

Student Entrepreneurship: An Application of the Theory of Planned Behavior

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Abstract

Positive influence on entrepreneurial education deepens the individual psychological factors that lead to a higher probability of exerting entrepreneurial activity. This paper defines the student entrepreneur as an individual who actively enrolled in university, attends entrepreneurial classes, and conducts innovative revenue-generating entrepreneurial activities. The existing literature on student entrepreneurship addresses only the implications of personality traits, which lacks the contextual influences on student entrepreneurship. Therefore, this study deals with the influence of embeddedness in different contexts reflected on the transformation of entrepreneurial intention to actual exertion of entrepreneurial behavior of students. The concept of the theory of planned behavior is used to support the development of the research framework. It is one of the most applied theories for explaining and predicting the behaviors of individuals. This study addresses the research question of what factors enhance and limit the transformation of the entrepreneurial intention of students to entrepreneurial behavior? The study denoted that without contextualizing the entrepreneur's dedicated environment, the influencing factors for transforming intention to behavior cannot be depicted as a whole. Moreover, the combination of different contexts and their different peculiarities needs to be considered.

Keywords: *Student Entrepreneurship, Embeddedness, Theory of Planned Behavior*

1 Introduction

Existing academic studies on student entrepreneurship are generally motivated by the influence of education on student entrepreneurship. Most studies reveal that positive education influences the individual psychological factors, thus leading to a higher possibility of exerting entrepreneurial activity (Welsh, Tullar, & Nemati, 2016). Therefore, research highlights the importance of psychological factors regarding entrepreneurial activity as well. Nevertheless, the importance of contextualization for entrepreneurship was only recently illuminated (Welter, 2011). However, the extant research on student entrepreneurship has not paid sufficient attention to the context specific to students. Hence, the following paper deals with the influence of embeddedness in different contexts reflected on the transformation of entrepreneurial intention to the actual exertion of entrepreneurial behavior of students. Explaining human behavior, such as entrepreneurial activity, in all its complexity, is a difficult task. Concepts referring to behavioral complexion have played an important role in prediction and explaining behavior. Thus, this study applies the concept of the Theory of Planned Behavior (TPB) for an appropriate research

framework. As students are a driving force for entrepreneurial activity and innovation, based on various reasons, such as access to pioneers in the relevant academic field, the paper illuminates the influence of contexts on entrepreneurial activity for students. Based on the described factors above, the following research question was derived:

- What factors enhance and limit the transformation of the entrepreneurial intention of students to entrepreneurial behavior?
- The following chapter depicts recent developments of research on student entrepreneurship, followed by relevant definitions and an introduction to the TPB. Furthermore, the derived research concept will be presented, which will be completed by the development of different propositions. In the end, the research contributions will be summarized, and possible future research perspectives will be illustrated.

2 Theoretical and Conceptual Background

2.1 Recent Development

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Recent studies, such as the Global Entrepreneurship Research Association (2018) reports that key factors consist of individual psychological factors and embeddedness within different contexts. The model of the TPB is often used to explain the entrepreneurial intention of students. Only certain personal factors, such as motivation, attitude, self-efficacy, or values, are investigated. However, the additional implication of contextual variables has been neglected. Research dealing with driving forces of entrepreneurial activity of students mainly focuses on the implications of personality traits and entrepreneurial education (Nowiński & Haddoud, 2018). Therefore, the existing literature on student entrepreneurship lacks contextual influences and has dealt only with individual determinants (Bergmann, Hundt, & Sternberg, 2016).

2.2 Definition and Characteristics

In literature, entrepreneurs are defined in several ways. The same applies for student entrepreneurship, but the definitions are considerably less specific. As a consequence, student entrepreneurs are often mixed with academic entrepreneurs. Admittedly, the research on academic entrepreneurs rather illustrates university members exerting entrepreneurial activities, rather than students (Politis, Winborg, & Dahlstrand, 2011). The following paper relegates to the definition of ‘Studentpreneur’: An individual actively enrolled in university, attends entrepreneurial classes, and conducts innovative revenue-generating entrepreneurial activities (Marchand & Hermens, 2015). Therefore, the focus on contextual embeddedness is linked to the definition above.

2.3 Research Gap

The main focus of literature concerning student entrepreneurship lies within entrepreneurial education (EE) and its impact on entrepreneurial intention and behavior. Various conducted systematic literature reviews in this research field indicate that these topics have been investigated in several approaches (e.g., Liñán & Alain, 2015; George et al., 2014; Sirelkhatim & Gangi, 2015). Previous studies mostly refer universities as a facilitator for EE. This scope implies that students are merely recipients of EE, resulting in a high probability of entrepreneurial activity. While the

enhancement of such behavior is significant, the scope simplifies the impact of contextual embeddedness in student life. Therefore, it is essential to consider a student as an actor embedded in different contexts (Wright, Siegel, & Mustar, 2017). Recently published papers highlight the importance of contextualization on the entrepreneurial activity of students (Morris, Shirokova, & Tsukanova, 2017). Nevertheless, the current research status of student entrepreneurship calls for further studies exploring the different contexts influencing a student in entrepreneurial activity. Therefore, it is necessary to shift the scope from EE to the student itself and understand the student as an actor embedded in different contexts.

2.4 Theoretical Lens

2.4.1 Theory of Planned Behavior

The TPB is considered as one of the most applied theories for explaining and predicting behaviors of individuals (Zhang, 2018). Ajzen (1991) explains that the perception of human behavior is more affected by external and objective factors rather than individual factors (Zhang, 2018). Thus, the main assumption of the TPB explains that attitude, subjective norms, and perceived behavior control (PBC) influence intention and behavior (Ajzen, 1991). For reasons of simplification, the correlation between PBC and behavior has not been taken into account in this paper. However, it should be noted that this relation does exist.

In the field of entrepreneurship, the TPB has been used to explain and predict behavior. Since entrepreneurship can be seen as “[...]an intentional process in which individuals cognitively plan to carry out the behaviors of opportunity recognition, venture creation, and venture development.” (Lortie & Castogiovanni, 2015, p. 936) and due to the applicability, the theoretical framework can be considered as suitable. The basic assumption of the TPB is that intention results in any kind of behavior. Intention can be seen as a collection of driving factors that influence behavior. Therefore, they can be used as indicators of how much effort an individual is planning to perform a certain behavior (Lortie & Castogiovanni, 2015). If the intention to perform a behavior is strong, the execution of that behavior is more likely. Thus, intention portrays a central factor of the TPB. According to this theory, the

behavior of humans is controlled by three different kinds of considerations: the belief about the possible consequences (behavioral belief), belief about the normative expectations of other people (normative belief) and about the existence of factors that may affect the performance of the behavior (control belief). Behavioral belief results in an attitude towards the behavior, which can be favorable or unfavorable. Furthermore, normative beliefs result in subjective norm, and control belief turn PBC (Ajzen, 2002).

Attitude, which one holds towards behavior, is described by Ajzen (1991) the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. As a result, the intention will be affected by the dependence of how favorable the individual evaluates the behavior. The more distinctive the attitude, the more obvious the interdependence between attitude and behavior (Ajzen et al., 1980).

