Seminar Paper at Technical University Munich Entrepreneurship Research Institute

The Development of Entrepreneurial Intentions

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BLABLA (An Abstract should not include more than 150 words. Key aspects to answer: warum ist das paper wichtig, relevant und neu?!)

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1 Introduction

Principal Topic

The research field of Entrepreneurial Intentions (EIs) started growing in the past years and gained some attention as a powerful framework to predict and explain behavior performed by entrepreneurs. Liñán stated in 2015 that 409 papers dealt with that topic just between 2004 and 2013 [Liñán and Fayolle, 2015]. Besides researchers, academic institutions developed an interest in this topic due to the advent of entrepreneurship programs [Fayolle and Gailly, 2015].

The concept of intentions is stemming from the field of psychology, where models are built to solve the difficult task of explaining human behavior [Ajzen, 1991]. Entrepreneurship is generally classified as a research discipline of Management [Shane and Venkataraman, 2000], which makes EI a joint field of both: Psychology and Management.

Two coexisting models laid the theoretical foundation for studies of input factors for IE: Shapero introduced the model of the Entrepreneurial Event (SEE) that claimed desirability and feasibility as well as the propensity to act were the three major impact factors on IE [Shapero and Sokol, 1982, Shapero, 1984]. In 1985, Ajzen developed the Theory of Planned Behavior (TPB) and presented a corresponding framework, which postulated that attitude, subjective norms and feasibility were the major influence factors [Ajzen, 1985].

Research Gap

In recent years, the models of Ajzen and Shapero were applied in studies to different contexts to test their validity and to study the effect of different circumstances like the cultural background or family environment on EI [Laspita et al., 2012, Liñán and Chen, 2009, Hayton et al., 2002, Mueller and Thomas, 2001]. Krueger and Carsrud outlined the applicability of TPB to the business context, where entrepreneurship training could be analyzed [Krueger and Carsrud, 1993]. But a main field of the TPB was dedicated to the EI of students [Fayolle and Gailly, 2015], which will be covered in section 2.

In general, two major findings are presented in literature: On the one hand, the positive effect of the participation in entrepreneurship programs or classes on the **ie!** (**ie!**) were measured in experiments by . On the other hand, Lorz stated in 2011, that many of these studies had "significant methodological deficiencies" [Lorz and Volery, 2011]. In 2013, Liñán summarized the current research situation and outlined several knowledge gaps in the field of **ie!** to redirect the focus of researchers. Besides

lukas: TODO

other topics, the nature and effect of entrepreneurial education was mentioned to be still an important subject to study [Liñán and Fayolle, 2015].

Research Question

In particular, we will analyze the impact of the participation in a technical prototype class at university on EI, so that our research questions can be formulated as: "How does Ajzen's model explain the formation of EI?" and "How does Ajzen's model explain the impact of entrepreneurial classes (EC) on the formation of EI?"

2 Theory and Hypothesis

Entrepreneurial Intention Model

Ajzen's Theory of Planned Behavior

- Ajzen 1991, Ajzen xxxx

Limitations and Criticism of TPB

- Krueger 2000 - comparison with SEE; Social norms as an antecedent of IE may not be correct in TPB.
- (Maybe) Shapero's model SEE
- Fitzsimmons 2011 - negative interaction of perceived desirability and perceived feasibility

Why we still chose TBP (rephrase)

Seite zwei in Fayolle ([Fayolle and Gailly, 2015]) gibt gute punkte warum, ich nenne es auch schon twas in der einleitung

Lukas: @Kevin :*

Further general findings about EI based on Ajzens Model

- Bullough, 2014, Importance of Self-efficacy and resiliance for EI
- Fitzsimmons, Jason R.; Douglas, Evan J. (2011): Interaction between feasibility and desirability in the formation of entrepreneurial intentions
- Krueger, Norris F.; Carsrud, Alan L. (1993): Entrepreneurial intentions. Applying the theory of planned behaviour
- Linan, Francisco; Chen, Yi-Wen (2009): Development and Cross-Cultural Application of a Specific Instrument to Measure Entrepreneurial Intentions

Entrepreneurial Education (EE)

- Henry 2005 - Can entrepreneurship be taught? (maybe nice for introduction)

- Kuratko, Donald F. (2005): The Emergence of Entrepreneurship Education. Development, Trends, and Challenges

Categories of EE Courses/Approaches (Theory)

Do such categories exist? (i.e. practical - theoretical; tech - biz; ...)

