction between living organisms and their environment is focused, can be considered as a popular metaphor in the context of other business ecosystems (Brown & Mason, 2017). Elaborating, the metaphor of an entrepreneurial ecosystem means that entrepreneurship takes place in a community comprising dependent, interacting stakeholders (Freeman & Audia, 2006).

Although the term entrepreneurial ecosystems is currently highly topical (Malecki, 2018; Roundy et al., 2018; Spigel & Harrison, 2018), the origin goes back to the last century. Valdez (1988) already made use of the concept by transferring a human behavior ecosystem model to an entrepreneurial ecosystem model. At this junction, the entrepreneurial ecosystem consists of the interaction between the entrepreneur himself/herself as a new business creator and the entrepreneurial environment. Van de Ven (1993) described the need of an infrastructure that facilitates entrepreneurship by being classified into institutional regulation, public resources, and research and development. A more recent approach describes an entrepreneurial ecosystem as an interplay between adjunctive entrepreneurial actors, entrepreneurial organizations, institutions, and entrepreneurial processes (Mason & Brown, 2014). Roundy et al. (2018) defined it as “*a self-organized, adaptive, and geographically bounded community of complex agents operating at multiple, aggregated levels, whose non-linear interactions result in the patterns of activities through which new ventures form and dissolve over time*”. These definitions can be viewed as advancement of older approaches. But a decided examination of the terminus is due to different elements and specifications, very multifaceted and a single precise definition does not exist (Stam, 2015).

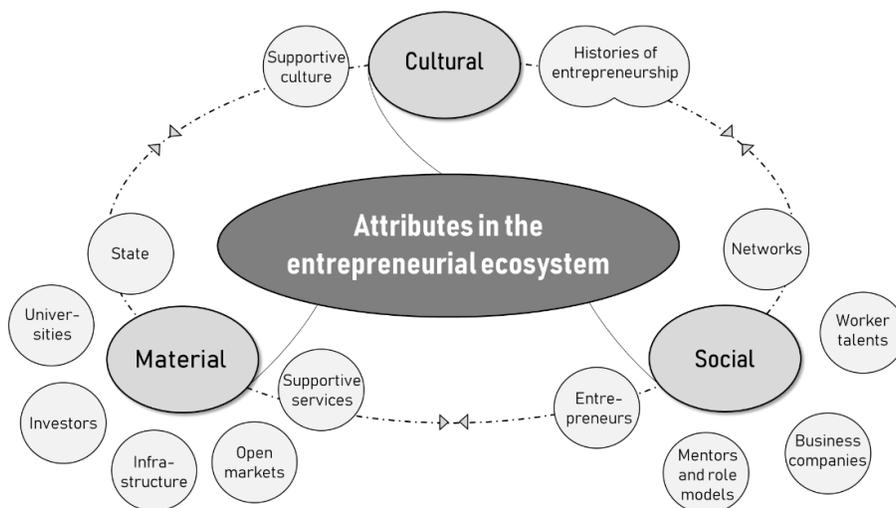
To develop a more structured approach, Spigel (2017) assigned the heterogeneous stakeholders and component of the entrepreneurial ecosystem (Autio & Levie, 2017) to different attributes shown in Figure 1. At this juncture, he divides entrepreneurial ecosystems into cultural, social, and material attributes within one region that have an influence on each other and support, ushering in the development and growth of innovative start-ups, and encourage future entrepreneurs (Spigel, 2017).

Cultural attributes are liable to beliefs and attitudes within a region. There exist two different types—a supportive culture and histories of entrepreneurship—that influence entrepreneurial activities (Spigel, 2017; Aoyama, 2009). Especially histories of locally successful entrepreneurs inspire young entrepreneurs (Feld, 2012) and point out potential career paths out for people, especially for students.

Furthermore, social attributes come into existence through social networks within a region. Spigel (2017) suggested a division into different components like networks, mentors, and role models as well as worker talents. This list can be expanded by the stakeholders of entrepreneurs themselves and business companies (Feld, 2012). Especially worker talents can be regarded as an enabler of success and symbolize a key component for startups (Audretsch et al., 2012; Feld, 2012). Also, role models serve as an influential factor and encourage prospective start-ups, and enhance the performance of entrepreneurs (Bosma et al., 2012). As a matter of course, entrepreneurs themselves symbolize a central stakeholder. They take the lead in an

entrepreneurial ecosystem and must be visible and accessible in the region. These persons are not determined once for all because the number of these leaders vary over time, thereby contributing to a constant change as well as the growth of an entrepreneurial ecosystem (Feld, 2012).

In addition, there is the third group of attributes: The material attributes are the only ones that are readily available. Also in this case, the corresponding components, proposed by Spigel (2017), like policies, universities, infrastructure, open markets, and support services can be amplified by replacing policies by the broader state and adding investors. In consideration of the paper’s target, universities come into focus. They provide numerous resources for the entrepreneurial ecosystem: Students can be presumed to be a central human resource or future founders of a start-up (Bucks et al., 2018; Smith et al., 2014; Feld, 2012). Universities enable access to different institutions such as, research laboratories, entrepreneurship programs, and technology transfer, in which new technologies can be developed (Feld, 2012). Besides, support services–i.e., tax accountants, patent attorneys, and marketing experts–assume a central role as a stakeholder (Feld, 2012; Kenney & Patton, 2005).