Perceived behavioral control refers to the perceived ease or difficulty of performance. It includes the attitude of an individual towards the PBC concerning past experience but also anticipated obstacles (Ajzen, 1991). If an individual has a high PBC, the development of performance or intention is more likely.

The combination of attitudes, subjective norms, and PBC has an impact on the intention of an individual. In general, the more favorable the attitude, subjective norm, and greater PBC, the more likely an individual's intention is stronger to perform a behavior (Ajzen, 1991). The three factors may influence each other, but have different influences on behavioral intention separately (Zhang, 2018).

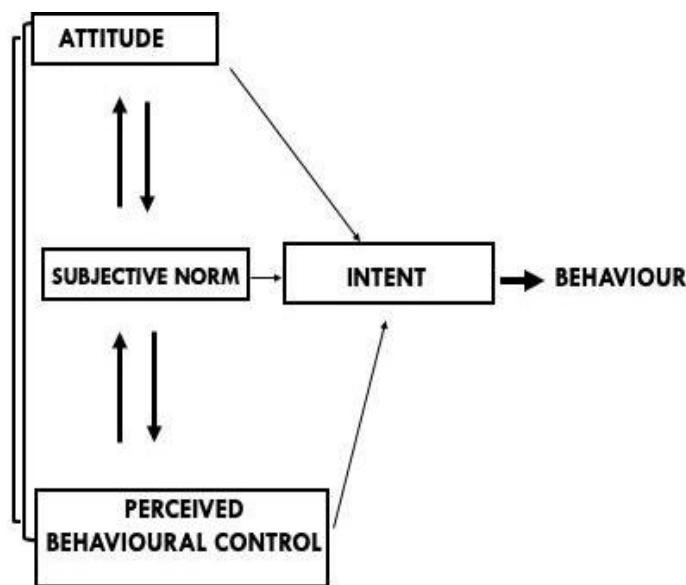


Figure 1: Theory of Planned Behavior

Source: Own visualization based on Ajzen 2011

Subjective norms are defined as a reference to the perceived social pressure to execute a certain behavior. Therefore, subjective norms can be seen as indicators of how important an individual evaluates the opinion of others or the (dis-) approval of a certain group. Important reference groups typically include family members and close friends. The attitudes regarding the subjective norms represent the perceptions that a person has about the assessment of others concerning the behavior (Lortie & Castogiovanni, 2015).

2.4.2 Selected Theoretical Construct

As already scratched, there is growing recognition in entrepreneurship research that economic behavior can be better grasped within its conceptual contexts, as these contexts either provide individuals with opportunities or set limits to their actions. Therefore, the context can be a liability or an asset for the nature and extent of entrepreneurship (Welter, 2011). On top of that, researchers argue that contextual embeddedness has been neglected, as entrepreneurship research

mainly focuses on individual factors (Saeed et al., 2015). By addressing the phenomenon of student entrepreneurship from a contextual perspective, we respond to the critique of entrepreneurship research focusing on individual factors. Entrepreneurs are embedded in social, cultural, and political contexts, which ingest an essential role in their behavior and activity (Thornton et al., 2011). However, as we are focusing on student entrepreneurship, we do not consider the political context and concentrate on an economic context. In this paper, the economic context of student entrepreneurship is defined as the student's financial situation (e.g., student job, dependency on parents, dependency by financial loan). This does not mean that students are not

illuminate, is the cultural context. As university life is shaped by diverse cultures, in the form of different socio-economic and geographical groups, it is critical in forming intercultural competence. Scholars from minority groups have expanded and enriched education and teaching in many academic disciplines by offerings new perspectives, raising new questions, challenges, concerns, and encouraging innovative thinking. As innovative thinking and new perspectives are the core for entrepreneurial activity, the cultural context is fundamental for student entrepreneurship. Based on this argumentation, we deviated the following schematic:

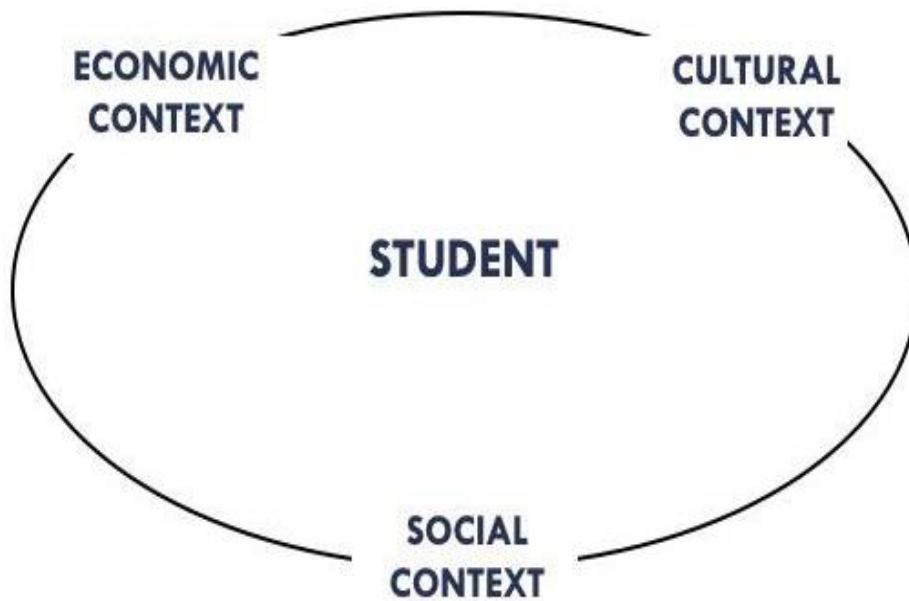


Figure 2: Contextual Embeddedness of Students
Source: Own visualization

embedded within a political context. Nevertheless, we argue that the economic context is more prominent in the mind of the student as he or she faces a lot of financial challenges while studying. This includes living conditions such as renting an apartment, provisions or student loan, course material, and tuition fees. Furthermore, there is a strong connection between both cultural and social contexts to student's life. Social context, in this case, is defined as the interaction a student has with different people (e.g., family, friends, university colleagues, and work colleagues). Entrepreneurs' social networks are essential to opportunity recognition (Ardichvili et al., 2003). An extended network results in more opportunities for entrepreneurship, deriving in the assumption that social contexts influence the entrepreneurial activity of students. The third context, which we

Within these different contexts, we focused on embedded factors like family, friends, financial situations (see Figure 1) to set up our propositions. These factors are explained in detail within the development of our propositions.

As contextual embeddedness and individual factors, both have an impact on entrepreneurial action. The framework bases on the interdependence of contexts and individual factors for the transformation of entrepreneurial intention to behavior. Based on the recent research of entrepreneurship and the recognition of the importance of embeddedness in a different context for economic behavior. A transition of the contextual embeddedness of students on the theory of planned behavior within the student entrepreneurship has been deduced (see Figure 3).