- Pittaway 2007 - Literature review: general positive impact of EEP on EI and propensity, but rarely quantified; also: do people become better entrepreneurs after courses? Points out that there is no clear understanding of enrepreneurship education: see summary later
- Loi 2015 - The theoretical foundations of entrepreneurship education: How co-citations are shaping the field (maybe not well suited for this):
  -
- Garavan 1994 - Entrepreneurship Education and Training Programmes: A Review and Evaluation (hope it helps here)
- (new) Kuratko 2005 - The Emergence of Entrepreneurship Education: Development, Trends, and Challenges
- (new) Laukkanen 2000 - Exploring alternative approaches in high-level entrepreneurship education: creating micro- mechanisms for endogenous regional growth (maybe too much focus on economy)
- (new - but no paper) Plaschka 1990: Emerging Structures in Entrepreneurship Education: Curricular Designs and Strategies

How EE courses can be assessed (Theory)

Suggested Literature:

- Fayolle 2006 (proclaimed new approach of assessing EEPs)

Previous Findings about EE impact on intentions (literature)

Suggested Literature

- Fayolle 2015 - Study of long term impact of EEP on EI, also under considerations of previous exposure to entrepreneurship. Little previous exposure: positive impact of EEP on EI, high previous exposure: negative impact of EEP
  - "we propose an original research design where (1) we measure the initial state and persistence of the impact and not only short-term effects; (2) we deal with a compulsory program, allowing to avoid self-selection biases; and **(3) we deal with an homogeneous "compact" program rather than programs combining multiple teaching compo- nents whose effects cannot be disentangled"**