**FIGURE 1**  
**ATTRIBUTES IN THE ENTREPRENEURIAL ECOSYSTEM**  
 AUTHOR’S OWN EXTENDED FIGURE ACCORDING TO SPIGEL (2017)

Not every attribute is necessary for creating a working entrepreneurial ecosystem, but they can be viewed as supportive factors that contribute to a sound accrument and positive development of such an ecosystem (Spigel, 2017).

**Entrepreneurship Education**

The previous chapter has shown that especially the stakeholder university is of particular importance in the entrepreneurial ecosystem. On top of that, the closeness to universities is a critical success factor for the development and growth of an entrepreneurial ecosystem (Isenberg, 2010). In addition to important human and technological resources provided by universities, their entrepreneurship education can influence the entrepreneurial ecosystem.

The research on entrepreneurship education also goes back to the last century (e.g. Gorman et al., 1997; Plaschka & Welsch, 1990; Hills, 1988; McMullan & Long, 1987).

According to Kuratko (2005), entrepreneurship can be taught, but it is important to establish a border between the education in business administration and the one in entrepreneurship because the participating students do not have the same background (Kuratko, 2005; Solomon, 2007). With the help of entrepreneurship education, various entrepreneurial skills can be developed by the students as well as the will to be a future entrepreneur (Zhang et al., 2013; Kuratko, 2005). So, entrepreneurship education is a program or an educational professional training process in the field of entrepreneurial attitudes and qualities (Fayolle et al., 2006).

It was shown that programs of entrepreneurship education are positively correlated with the choice to become an entrepreneur and the following entrepreneurial success (Rauch & Hulsink, 2015; Dickson et al., 2008), but the extent is dependent on prior points of contact and exposure in entrepreneurship (Fayolle & Gailly, 2015). Piperopoulos & Dimov (2015) ascertained that entrepreneurial intentions are dependent on the format of the education program, i.e., that they are higher in practically oriented courses. Anyway, there also exist critical opinions and contrary research results (Oosterbeek et al., 2010). In some cases, the influence on entrepreneurial intentions even remains unclear (Walter et al., 2011), ascribing it to the fact that entrepreneurship education differs immensely from one case to another (Solomon, 2007) and hence the term is imprecise (Piperopoulos & Dimov, 2015).

In general, there are two different oppositional orientations: (1) theoretically oriented courses “*about*” entrepreneurship and (2) practically oriented courses “*for*” entrepreneurship (Piperopoulos & Dimov, 2015; Levie, 1999). The first one consists of observation and description; it contains passive learning, case studies, and guest speakers for example. The second one focuses on action and practice, realistic or simulated business startups, pitching ideas in teams, and the implementation of talks by real entrepreneurs (Neck & Greene, 2011; Gibb, 2002; Levie, 1999).

Concerning the structure of entrepreneurship education, Yu (2018) proposed a subdivision of the contents taught in entrepreneurship courses—e.g. creativity and idea generalization, design thinking, social entrepreneurship, women and minority entrepreneurship and entrepreneurial finance. Furthermore, he supposed entrepreneurial practice activities as well as the establishment of an innovative, cooperative culture and environment in entrepreneurship education.

In the entrepreneurship courses, there is attached importance to the cooperation with stakeholders, a group or individuals who influence or are influenced by the achievement of the organization’s targets (Freeman, 1984). By that, a balance of the theoretical and practical orientation in this interdisciplinary and transfer-oriented field can be guaranteed (Bischoff et al., 2018). In summary, these 12 different stakeholders playing a major role in entrepreneurship education are partly identical to the stakeholders in the entrepreneurial ecosystem. Table 1 visualizes these stakeholders and defines the most frequently appearing forms of involvement corresponding to Bischoff et al. (2018).

<b>Stakeholders</b>	<b>Involvement</b>
Entrepreneurs	Lecturing and storytelling, coaching and mentoring, project collaborations and partnerships, consulting, internships
Business companies	Lecturing and storytelling, coaching and mentoring, provision of training and workshops, project collaborations and partnerships, internships
Financial institutions	Finance and investments
Supportive services	Advising and consulting, coaching, and mentoring
Accelerators and incubators	Provision of office space and location, provision of infrastructure, organization of events, provision of trainings and workshops, knowledge exchange
Student organizations	Organization of events, provision of networks and contacts
Alumni	Provision of networks and contact, lecturing and storytelling, knowledge exchange
Other universities	Knowledge exchange, organization of events, curriculum development, provision of trainings and workshops
Science and technology parks	Provision of office space and location, knowledge exchange, project collaboration, and partnerships
Governmental organizations	Curriculum development, project collaboration, and partnerships
Non-governmental organizations	Very rare—e.g. coaching and mentoring
Other organizations	Provision of training sessions and workshops, provision of networks, and contacts

Author's own table according to Bischoff et al. (2018).