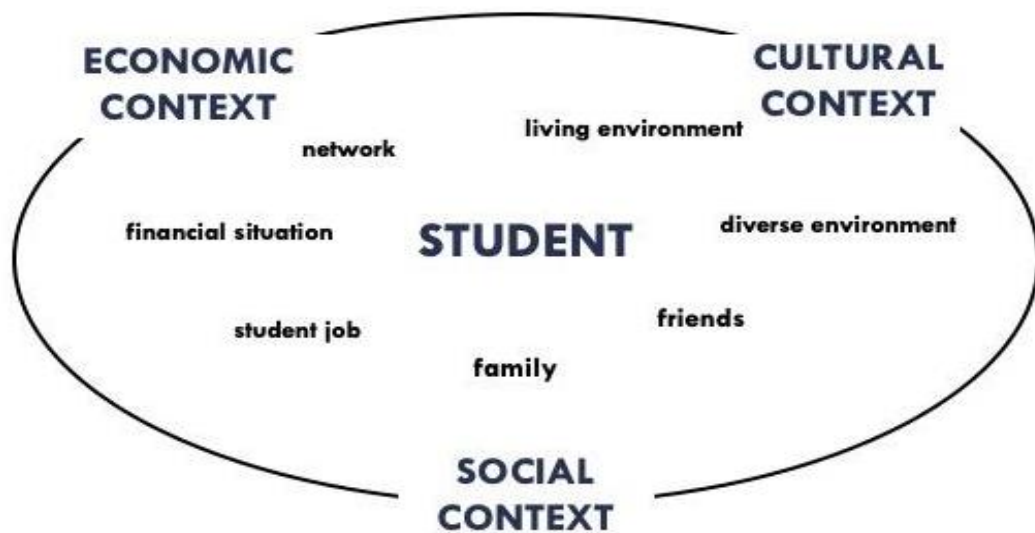


Figure 3: Embedded Factors of Contexts Influencing Student Behavior
Source: Own visualization

Our conceptual framework shown above assumes that different contexts and their embedded factors (see Figure 4) have an impact on the three antecedents' factors attitude, subjective norm, and PBC model of the theory of planned behavior, therefore leading to an influence on entrepreneurial intention.

to be a predictor of behavior and, in consequence, a crucial factor for exerting certain behavior (Sheeran & Webb, 2016). Regarding our research question, "What factors enhance and limit transformation of the entrepreneurial intention of students to entrepreneurial behavior?" By considering the researched literature and our

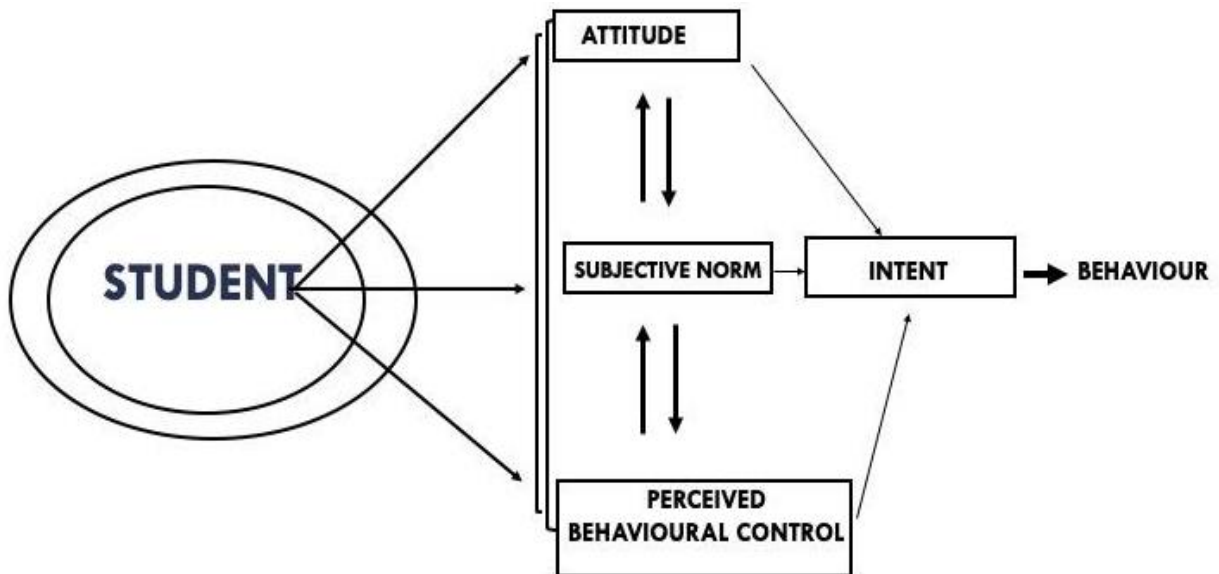


Figure 4 Transition of Context and Theory
Source: Extended the model developed by Ajzen (2011)

Intention-Behavior relations are widely researched. The intention is defined as the individual's self-instruction to achieve desired outcomes and to perform particular actions to achieve these outcomes (Ajzen, 2011). Thus, intentions are assumed to capture both the level of commitment an individual has and the motivational factors influencing the individual. Furthermore, correlational studies indicate that intention is aimed

developed framework shown above, we concluded that different contexts could either enhance or limit the mentioned transformation from intention to behavior. Based on this, we developed the following research propositions, which focus on an embedded factor within one of the three mentioned contexts (social, cultural, and economic) and illuminate their influence on the transformation entrepreneurial intention to behavior.

3 Development of Propositions

In the last decades, universities increased the level of cooperation between each other, for example, through international student exchange programs such as ERASMUS+. Due to the improvement of student's mobility, universities embody a high level of cultural diversity and, as a consequence, can be interpreted as a place of cultural encounter. Therefore, universities incorporate a cultural ecosystem that has a significant influence on the entrepreneurial intention of students (Contiua, Gaborb, & Stefanescuc, 2012). In the case of student entrepreneurship, students differ in their origin, level of performance, and experiences in entrepreneurial behavior (Morris et al., 2017). Based on cultural attitudes towards entrepreneurship and the possible experience of international students, local students can benefit from the before mentioned factors through social

entrepreneurial intentions (Bogatyreva et al., 2019; Contiua et al., 2012). This suggests that a universities' cultural ecosystem can be seen as an influential factor in student's entrepreneurial intention and activity. Positive experiences regarding cultural exchanges can increase the likelihood of entrepreneurial behavior through the mutual enhancement of student's attitudes and PBC. If the cultural diversity within the university is associated with a negative experience, then the PBC will decline as a result of a perceived lack of self-confidence about the cultural encounter. Based on this, the following proposition was made:

RP-1: University context is associated with a diverse environment and thus leads to more openness of students regarding cultural differences.

RP-1a: This mutually enhances attitude and PBC.