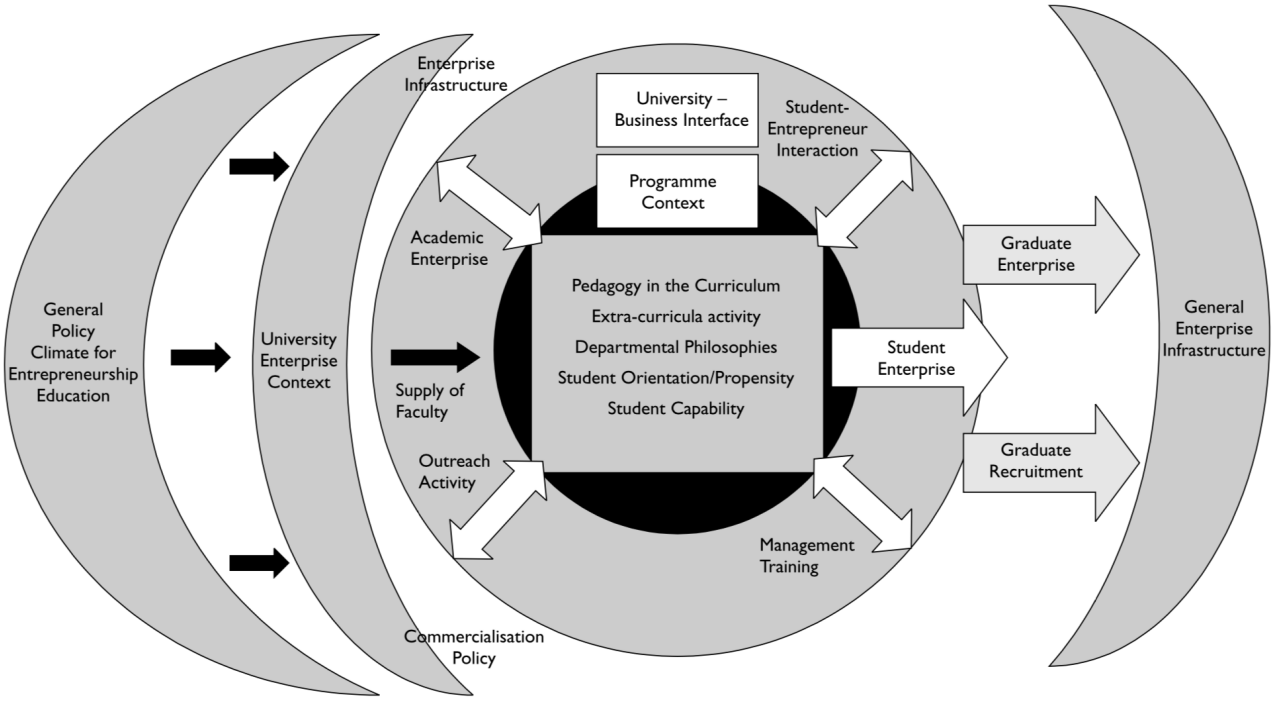

Figure 2.1: A Thematic Framework for Entrepreneurship Education

- main research results show that the positive effects of an EEP are all the more marked when previous entrepreneurial exposure has been weak or inexistent. Conversely, for those students who had previously significantly been exposed to entre- preneurship, the results highlight significant countereffects of the EEP on those participants.
- researchers and institutions interested in studying effect
- experiemnt meausres impact of a short and compulsory entrepreneurship education program (EEP) + factors (predispo- sitions, time) influencing this impact
- Zhao, Hills, and Seibert (2005) underline a gap in the literature + need to evaluate the effectiveness of different types of entrepreneurship programs depending on their key components (content, design, and delivery).
- found: only effect on students without contact to entrepreneurship, but then persistence of this impact six months after the program.
- main theoretical contribution: confirm that intention models, (theory of planned behavior) may be diverted from their initial objective (a predictor of the behavior) in order to be used as indicators of the impact of EEPs + **suggest that such intention models should attribute greater importance to factors related to previous entrepreneurial exposure**
- "practical point of view, this paper provides concrete perspectives and directions regarding the elaboration, design, and orientation of EEPs, in a time of strong demand for such programs."
- theoretical framework is based on the theory of planned behavior and adds as key variables the initial level of intention and the prior entrepreneurial exposure.

- Lorz 2011 - Insignificant or even negative impact of EEP on EI
  - dissertation of 140 pages :O
  - quantitative and a qualitative section
  - "For the quantitative section, a quasi-experimental, ex-ante/ex-post, control group, longitudinal (up to 18 months), repeated measures research design was implemented, with a total of 272 matched pairs (Tstart/Tfinal)" (theory of planned behaviour was utilised as the underlying theoretical mode)
  - qualitative part of the study, a content analysis of 55 reflection papers was conducted.
  - **"results attest to an insignificant impact of entrepreneurship education on entrepreneurial intention"**
  - insignificant impact was not moderated by the length of an entrepreneurship education
  - **"An analysis of the development of entrepreneurial intention after the end of an entrepreneurship programme showed that after six months entrepreneurial intentions had decreased significantly. Entrepreneurship education is confirmed to be a major source of inspirational triggers that positively impact on entrepreneurial intention."**
  - Research has, to date, contributed to this belief and underlined the positive impact of entrepreneurship education (Chrisman, 1997; Peterman + Kennedy, 2003; Zhao, Seibert, + Hills, 2005).
  - "Out of 41 studies analysing the impact of entrepreneurship education, 39 indicated a positive or mixed result (Lorz, MuÌˆller, + Volery, 2011)."
  - "Only recently did two studies find a negative impact of entrepreneurship education (Oosterbeek, van Praag, + Ijsselstein, 2010; von Graevenitz, Harhoff (der ist LMU prof), + Weber, 2010). At second glance, it appeared that most studies that had reported a positive impact of entrepreneurship education had significant methodological deficiencies, which strongly limited the validity of the results."
  - all paper with positive effects had significant methodological deficiencies: didn't measure direct impact, used no control group, small samples, mixed results
  - provides table comparison (see: 2.2)
  - RQ: What impact does an entrepreneurship education programme have on entrepreneurial intention?, hat is the impact of the duration of an entrepreneurship programme on entrepreneurial intention and its antecedents?
  - new variants of entrepreneurship education programmes are tested with respect to their impact
- Martin 2013 - Effect of EET on human capital formation, positive impact of EET on entrepreneurship, though, overestimated by previous studies due to methodological weaknesses
- Oosterbeek 2010 - insignificant impact of EEP on entrepreneurial skill, negative impact on intent