In the end, it depends on every single university with which stakeholders they want to enter a cooperation. A generalization of the collaboration is not possible because every university pursues its own approach. But in a holistic view, there exists a kind of toolkit that you can use to develop a convenient entrepreneurial ecosystem for a university and a whole region.

### **Entrepreneurial Teams**

Regarding the contemplated practically oriented courses “for” entrepreneurship which can contain the pitching of ideas in teams, it is essential to examine the composition of these teams. For this purpose, it is imperative that some combinations of people work together in a better way than others. Such a team consists of at least two persons who pursue the same goal, have a shared commitment, and seek synergy (Guzzo & Dickson, 1996). The special value of working in teams is that a team member does not need to be capable of doing everything on his/her own. So, the whole team is granted access to a larger pool of skills and capabilities (Bell & Brown, 2018).

In the special context of entrepreneurial teams, individuals often possess particular entrepreneurial traits. There exists a huge amount of different entrepreneurial traits that were discovered and examined in international surveys. These entrepreneurial traits are shown summarized in a chronological development in Table 2.

<b>Table 2</b> <b>ENTREPRENEURIAL TRAITS</b>	
<b>Author(s)</b>	<b>Entrepreneurial traits</b>
Louw et al. (2003)	Competing against self-imposed standards, self-confidence and dealing with failure, goal-setting and perseverance, and drive and energy level
Gürol & Atsan (2006)	Need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, innovativeness, and self-confidence
De Pillis & Reardon (2007)	Personal efficacy, locus of control, achievement motivation, ambiguity tolerance, attitudes towards entrepreneurship, and entrepreneurial intention
Kusmintarti et al. (2016)	Internal locus of control, need for achievement, risk taking propensity, creativity, social networking, and tolerance for ambiguity
Hayes & Richmond (2017)	Personality characteristics: independence, limited structure, nonconformity, risk acceptance, action orientation, passion, need to achieve Skill dimensions: future focus, idea generation, execution, self-confidence, optimism, persistence, interpersonal sensitivity
Munir et al. (2019)	Risk-taking propensity, proactive personality, and internal locus of control

To sum up, the studies of these different authors show additions as well as overlaps concerning the entrepreneurial traits. It can be observed that these approaches were developed over time and thus the selected entrepreneurial traits like self-confidence, (internal) locus of control, need for achievement, risk-taking propensity, and tolerance for ambiguity occur again and again. Besides these entrepreneurial traits, each team member of entrepreneurial teams should possess in general, there are also other important factors for the composition of founding teams influencing the success of the team. Generally, entrepreneurial teams usually comprise at least two persons who are financial and otherwise interested in the future and success of a newly created business venture, and therefore, they pursue common goals and serve as a social entity (Schjoedt & Kraus, 2009). There are different determinants in the composition and all of them influence entrepreneurial teams.

Concerning individual-related attributes, teams in the university context comprise individuals who differ in terms of diversity – i.e., gender, age, and study course. Pelled et al. (1999) made a relevant contribution with the help of a study on team composition, especially in terms of diversity.

Regarding the gender, more female and thus heterogeneous teams are considered to be more successful because of the presence of different abilities, skills, and knowledge in such mixed-gender teams (Wegge et al., 2008). Gender diversity leads to stability in founding teams (Hellerstedt et al., 2007). Hoogendoorn et al. (2013) carried out a study by examining the effects of gender in the context of founding teams within an entrepreneurship program. They found that mixed-gender teams are more successful. However, Bell et al. (2011) identified that there is no correlation between gender diversity and team effort. Also, Boerner et al. (2012) arrived at a similar conclusion. Others assume that both genders can unfold their extensive efforts more easily if the difference in their role is experienced by more homogenous teams (Wegge, 2003). Also, Davis et al. (2009) examined that there could be a negative relationship with team productivity in the case of gender diversity. Thus, the influence of gender remains ambiguous.

Furthermore, the study course must be examined in an entrepreneurial team. It can be asserted that an educational-background diversity has a positive effect, providing a wide range of

different knowledge (Henneke & Lüthje, 2007; Pelled et al., 1999). Podsiadlowski (2002) discovered that team members with different professional backgrounds and therefore wide-ranging knowledge can contribute to problem-solving by multiple perspectives. Especially innovations are promoted by such heterogeneity in professional education (Bell et al., 2011; Podsiadlowski, 2002). But there also exist other studies for identifying the negative effects of diverse study courses (Hellerstedt et al., 2007).

In consideration of age, Foo (2011) demonstrated that age diversity has a positive relationship with team effectiveness. In contrast, age diversity may have a negative influence on growth, effectiveness, and stability (Amason et al., 2006; Hellerstedt et al., 2007) and generational conflicts could appear (Wegge et al., 2008). Hence, no unambiguous conclusions can be made concerning age diversity, whereas studies arrive at the conclusion that negative effects of age diversity predominate.