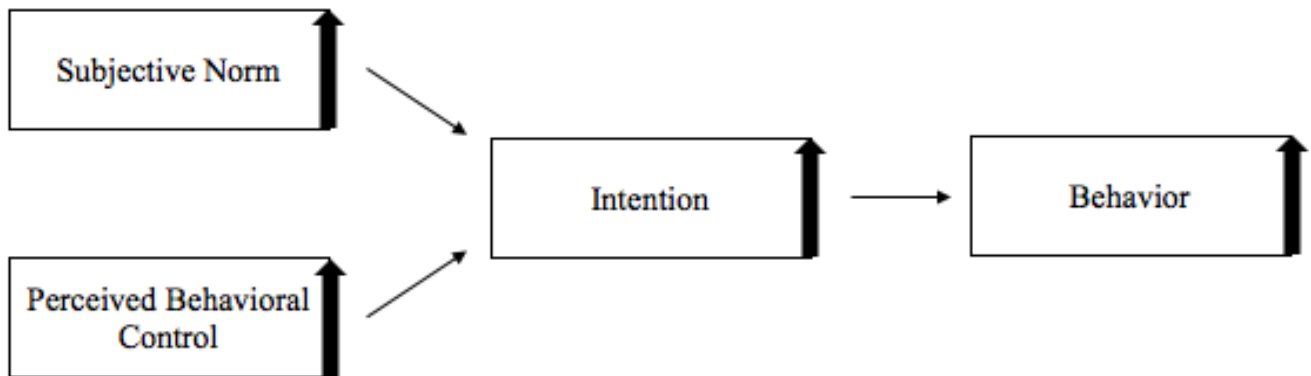


Figure 5: Context's Impact on Elements of Theory of Planned Behavior (RP-1a)
Source: Own visualization

interactions (Ferreira, Loiola, & Gondim, 2017). In addition to the environment of the university itself, the location or region in which the university is located plays a vital role concerning the entrepreneurial intention of the students

RP-1b: This enhances the attitude towards entrepreneurial intention but is cushioned by a decrease of PBC.

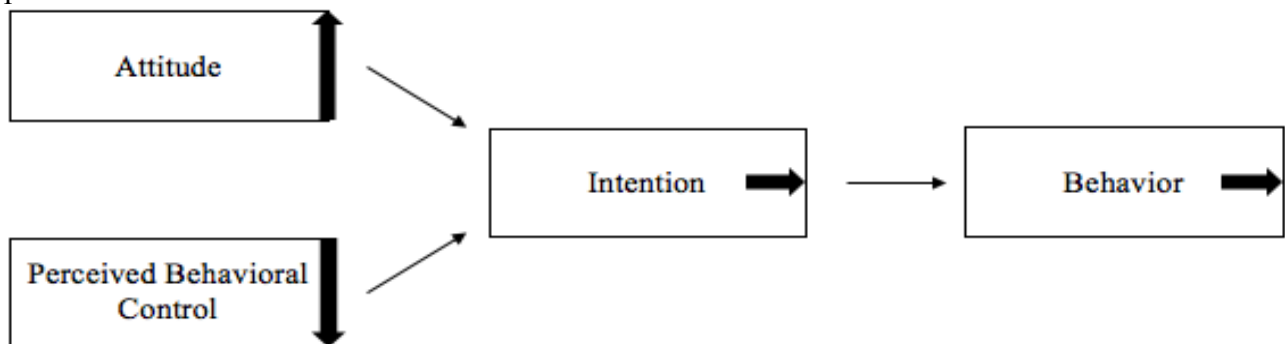


Figure 6: Context's Impact on Elements of Theory of Planned Behavior (RP-1b)
Source: Own visualization

(Bergmann et al., 2016). Moreover, cultural diversity will affect the cultural scope and competencies that might support student's

Many previous works of literature, both in economics and in psychology, have shown that personal traits are significant predictors of a variety

of socio-economic outcomes. In regards to the development of personality traits research furthermore indicates that it is strong linked to the family environment (Nakao et al., 2000). Therefore, we argue family, an embedded factor within the social context of the student, as an

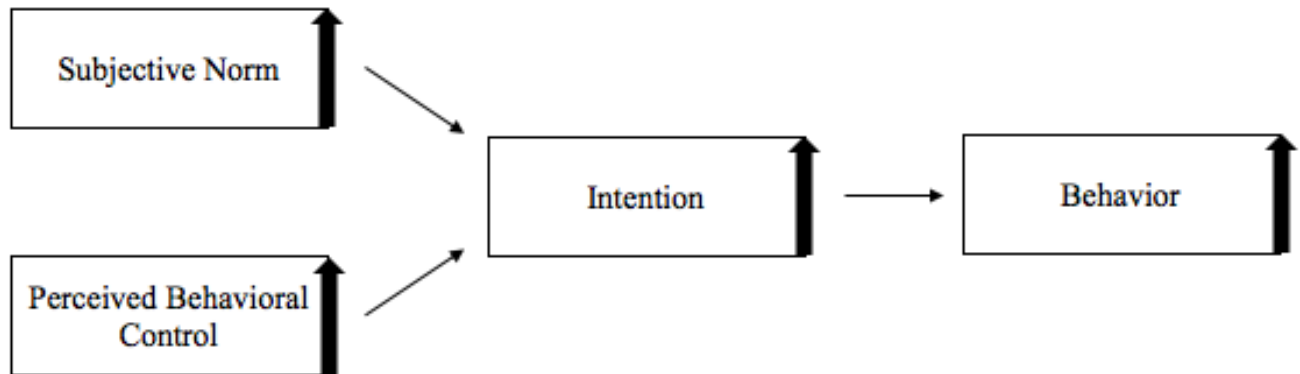


Figure 7: Context's Impact on Elements of Theory of Planned Behavior (RP-2a)
Source: Own visualization

influencing entity for the transformation of entrepreneurial intention to behavior. Especially, family-related early life experiences play an essential role in forming an individual's beliefs, attitudes, and intentions (Bronfenbrenner, 1986). Furthermore, research illustrates that being part of an entrepreneur family increases the chance for the entrepreneurial activity of students. In conclusion, students whose parents own a business show a significantly higher preference for self-employment (Fini et al., 2009). Hence, it can be derived that a supportive family is a crucial factor for student entrepreneurship. A positive attitude

RP-2: Family has an impact on transforming entrepreneurial intention to behavior.

RP-2a: A supportive family mutually enhances subjective norm and PBC of the individual.

RP-2b: A non-supportive family enhances attitude towards entrepreneurial intention and entrepreneurial behavior.

Entrepreneurial activity is embedded in a social context (Krueger & Brazeal, 1994). As a result, it is assumed that employment experience plays an essential role in the early stages of the startup process (Wong & Lee, 2006). The intent to pursue an entrepreneurial career of an individual can result from the work environment (Lee et al., 2011). Previous experiences of students enable them to acquire essential skills and knowledge that can be

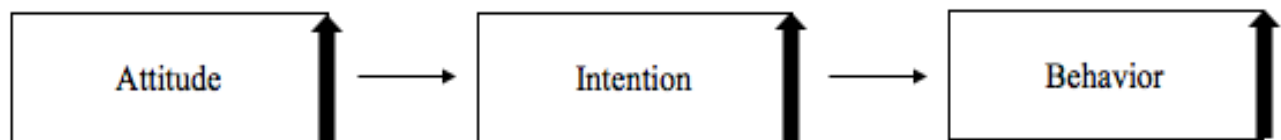


Figure 8: Context's impact on elements of Theory of Planned Behavior (RP-2b)
Source: Own visualization

and support of the family can ease the perceived difficulty of performing a behavior and starting a business connection. Therefore, it also has a positive influence on attitude. A non-supportive family can enhance the perceived social pressure on the student. Thus, the student feels reluctant to go into self-employment. Nevertheless, a non-supportive family can also evoke a contrary reaction. For example, the student feels challenged by the negativity of the family, and consequently have a strengthening impact on attitude. Based on this fundament, the following proposition was inferred:

applied to the startup. Therefore, student entrepreneurship should be considered in a job-related context in which students are embedded because of the embeddedness of students in the job-related context, and job identification can be seen as a critical factor within the consideration (Luhtanen & Crocker, 1992). This perception is also supported by studies, which have established that job satisfaction predicts entrepreneurial activities (Brockhaus, 1980). If students possess a high identification with their job and hence a positive interpretation of job-related conditions, it increases the job-related PBC and, as a

consequence, decreases the likelihood of entrepreneurial behavior (Chen, Chi, & Friedman, 2013). It constituted in the satisfaction which is correlated to the job, the perceived importance, and the length of employment. Employees who enact strong job identification are more likely to tie their future to the organization (Hatak, Harms, & Fink, 2015). Organizational identification fulfills the individual need and, therefore, their attitude, such as needs for safety, self-enhancement, and lead in summary to higher job satisfaction (Chen, Chi, & Friedman, 2013). The perceived ability to execute the relevant task of entrepreneurship is the origin of the motivation to the entrepreneurial act.

Therefore, self-efficacy can be defined as a key variable, which affects the strength of entrepreneurial intention and the likelihood that intention transforms into actions mutually (Boyd & Vozikis, 1994). Consistent is a strong manifestation of self-efficacy that is proved to have

to the impact of job identification and satisfaction on entrepreneurial activity, a negative experience with employment results in a decrease of PBC, and coeval increases the plausibility of entrepreneurial behavior. A positive correlation between low job satisfaction and entrepreneurial intention results in entrepreneurial behavior. It substantiated in the fact that frustrated employees are more likely to consider entrepreneurship as a future option (Brockhaus, 1980).

RP-3: Employment experience shifts perspective on entrepreneurial opportunities. The influence on entrepreneurial intention depends on the kind of experience.

RP-3a: A positive employment experience increases PBC in non-entrepreneurial employment and therefore decreases the likelihood of entrepreneurial behavior.

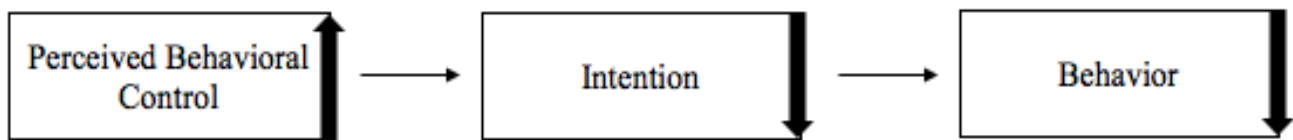


Figure 9: Context's Impact on Elements of Theory of Planned Behavior (RP-3a)
Source: Own visualization

a high correlation with strategic risk-taking (Krueger & Dickson, 1994) and is positively related to the intent to perform entrepreneurial behavior (Krueger, Reilly, & Carsrud, 2000). Employees who are satisfied with their current job situation are less likely to be an entrepreneur as an alternative (Hatak, Harms, & Fink 2015). The proponent of entrepreneurship can be mentioned as a negative situational factor, such as dissatisfaction

RP-3b: An adverse employment experience pushes attitude towards entrepreneurial intention.

The decision to start a business depends strongly on the environment in which the student is living. The “Embeddedness Theory” is a useful framework for explaining this influence. The theory highlights the

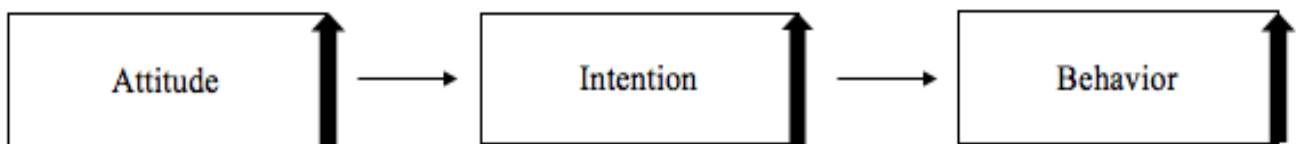


Figure 10: Context's Impact on Elements of Theory of Planned Behavior (RP-3b)
Source: Own visualization

within the job. Dissatisfaction portrays a significant source of motivation regarding entrepreneurship (Wong & Lee, 2006). Previous Dutch studies expose that frustration concerning previous wage employment is the most common driving factor for entrepreneurship (Noorderhaven et al., 2004). Due

role and influence of networks of social relationships and the trust gained through these relationships in individual decision-making and goal-oriented action. Individual decisions and actions are partly influenced by the behavior and expected behavior of others in the relevant

environment (Granovetter, 1992). Behavior is, therefore, a consequence of the influence of the social context on a student. In the case of student entrepreneurship, it seems more suitable to regard entrepreneurial behavior as embedded in a university context. Besides the university context, other external factors of the direct environment of a student can steer and influence behavior. Low entrepreneurial activity in an area is associated with a lack of financial resources, business skills, knowledge, the necessary infrastructure, support, and networking with professional networks (Morris et al., 2017). This example shows that the

entrepreneurial intention of the student will be significantly higher. In summary, the region, the entrepreneurial ecosystems, and the university environment influence the intention of entrepreneurial activism (Wright et al., 2017). Based on this exposure to a well-developed entrepreneurial ecosystem, we conclude the following proposition:

RP-4: A well-developed ecosystem within the direct environment of the student is related to a higher level of entrepreneurial intention through an extended PBC and subjective norm.

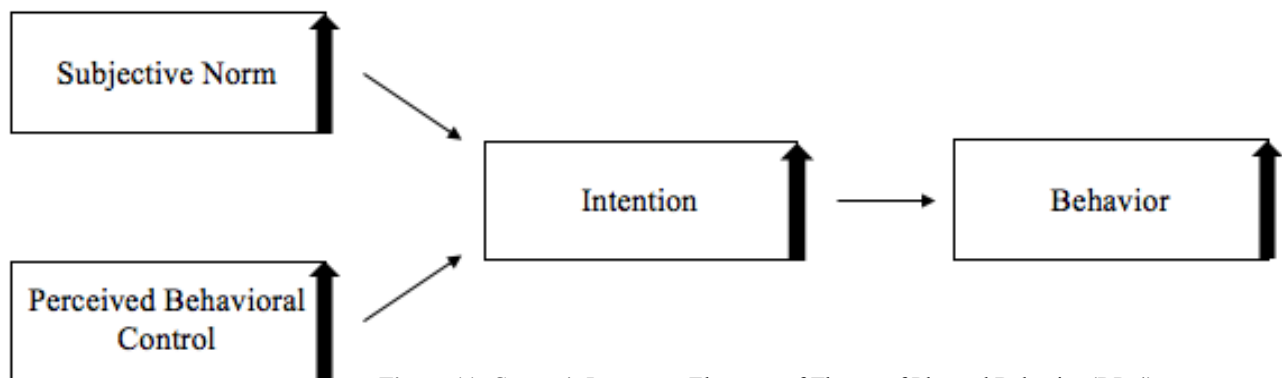


Figure 11: Context's Impact on Elements of Theory of Planned Behavior (RP-4)
Source: Own visualization

environment contributes significantly to the decision to perform entrepreneurial behavior. If a student is embedded in an entrepreneurship-friendly environment, the student will demonstrate an extended PBC and an increased intention to perform the entrepreneurial behavior. Fellow students have a decisive impact on the environment of a student. For example, fellow students with entrepreneurial experience might be more influential than pure teaching in the classroom. Such a network in the direct environment of a student can strengthen PBC. Furthermore, an established traditional startup community plays a vital role in the entrepreneurial ecosystem. Among others, it consists of investors, incubators, accelerators, and events. It is crucial that the student feels at least partially embedded in a well-developed ecosystem so that the supportive community can influence the student. A well-developed ecosystem can improve the PBC and the subjective norm to strengthen entrepreneurial intention and behavior. The region, in this case, politics, institutions, and regional industry, in which the student is embedded, plays an essential role in the decision-making. If it turns out to be supportive of entrepreneurship, then the