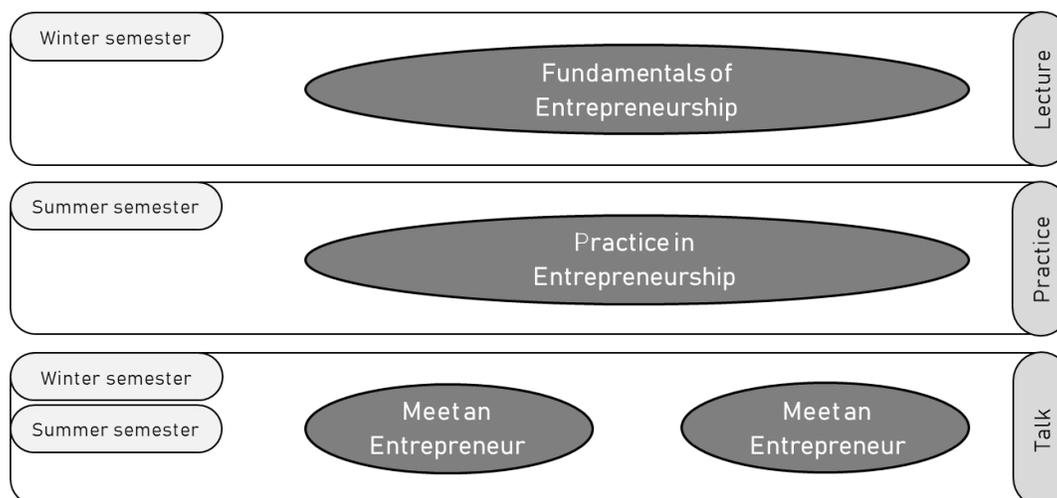
Besides the individual-related attributes, there also exist determinants of the teams, e.g. the team size. Concerning this determinant, studies exist for a long time. For example, Wolfe & Chacko (1983) investigated the effects of team size on the effort. Results have shown that teams with three persons are the most successful, whereas single persons came off most badly (Wolfe & Chacko, 1983). In the context of entrepreneurial teams, it is imperative that team size has to counterbalance free-riding and peer pressure (Kandel & Lazear, 1992). Moreover, the availability of different resources is dependent on team size so that Leary & DeVaughn (2009) detected that the variety of human and social capital increases as a function of an increasing team size. It applies to entrepreneurial start-ups that teams being larger than four persons do not perform very well in practice (Clarysse & Moray, 2004). Partly different, Jin et al. (2017) arrived at the conclusion that small entrepreneurial teams comprising a maximum of three members and large teams comprising a minimum of six members outperform moderately sized teams of three to six members.

## **ENTREPRENEURSHIP EDUCATION AT BIELEFELD UNIVERSITY**

As already seen in the literature review of entrepreneurship education, universities play a decisive role in the entrepreneurial ecosystem. This is also transferrable to the entrepreneurship education at Bielefeld University within the regional ecosystem of Bielefeld.

The entrepreneurship education at Bielefeld University occurs within a module in which students can take part in different courses. Originally, the module was initiated in 2013 with the aim of finding a common denominator of all 13 faculties at Bielefeld University. The foundation of an enterprise is very suitable for such an interdisciplinary subject. Referring to this, conversations were conducted with the deans of all faculties to identify the potential content of teaching which could be relevant for the different disciplines. The outcome of this contributed to the development of the module of entrepreneurship, which can be attended in an interfaculty and interdisciplinary way as well as can be credited within the individual subsidiary subject. The module was offered in the winter semester of 2013–2014 for the first time and enjoys popularity with more than 200 participating students of almost every faculty in every academic year.

In total, the module of entrepreneurship is divided into three courses: a lecture that is offered in each winter semester, a practice that is held in each summer semester, and the "*Meet an Entrepreneur*" talks that are arranged in an academic year. The courses are visualized subsequently (Figure 2).



**FIGURE 2**  
**TEACHING IN THE MODULE OF ENTREPRENEURSHIP**  
**AUTHOR'S OWN FIGURE**

The lecture *"Fundamentals of Entrepreneurship"* gives an overview of the selected topics around the foundation of an enterprise (e.g. concerning the start-up process, the choice of the legal form inclusive tax issues, the financing options, the possibilities of property rights, or the preparation of a business plan) and therefore most of the recommended contents presented in the literature review are taken. It follows a theoretically oriented course *"about"* entrepreneurship but with practically oriented course elements. In doing so, practical case studies represent an essential element for the illustration of the lecture contents. The contents are attuned to the target group, namely the students of all faculties also without economic knowledge who consider the foundation of an enterprise in future or are just interested in the topic of entrepreneurship. For this, there are theoretical lecture units in which current research contributions to entrepreneurship as well as the necessary methods and models are depicted as a central theme in order to give the students an understanding of the start-up process and the underlying founders. The course is completed by guest lectures—e.g. by an accountant regarding the choice of the legal form and tax-based aspects as well as by a representative of the Chamber of Industry and Commerce Bielefeld regarding funding opportunities.