The fifth proposition focuses on the interdependence between the exposure to the field of entrepreneurship through social interactions between a student and fellow students with high entrepreneurial conviction and their impact on the entrepreneurial intention of students. The literature mostly values universities as incubators. Studies with this kind of perception investigate the effect of infrastructure, such as the availability of offices or laboratories for entrepreneurial purposes (Di Gregorio & Shane, 2003; Etzkowitz & Klofsten, 2005; Gnyawali & Fogel, 1994). Other research activities focus on financial support mechanisms that universities provide and state that such programs enhance the likelihood of entrepreneurial student activities but simultaneously limiting the scope (Shirokova, Tsukanova, & Morris, 2018). Also, researchers within the field of entrepreneurship investigated the influence of exposure to entrepreneurship in universities through campus magazines or the websites of responsible faculties within the university context of students. It highlights an increase in entrepreneurial motivation through a higher level of awareness (Aguirre, Parellada, & Campos, 2006; Burg et al., 2008; Etzkowitz &

Klofsten, 2005; Laukkanen, 2003; Moray & Clarysse, 2005). However, university as a place of exposure to entrepreneurship influences student's entrepreneurial intention through the social interactions between a student and fellow students even though a student may not participate in curricular or ex-curricular entrepreneurial programs (Wright et al., 2017). Souitaris, Zerbini, and Al-Laham (2007) confirm the impact of fellow student's perception of entrepreneurship on entrepreneurial intention of other students. Their study proves this influence on a student's subjective norm. Furthermore, Boyd, Fietze, and Philipsen (2015) state that within entrepreneurial activities conducted as a group, there is a high probability that founding members are fellow students. Therefore, it can be assumed that one reason for this lies within the impact of fellow students on one student's PBC. However, most studies only consider the influence of social interactions with family members and friends. Hence, the following proposition was developed:

RP-5: On-campus students are more confronted with topics of entrepreneurship. Therefore, fellow students with high entrepreneurial conviction can influence entrepreneurial intention. This influence mutually enhances subjective norm and PBC.

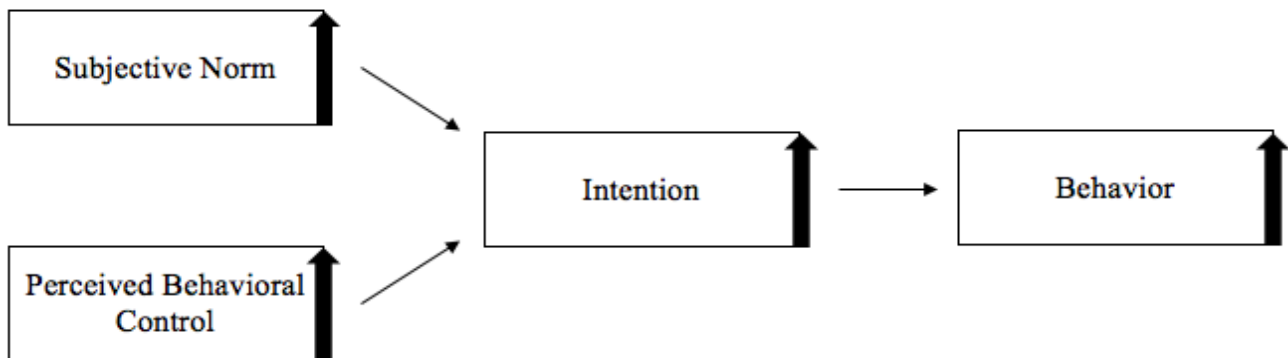


Figure 12: Context's Impact on Elements of Theory of Planned Behavior (RP-5)
Source: Own visualization

As already briefly discussed in chapter, 2.4.2 friends play an important role within the social context (Loi, Chan, & Lam, 2014). A distinction has to be made between different types of friends. While university friends are simultaneously part of the social and educational context of a student, this assumption is inapplicable with close non-university friends (Loi, Chan, & Lam, 2014). Perceived social pressure from friends is an example of the subjective norm, which influences

the entrepreneurial intention (Ho, Ocasio-Velázquez, & Booth, 2017). The fact that close non-university friends have limited access to entrepreneurial courses within the university, they may be opposed to the student's founding considerations. Several studies show that the influence of friends can be greater than the influence of the university. If close non-university friends do not support the student's entrepreneurial intention, the student might not have the courage to start a business. In addition, loans of friends represent the main part of financial resources for student entrepreneurs (Bathelt, Kogler, & Munro, 2010; Soetanto & van Geenhuizen, 2015). This applies not only to financial support but also to emotional support, advice, or information (Diáñez-González & Camelo-Ordaz, 2017). For example, if close non-university friends do not share the same level of entrepreneurial conviction, such resources are not accessible. This might result in a decrease in PBC. Further studies show that the opinions of friends play a significant role in making crucial decisions, and, in some cases, influence them the most (Gannon et al., 2014; Nyaribo, Prakash, & Edward, 2012). If a student receives no support in any way from close non-university friends and/or they do not approve of the student's startup activities and/or have made bad experiences with startups themselves. Consequently, the student can be disparaged from attitude and internal control.

RP-6: Close non-university friends can cushion the encouraging impacts of the university towards entrepreneurial intention regarding PBC and attitude, based on the need for reputation.