In the *"Practice in Entrepreneurship"*, the theoretical knowledge is transferred into the practical applicability and therefore the concept of a practically oriented course *"for"* entrepreneurship is used. So, the students bring their own business idea or are inspired by a given idea for a business concept. After conveying the theoretically necessary tools with the help of the theory from educational books as well as with the help of practical knowledge, they can try out how an idea can be developed into a concrete business model and accordingly set the basis for a good business plan. For this purpose, they get together in interdisciplinary groups and work on the composition as well as the implementation of the business idea during one semester. The course ends—after an interim presentation and individual consultations—in a presentation of their business concepts, the pitch, and a feedback session. Finally, the best idea is chosen by a jury of professionals comprising founders as well as entrepreneurs.

As an alternative to this concept of a practice in entrepreneurship, a simulation game in the form of a corporate strategic planning simulation can be offered, in which students can

experience the consequences of their management decisions immediately. In this context, teams of students have a virtual business company and offer products on one or multiple markets in which other teams with their products are also present. The students can take a decision in each period concerning a potential launch of their products in a new market (or also a withdrawal from existing markets). In addition, they have to determine investments in the further development of the products and/or marketing actions including the pricing. According to their decisions and the proceeding of the other teams, they realize corresponding sales respectively profit, and therefore, understand the need for further investments or advanced actions. Furthermore, bankruptcy is not impossible which constitutes a very instructive experience that remains without consequences within the simulation game. A final discussion that contains a résumé of the experienced finishes the practice.

In the “*Meet an Entrepreneur*” series of talks, founders present the founding history of their business companies, thereby providing an immediate insight into the founding practice. The practically oriented course design “*for*” entrepreneurship and the openness allow the students to ask questions anytime. Thus, they can get in touch with the entrepreneurs directly. Meanwhile, it can be reverted to a huge network comprising entrepreneurs from Bielefeld, Gütersloh, Düsseldorf, Berlin, and Dubai. Hence, students acquire fundamental professional and method competence in connection with entrepreneurship. They receive an overview of the central requirements in the founding process as well as potential “*tools*” respectively approaches to face these requirements. Last but not least, these competences are deepened with the help of the insights into the founding practice and first-hand experiences.

So, it can be summed up that the module of entrepreneurship serves as an educational format that offers theoretical knowledge as well as insights into the entrepreneurial practice. In addition, it ties the teaching content of different disciplines with one module. By bringing the different disciplines of Bielefeld University together, a stronger interdisciplinary linking-up is facilitated. Considering the described theory of entrepreneurship education, it becomes apparent that the involvement of various stakeholders has already taken place.

## METHODOLOGY

### Questionnaire

To identify the entrepreneurial traits of the students participating in the module of entrepreneurship education, a survey within the framework of the “Practice in Entrepreneurship” at Bielefeld University in spring 2018 was conducted. On the whole, a sample of 43 mixed-gender students from different disciplines (study courses) and of different ages, in the figurative sense represented by the semester, took part in the paper questionnaire. This structure of the course concerning these attributes is presented in Table 3. The participation was anonymous, and such demographic data was only secondarily important and not analyzed in conjunction with the traits because a general overview of entrepreneurial traits of the students taking part in the entrepreneurship education program, regardless of the students’ backgrounds, should be given.

**Table 3**  
**STRUCTURE OF THE COURSE AUTHOR'S OWN TABLE**

Characteristic	Characteristic value (%)																
Gender	m								f								
	59								41								
Study course	An	BG	EC	Fr	HS	CS	IS	CC	Li	LS	MB	PS	LM	La	SoS	So	BE
	2.6	3.9	1.3	1.3	1.3	1.3	1.3	13.2	1.3	1.3	1.3	2.6	2.6	3.9	9.2	10.5	40.8
Semester	2		4			6		7		8		9		12			
	21		22.6			37.1		3.2		11.3		1.6		3.2			
An: Anglistics; BG: Bioinformatics and Genome Research; EC: Educational Science; Fr: French; HS: Historical Science; CS: Computer Science; IS: Intelligent Systems; CC: Cognitive Computer Science; Li: Linguistics; LS: Literary Studies; MB: Molecular Biology; PS: Political Science; LM: Law and Management; La: Law; SoS: Social Science; So: Sociology;																	
BE: Business Administration and Economics																	

The questionnaire is divided into three different parts applying to three different traits that influence entrepreneurial traits, mainly corresponding to the described literature review. After executing the survey, the questionnaire was analyzed descriptively.

The first part addresses the profile of the personage and includes 30 statements formulated from the first-person perspective. Therefore, it covers a large part of the survey. With the help of a five-stage Likert scale (1–5), the students could give their opinions concerning their personal agreement with the statement, where 1 symbolizes a total disagreement and 5 a total agreement with the statements. Because of the odd number of stages, no forced choice was used. These statements are aimed at different attributes of the personality and character regarding entrepreneurial traits. This means that the questions address six different categories, each comprising five questions: vision and ideation, communication and network, creativity and artistic ability, assertiveness and self-confidence, knowledge and presentation skills, structuredness and organization. The statements belonging to these categories were presented in a mixed way so that conclusions could not be directly drawn and social desirability could be decreased or at least determined more easily. After that, the answers were rated with the help of a five-stage scale, where 1 symbolizes the worst value and 5 symbolizes the best one.

The second part of the questionnaire corresponds to motives in entrepreneurship and contains four questions. These are open questions that allow free and no prescribed answers. They are targeted at the motives that drive and hinder a company's foundation as well as own intangible values and the own added value in the context of the foundation.

Finally, the third part refers to team behavior and comprises four statements formulated from the first-person perspective. In this part, a five-stage Likert scale (1–5) is used and hence the students could give their opinions concerning their personal agreement with the statements. These statements relate to conflict behavior, the willingness to accept responsibility and leadership behavior, and the attitude toward teamwork and individual work.

### Team Analysis

In addition to the questionnaire, the entrepreneurial teams were examined. In total, 61 students took part in the "Practice in Entrepreneurship" and formed 14 different teams. The discrepancy of the 43 survey participants and the 61 students forming a team results from wanting attendance of some students on some course dates and non-returned questionnaires.

Within the scope of this examination, the influence of different attributes on the entrepreneurial teams was investigated. At this juncture, it is the influence of team size as a determinant of the teams as well as gender, study course, and semester as individual-related attributes on the final ranking. This ranking was finally determined by an external expert jury comprising an entrepreneur, an intrapreneur, a consultant, a lawyer, a member of a local accelerator and a member of the local Chamber of Industry and Commerce Bielefeld. Only the first three placings were advertised a reward whereas following eleven placings were not determined.

## RESULTS

### Questionnaire

First of all, it is essential to analyze the results of the questionnaire targeted on the entrepreneurial traits among the students taking part in the “*Practice in Entrepreneurship*”.

In consideration of the profile of the personage, the results were analyzed according to the six different categories: vision and ideation, communication and network, creativity and artistic ability, assertiveness and self-confidence, knowledge and presentation skills, and structuredness and organization. A summary of the results is given in Table 4.

<b>Category</b>	<b>Rating (Ø)*</b>
1. Vision and ideation	3.4
2. Communication and network	2.8
3. Creativity and artistic ability	3
4. Assertiveness and self-confidence	3.4
5. Knowledge and presentation skills	3.6
6. Structuredness and organization	3.2
*Rating from 1 (worst value) to 5 (best value) Author's own figure	

Concerning the vision and ideation, the results are slightly over-average with a rating of 3.4. While many students agree with statements that they dream big, have visions and like to get inspired that lead to the increase of the average, several other describe themselves to be more realistic than idealistic. The second category has the worst rating of 2.8 and can be described as below-average. This can be attributed to many students who declare that they favor keeping contact with familiar persons as well as face difficulties in making new friends and making some small talk. Anyway, most of the students like to get suggestions from others. Following, concerning creativity and artistic ability, the rating of 3.0 is completely average. While creative fantasy can be described as average in this category, the students have an over-average ability of improvisation, but most of them also specify that they do not live their life in a spontaneous, playful, and flexible way. Moreover, just like the first category, assertiveness and self-confidence have a ranking of 3.4. Especially the statements that the students pursue their goals with decisiveness and that they act resolutely and in a focused way contribute to the increase of the average. The category of knowledge and presentation skills has the best rating of 3.6. Positively evaluated statements, such as liking to debate, being able to assert oneself, feeling comfortable about making presentations and being sure of oneself, concerning abilities and knowledge

contribute to this rating. Only a statement on taking the center stage is not favored by many students. Finally, the category of structuredness and organization has a slightly over-average rating of 3.2. Compliances like preferring binding agreements, defined structures and practices, and abilities relating to practical problem-solving are responsible for the uplift. Less agreements with an early start of difficult challenges and projects and the regarding of plans only as a weak orientation guide lower the median.

Regarding the second part of the questionnaire that corresponds to motives in entrepreneurship, the most frequent answers are visualized in categories in Table 5.