4 Research Contribution and Future Research

In reference to the introduction, it was already scratched that contextual the embeddedness of students has been neglected. While the significance

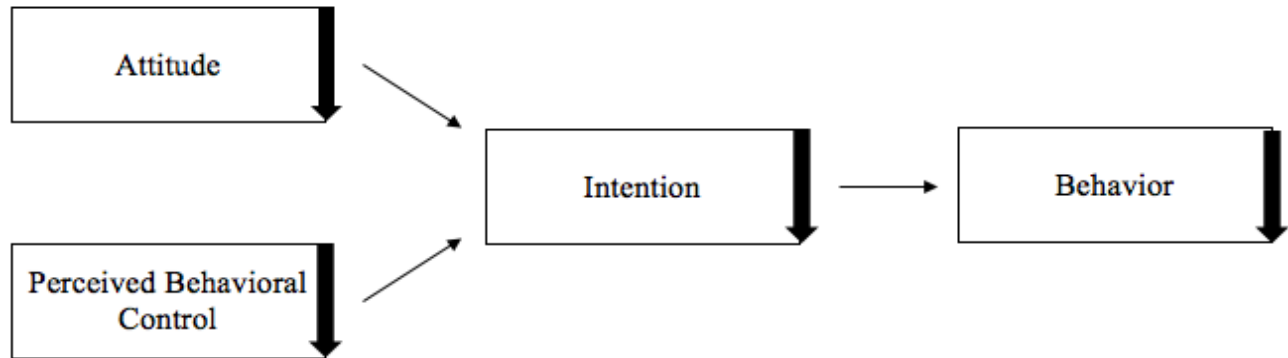


Figure 13: Context's Impact on Elements of Theory of Planned Behavior (RP-6)
Source: Own visualization

of context has been emphasized in research (Welter, 2011), it is still not clear how context is influencing the transformation of entrepreneurial intention to entrepreneurial behavior. Regarding our research propositions, it can be derived that contextual embeddedness is a relevant factor for transforming entrepreneurial intention into entrepreneurial behavior. Aside from that, the high complexity of context composition and their interdependence with each other is a relevant result for future research. Hence, we suggest, entrepreneurial education is not the key to lifting barriers between intention and behavior. It can be an impacting entity but cannot be seen as a single component for transforming entrepreneurial intention to entrepreneurial behavior as it would simplify the student. Therefore, we suggest that future research should consider the following aspects:

- (1) The embeddedness of students in different contexts: While this paper already depicted contexts of students, there are still more contexts that influence the entrepreneurial activity of students.
- (2) The combination of different contexts and their influence: As already mentioned, the high complexity of context composition needs to be researched.
- (3) The interdependence of individual factors and contexts: Both individual psychological factors and contextual embeddedness have an impact on transforming entrepreneurial intention to behavior.

- (4) The development of a contextual framework: To be able to compare entrepreneurial activity, it is advisable to develop a contextual framework that allows more comparability between each entrepreneur.

5 Conclusion

As context plays a significant role in behavior, the sufficiency of conducting interviews without regarding context needs to be evaluated. Notably, the interplay of different contexts and individual psychological factors face the consequence of high complexity for transforming intention to behavior. As each individual faces different challenges in entrepreneurial activity, it is explicit that both contextual embeddedness and individual psychological factors differ for each individual. Furthermore, the combination of different contexts and their distinct peculiarity need to be considered. Without contextualization, the entrepreneur within his or her dedicated environment, the influencing factors for transforming intention to behavior cannot be depicted as a whole. On top of that, conducting interviews should not solely focus on individual psychological factors but rather emphasize more on the contextual embeddedness. It is also critical to research the interdependence between both individual and contextual factors. Nevertheless, more contexts than the illustrated ones and more embedded factors within these contexts can influence the transformation of entrepreneurial intention to entrepreneurial behavior. Hence, a comparative study of students with intentions and/or behavior with a focus on contextual embeddedness and individual psychological factors is recommended.

Reference

- del Palacio Aguirre, I., Parellada, F. S., & Campos, H. M. (2006). University spin-off programmes: How can they support the NTBF creation? *International Entrepreneurship and Management Journal*, 2(2), 157–172. <https://doi.org/10.1007/s11365-006-8682-2>
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665–683. <https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>
- Ajzen, I. (1991). The theory of planned behavior as a predictor of growth in risky college drinking. *Journal of Studies on Alcohol and Drugs*, 72(2), 322–332. <https://doi.org/10.15288/jsad.2011.72.322>
- Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*, 18(1), 105–123. [https://doi.org/10.1016/S0883-9026\(01\)00068-4](https://doi.org/10.1016/S0883-9026(01)00068-4)
- Bathelt, H., Kogler, D. F., & Munro, A. K. (2010). A knowledge-based typology of university spin-offs in the context of regional economic development. *Technovation*, 30(9-10), 519–532. <https://doi.org/10.1016/j.technovation.2010.04.003>
- Bergmann, H., Hundt, C., & Sternberg, R. (2016). What makes student entrepreneurs? On the relevance (and irrelevance) of the university and the regional context for student startups. *Small Business Economics*, 47(1), 53–76. <https://doi.org/10.1007/s11187-016-9700-6>
- Bogatyeva, K., Edelman, L. F., Manolova, T. S., Osiyevskyy, O., & Shirokova, G. (2019). When do entrepreneurial intentions lead to actions? The role of national culture. *Journal of Business Research*, 96, 309–321. <https://doi.org/10.1016/j.jbusres.2018.11.034>
- Boyd, N. G., & Vozikis, G. S. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 18(4), 63–77. <https://doi.org/10.1177/104225879401800404>
- Brockhaus, R. H. (1980). The effect of job dissatisfaction on the decision to start a business. *Journal of Small Business Management*, 18(1), 37–43. <https://doi.org/10.1016/j.jaci.2012.05.050>
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development. *Developmental Psychology*, 22(6), 723–742.
- Burg, E. V., Romme, A. G. L., Gilsing, V. A., & Reymen, I. M. M. J. (2008). Creating university spin-offs: A science-based design perspective. *Journal of Product Innovation Management*, 25(2), 114–128. <https://doi.org/10.1111/j.1540-5885.2008.00291.x>
- Chan, T. J., & Lam, C. T. (2014). Type of peers matters: A study of peer effects of friends, studymates and seatmates on academic performance. *The Society of Labor Economists*, 1–38. Retrieved from <http://www.sole-jole.org/15224.pdf>
- Chen, Y.-C., Chi, S.-C. S., & Friedman, R. (2013). Do more hats bring more benefits? Exploring the impact of dual organizational identification on work-related attitudes and performance. *Journal of Occupational and Organizational Psychology*, 86(3), 417–434. <https://doi.org/10.1111/joop.12017>
- Contiua, L. C., Gaborb, M. R., & Stefanescuc, D. (2012). Hofstede's cultural dimensions and student's ability to develop an entrepreneurial spirit. *Procedia - Social and Behavioral Sciences*, 46, 5553–5557. <https://doi.org/10.1016/j.sbspro.2012.06.474>
- Di Gregorio, D., & Shane, S. (2003). Why do some universities generate more start-ups than others? *Research Policy*, 32(2), 209–227. [https://doi.org/10.1016/S0048-7333\(02\)00097-5](https://doi.org/10.1016/S0048-7333(02)00097-5)
- Diáñez-González, J. P., & Camelo-Ordaz, C. (2017). The influence of the structure of social networks on academic spin-offs' entrepreneurial orientation. *Industrial Marketing Management*, 80(1), 84–98. <https://doi.org/10.1016/j.indmarman.2017.12.009>
- Etzkowitz, H., & Klofsten, M. (2005). The innovating region: Toward a theory of knowledge-based regional development. *R&D Management*, 35(3), 243–255. <https://doi.org/10.1111/j.1467-9310.2005.00387.x>
- Ferreira, A. da S. M., Loiola, E., & Gondim, S. M. G. (2017). Motivations, business planning, and risk management: Entrepreneurship among university students. *RAI Revista de Administração e Inovação*, 14(2), 140–150. <https://doi.org/10.1016/j.rai.2017.03.003>
- Fietze, S., Boyd, B., & Philipsen, K. (2015). Entrepreneurial intentions and behavior of students attending Danish universities: Global university entrepreneurial Spirit students' survey (GUESSS) 2013–2014. <https://doi.org/10.13140/RG.2.2.25468.95368>
- Gannon, B., Rosta, L., Reeve, M., Hyde, M. K., & Lewis, I. (2014). Does it matter whether friends, parents, or peers drink walk? Identifying which normative influences predict young pedestrian's decisions to walk while