<b>Motive</b>	<b>Categorized answer</b>
Motives that drive a company foundation	<ul style="list-style-type: none"> <li>• Fascination for the new, making a change, new experiences.</li> <li>• Self-fulfillment, responsibility.</li> <li>• Flexibility, independence, freedom (of action).</li> <li>• Self-employment, responsibility.</li> <li>• Prestige, influence, and money.</li> <li>• Creativity</li> </ul>
Motives that hinder a company foundation	<ul style="list-style-type: none"> <li>• Success rate of startups.</li> <li>• Risks, uncertainties, costs.</li> <li>• Time, stress, responsibility</li> </ul>
Own intangible values	<ul style="list-style-type: none"> <li>• Fairness, reliability.</li> <li>• Teamwork, cooperativeness, openness.</li> <li>• Ambition, endurance, flexibility, courage</li> </ul>
Own added value in the context of a company foundation	<ul style="list-style-type: none"> <li>• Theoretical knowledge (especially in business administration and economics), lateral thinking.</li> <li>• Organization, strategy.</li> <li>• Contacts, international experience.</li> <li>• Enthusiasm</li> </ul>

Author's own figure

Concerning the motives that drive a company's foundation, six different categories could be identified: The students want to create something new, self-actualize, live a self-determined life, bear responsibility, gain material prosperity, and live out creativity. In respect of the motives that could hinder a company's foundation, there exist three categories: deficient prospects of success, risk-aversion, and stress factors. Regarding their intangible values, the answers can be classified into three categories: honesty, sociability, and fixing of a purpose. Last named, the added value in the context of a company's foundation could be divided into four categories: professional competence, structuredness, (international) network, and verve.

Finally, the third part of the questionnaire about team behavior was analyzed in a way similar to the first part. As this part only consists of four questions that address different directions, these questions were evaluated individually (Table 6).

Question subject	Rating (Ø)*
1. Conflict behavior	4
2. Willingness to accept responsibility and leadership behavior	4
3. Attitude toward teamwork	4
4. Attitude toward individual work	3
*Rating from 1 (worst value) to 5 (best value) Author's own figure	

In consideration of the conflict behavior, the bigger part of the students declared that they address criticism and conflicts openly. Moreover, most of them like to bear responsibility and take the role of the leader. Besides, the lion's share like to work in a team, but the mediety of students prefers to work on their own.

### Team Analysis

In addition, the effects of the different attributes gender, study course, semester, and team size on the final ranking in the context of the 14 entrepreneurial teams, comprising 61 students, were analyzed (Table 7).

Regarding gender, only ambiguous results exit: The first winning team consists of only female students. Differently, the second winning team insists on a mixed-gender basis with a surplus of men. In contrast, the third winning team only consists of male students. The remaining 11 teams possess a similar gender-structure: from female teams to mixed-gender teams of different proportions, and to male teams. Thus, it can be determined that the influence of gender in entrepreneurial teams is equivocal in this practical case.

In consideration of the study course, no distinction can be derived either. Whereas the first winning team only consists of students of business administration and economics, the second winning team is mixed of students of business administration and economics as well as cognitive computer science. The third winning team features a wide range: students of historical science, cognitive computer science, political science, law, and social science. Relating to the other 11 teams, the structure of study course differs – there are teams comprising only students from one study course as well as teams with students from various study courses. Also, in this case of the educational background, a general statement concerning the structure of study courses in practice cannot be made.

To be the last remaining individual-related attribute, the age measured in this case by the semester has to be examined. Students of the first winning team belong to the second semester. Therefore, it is probable that they are about the same age or have at least a similar state of knowledge of their studies. In the second winning team, students are of mixed semesters. The same applies to the third winning team and to the remaining other eleven teams. Hence, in this case, there prevails no universal validity concerning the influence of age.

Last but not least, the determinant of team size must be considered. The first winning team has a team size of five, the second winning team a size of six, and the third one a size of four. In consideration of the remaining teams, especially the first three winning teams, consist of more people in most of the cases. For example, teams of three students could not come in first, second, or third. Hence, concerning team size, this study shows a positive influence on the ranking the more students are part of a team.

**Table 7**  
**INFLUENCE OF ATTRIBUTES ON RANKING**

Parameter value (Absolute Values)																							
Team		Gen-der		Study course																	Semesters	Ranking	
ID	Size	f	m	An	BG	EC	Fr	HS	CS	IS	CC	Li	LS	MB	PS	LM	La	SoS	So	BE			
1	4	2	2		1				½		1	½						½		½	8,8,12,12	n.n.	
2	4	0	4								4										6,6,6,8	n.n.	
3	3	0	3		2						1										6,6,6	n.n.	
4	6	2	4								2										4	2,2,2,6,6,7	2
5	5	2	3															½		2½	2	2,6,6,6,7	n.n.
6	4	0	4																		4	4,4,4,4	n.n.
7	4	0	4											1							3	4,4,4,4	n.n.
8	6	6	0	1½			⅓						⅓						2	1	1½	6,6,6,6,6,6	n.n.
9	4	0	4																		4	2,2,2,2	n.n.
10	3	3	0													1	1	½			½	4,6,9	n.n.
11	5	5	0																		5	2,2,2,2,2	1
12	5	3	2							1					½	1				1½	1	4,4,6,8,8	n.n.
13	4	0	4					½			2				½		½	½				4,6,8,8	3
14	4	2	2			½														½	3	4,4,6,6	n.n.

An: Anglistics; BG: Bioinformatics and Genome Research; EC: Educational Science; Fr: French; HS: Historical Science; CS: Computer Science; IS: Intelligent Systems; CC: Cognitive Computer Science; Li: Linguistics; LS: Literary Studies; MB: Molecular Biology; PS: Political Science; LM: Law and Management; La: Law; SoS: Social Science; So: Sociology; BE: Business Administration and Economics  
Fractions represent cases in which a student takes main and minor subjects.  
Author's own figure

## DISCUSSION

The main findings can be summed up in combination with a theoretical contribution. In consideration of the recommendations for entrepreneurship education from the theoretical perspective and other studies, the entrepreneurship program at Bielefeld University consists of theoretically and mostly practically oriented courses. Also, the suggestion of the contents and the inclusion of various stakeholders happens in the entrepreneurship program.

Concerning the questionnaire focusing on entrepreneurial traits, a comparison with theory is also possible. In consideration of the profile of the personage, knowledge and presentation skills, vision and ideation, assertiveness and self-confidence, and structuredness and organization are most pronounced among the students. Especially idea generation and innovativeness, as well as self-confidence, should be distinct from the theoretical perspective. While the creativity only has an average value in this study, it is recommended by theory and other studies to be much higher. Also, from the theoretical perspective and other studies, networking symbolizes an important aspect, but it is only little pronounced among the students in this survey. Regarding the sampled motives in entrepreneurship, a connection can be established with other literature. Congruent to other studies, the students would appreciate flexibility and the independence of being an entrepreneur. By creating something new, they sense the so-called need to achieve. Whereas other studies identified that entrepreneurs should show risk acceptance, some kind of risk-aversion resulting from uncertainties was pronounced among the students and named as a hindrance of being an entrepreneur. Otherwise, the students described themselves as ambitious, passionate, and enthusiastic with a lot of motivation to change something and the will to pursue

their goals, all of which are identical to other studies. With the help of lateral thinking, they contribute to the question about nonconformity. In terms of team behavior, the results are also consistent with the literature with the exception that the majority of the students prefers to work alone, while it has been detected very often that teams are more successful.

Regarding the team analysis, congruence and incongruence to existing studies and the literature could be found. In keeping with the presented literature, the influence of gender in entrepreneurial teams is also equivocal in this practical example of entrepreneurial teams at Bielefeld University. While other studies favor a diversified educational background leading to the solving of a problem by multiple perspectives, in this investigation there was no significant difference of the study course having influence on the final ranking of the teams. Corresponding to the literature review, no concrete conclusions could be made concerning age diversity in the entrepreneurial teams, but negative effects of age diversity seem to predominate. This is in accordance with the examination of the founding teams in practice because no consistent results for the influence of age emerged. The negative effects of age diversity could not be discovered due to the fact that the range of age of the students, despite different semesters, is not broad. While the theory and other studies recommend that a team size of a maximum of three persons or a minimum of six persons is favorable, this study arrives at another conclusion with successful teams with four to six members.

The results concerning the implementation of entrepreneurship education program at university on the one hand and the composition of founding teams in an academic context on the other hand, can be transferred to a practical application. Therefore, following implications for academia and practice can be derived from the analysis of the results:

- In order to develop a successful entrepreneurship education program at a university, it should consist of theoretically and practically oriented elements. The content should be geared to the founding process and stakeholders of the (local) entrepreneurial ecosystem should be involved.
- Students taking part in such an entrepreneurship education program possess a wide range of entrepreneurial traits that should be enlarged and developed further within the program.
- Concerning the composition of founding teams (in an academic context), the formation of teams in terms of gender, educational background and age should not be predetermined by the lecturer because of equivocal effects whereas the lecturer should require a team size of four to six students.

## CONCLUSION

However, a contribution to existing research could be made by considering some limitations. The questionnaire served as an overview of the distribution of entrepreneurial traits in the entrepreneurship course. Demographical data was not collected in this connection so that no conclusions could be made at this juncture and the composition of the different teams considering the entrepreneurial traits could not be discovered. Moreover, the survey as well as the examination of the founding teams only took place at Bielefeld University with a manageable number of participants. Hence, the research cannot be seen to be representative, and direct conclusions for entrepreneurship students at other universities cannot be made. Particularly, it has to be considered that most of the students have not already founded a business company, that the entire foundation does not take place in this course, and that not every team has the same motivation to found a business company—e.g. founders in reality do not take part in this university program. This may have influence on the attitudes toward motives in entrepreneurship and entrepreneurial traits in general.

Right from these limitations arise possibilities for future research. With the help of an extended questionnaire, demographical data could be added, and the participants could mark their team in an anonymous way in the questionnaire in such a way that further correlations of additional parameters having influence could be identified. Moreover, it could be enquired whether the students have already founded their own business companies or intend to do that to differentiate these results from those who do not have the intention. Furthermore, a survey examining the general entrepreneurial traits could be conducted in other non-entrepreneurship courses. Thus, it can be discovered if and to what extent the entrepreneurial traits of the entrepreneurship program participants differ from those of non-entrepreneurship students at Bielefeld University.

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