- intoxicated. *Transportation Research Part F: Traffic Psychology and Behaviour*, 22, 12–24. <https://doi.org/10.1016/j.trf.2013.10.007>
- Gnyawali, D. R., & Fogel, D. S. (1994). Environments for entrepreneurship development: Key dimensions and research implications. *Entrepreneurship theory and practice*, 18(4), 43–62. <https://doi.org/10.1177/104225879401800403>
- Granovetter, M. (1992). Problems of explanation in economic sociology. In Networks and Organizations, Nohria N, Eccles RG (eds). Harvard Business School, Press: Boston, MA; 25-56
- Hatak, I., Harms, R., & Fink, M. (2015). Age, job identification, and entrepreneurial intention. *Journal of Managerial Psychology*, 30(1), 38–53. <https://doi.org/10.1108/JMP-07-2014-0213>
- Ho, S. M., Ocasio-Velázquez, M., & Booth, C. (2017). Trust or consequences? Causal effects of perceived risk and subjective norms on cloud technology adoption. *Computers & Security*, 70, 581–595. <https://doi.org/10.1016/j.cose.2017.08.004>
- Krueger, N., & Dickson, P. R. (1994). How believing in ourselves increases risk taking: Perceived self-efficacy and opportunity recognition. *Decision Sciences*, 25(3), 385–400. <https://doi.org/10.1111/j.1540-5915.1994.tb00810.x>
- Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5), 411–432. [https://doi.org/10.1016/S0883-9026\(98\)00033-0](https://doi.org/10.1016/S0883-9026(98)00033-0)
- Laukkanen, M. (2003). Exploring academic entrepreneurship: Drivers and tensions of university-based business. *Journal of Small Business and Enterprise Development*, 10(4), 372–382. <https://doi.org/10.1108/14626000310504684>
- Lee, L., Wong, P. K., Foo, M. D., & Leung, A. (2011). Entrepreneurial intentions: The influence of organizational and individual factors. *Journal of Business Venturing*, 26(1), 124–136.
- Liñán, F., & Alain, F. (2015). A systematic literature review on entrepreneurial intentions: Citation, thematic analyses, and research Agenda. *International Entrepreneurship and Management Journal*, 11(4), 907–933. <https://doi.org/10.1007/s11365-015-0356-5>
- Loi, R., Chan, K. W., & Lam, L. W. (2014). Leader-member exchange, organizational identification, and job satisfaction: A social identity perspective. *Journal of Occupational and Organizational Psychology*, 87(1), 42–61. <https://doi.org/10.1111/joop.12028>
- Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin*, 18(3), 302–318. <https://doi.org/10.1177/0146167292183006>
- Mary George, N., Parida, V., Lahti, T., & Wincent, J. (2014). A systematic literature review of entrepreneurial opportunity recognition: Insights on influencing factors. *International Entrepreneurship and Management Journal*, 12(2), 1–42. <https://doi.org/10.1007/s11365-014-0347-y>
- Moray, N., & Clarysse, B. (2005). Institutional change and resource endowments to science-based entrepreneurial firms. *Research Policy*, 34(7), 1010–1027. <https://doi.org/10.1016/j.respol.2005.05.016>
- Morris, M., Shirokova, G., & Tsukanova, T. (2017). Student entrepreneurship and the university ecosystem: A multi-country empirical exploration. *European Journal of International Management*, 11(1), 65–85. <https://doi.org/10.1504/EJIM.2017.081251>
- Noorderhaven, Niels, Thurik, Roy, Wennekers, Sander, & van Steel, André. (2004). The role of dissatisfaction and per capita income in explaining self-employment across 15 European countries. *Entrepreneurship Theory & Practice*, 28(5), 447–46.
- Nowiński, W., & Haddoud, M. (2018). The role of inspiring role models in enhancing entrepreneurial intention. *Journal of Business Research*, 96(3), 183–193. <https://doi.org/10.1016/j.jbusres.2018.11.005>
- Nyaribo, M., Prakash, A., & Edward, O. (2012). Motivators of choosing a management course: A comparative study of Kenya and India. *The International Journal of Management Education*, 10(3), 201–214. <https://doi.org/10.1016/j.ijme.2012.08.001>
- Politis, D., Winborg, J., & Dahlstrand, A. (2011). Exploring the resource logic of student entrepreneurs. *International Small Business Journal*, 30(6), 659–683. <https://doi.org/10.1177/0266242610383445>
- Prevo, T., & ter Weel, B. (2015). The importance of early conscientiousness for socio-economic outcomes: Evidence from the British Cohort Study. *Oxford Economic Papers*, 67(4), 918–948. <https://doi.org/10.1093/oep/gpv022>
- Saeed, S., Yousafzai, S. Y., Yani-De-Soriano, M., & Muffatto, M. (2015). The role of perceived university support in the formation of students' entrepreneurial intention. *Journal of Small Business Management*, 53(4), 1127–1145. <https://doi.org/10.1111/jsbm.12090>
- Shirokova, G., Tsukanova, T., & Morris, M. H. (2018).

- The moderating role of National culture in the relationship between University entrepreneurship offerings and student start-up activity: An embeddedness perspective. *Journal of Small Business Management*, 56(1), 103–130. <https://doi.org/10.1111/jsbm.12363>
- Sirelkhatim, F., & Gangi, Y. (2015). Entrepreneurship education: A systematic literature review of curricula contents and teaching methods. *Cogent Business & Management*, 2(1), 1-11. <https://doi.org/10.1080/23311975.2015.105203>
- Soetanto, D., & van Geenhuizen, M. (2015). Getting the right balance: University networks' influence on spin-offs' attraction of funding for innovation. *Technovation*, 36–37, 26–38. <https://doi.org/10.1016/j.technovation.2014.10.008>
- Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing*, 22(4), 566–591. <https://doi.org/10.1016/j.jbusvent.2006.05.002>
- Welter, F. (2011). Contextualizing entrepreneurship "Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice*, 35(1), 165–184. <https://doi.org/10.1111/j.1540-6520.2010.00427.x>
- Wong, P. K., Lee, L., & Leung, A. (2006). Entrepreneurship by circumstances and abilities: The mediating role of job satisfaction and moderating role of self-efficacy. *Frontiers of Entrepreneurship Research*, 26(6), 1-47.
- Wright, M., Siegel, D. S., & Mustar, P. (2017). An emerging ecosystem for student start-ups. *Journal of Technology Transfer*, 42(4), 909–922. <https://doi.org/10.1007/s10961-017-9558-z>
- Zhang, K. (2018). Theory of planned behavior: Origins, development and future direction. *International Journal of Humanities and Social Science Invention*, 7(5), 76–83.

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