- Pittaway 2007 - Literature review: general positive impact of EEP on EI and propensity, but rarely quantified; also: do people become better entrepreneurs after courses? Points out that there is no clear understanding of enrepreneurship education
  - "The findings support the conclusion that entrepreneurship education has had an impact on student propensity and intentionality"
  - "unclear is the extent to which such education impacts on the level of graduate entrepreneurship or whether it enables graduates to become more effective entrepreneurs"
  - "lack of consensus on what entrepreneurship or enterprise education actually is " in practice
  - table about thematic coding of literature review
  - thematic framework highlighting conceptual key areas for empirical research in entrepreneurship education (see figure 2.1)
  - Each element explained in paper (a lot of blabla)
  - lists research gaps: longitudinally graduate careers; graduate entrepreneurship and recruitment or demand from employers; **"Although there is study that has linked entrepreneurship education to out- comes like graduate venture creation the area has been under researched overall"**, supranational policy
- Sanchez 2013: Positive impact of EE on intenation AND competencies(!!!) (compare with Oosterbeek 2010). Also: contribution to TPB
- Solesvik 2013: plain test of impact of EE on EI according to TPB (looks pretty boring)
- Zhao 2005 - Effects of Perceived Learning from EE, Preveious E-Experience and risk propensity on EI are fully mediated by entrepreneurial self-efficacy
- For the end of this chapter: Lorz 2013 - methodological insufficiencies of studies about EEP on EI. According to the paper, most studies show positive impact, but this paper doubts it. How to improve studies. (Kevin: be careful, if we have not implemented the recommendations of the study)

Structure of the EEP (tech. prototyping, business plan, design thinking, etc.)

Setting of the study (Training vs. education focused)

- Lourenco 2016 - Developing Entrepreneurship Education: Comparing Traditional and Alternative Teaching Approaches (maybe a C or D Paper)

Background of study subjects (technical, business, etc.)

- Souitaris 2007 - Impact of EEP on EI among tech students; TPB; EEP positively influence emotions towards entrepreneurship
- Maresh 2016 - EE impact comparison on tech and biz students

Authors	Year	Journal	Independent Variable	Cultural Setting	Dependent Variable	Level	Sample Size	Control Group	Time of Measurement	Result
Oosterbeek, van Praag, Ijsselstein	2010	European Economic Review (VHB Ranking: B, 7.9)	Dutch entrepreneurship education program (SMC)	The Netherlands	students' entrepreneurship skills and motivation	school	104	146	Ex Ante/Ex Post Study	effect on students' self-assessed entrepreneurial skills is insignificant and the effect on the intention to become an entrepreneur is negative.
von Gravenitz, Harhoff, Weber	2010	Journal of Economic Behavior & Organization (VHB: A, 8,22)	Munich School of Management Entrepreneurship Course Business Planning	Germany	students' entrepreneurship skills, intention	university	196	no control group	Ex Ante/Ex Post Study	Intentions decline, positive effect on self-assesed entrepreneurial skills
Olomi	2009	Journal of Enterprising Culture (VHB: C, 6,61)	Vocational Training Centers in Tanzania	Tanzania	students' entrepreneurial inclination	professionals	119	118	ex-post	participation in the entrepreneurship course has no significant effect start-up inclinations
Radu, Loue	2008	Journal of Enterprising Culture (VHB: C, 6,61)	University Entrepreneurship Course	France	entrepreneurial self-efficacy, behavioural intention	university	44	no control group	ex-post	Mixed results, only positive in very specific situation (situation of high emotional involvement with self-ideal role models
Souitaris, Zerbinati, Al-Laham	2007	Journal of Business Venturing (VHB: A, 8,38)	University entrepreneurship programme	UK, France	entrepreneurial attitudes, intentions	university	124	126	Ex Ante/Ex Post Study	EI, Subjective Norms increased, ATB, Perceived Behavioural Control did not change; Nascency did not increase; not learning but inspiration is the programme's biggest benefit
Lee, Lim, Pathak, Chang, Li	2006	Entrepreneurship Management (VHB: not ranked)	University Entrepreneurship Courses	US, Korea, China, Fiji	cultural differences on effect of entrepreneurship education	university	307	no control group	ex-post	there are cultural differences, especitally in intention of venture creation, confidence in venture creation and intention of overseas venture creation
Galloway, Anderson, Brown, Wilson	2005	Education + Training (VHB: not ranked)	University Entrepreneurship Module	Scotland	entrepreneurial skills	university	519	no control group	ex-post	only half of the students perceive their skills to be improved
Galloway, Brown	2002	Education + Training (VHB: not ranked)	University Entrepreneurship Course	Scotland	quality of business start-ups	university	210	2143	ex-post	unclear, effect of entrepreneurship education will be long-term

Figure 2.2: Overview of Negative and Insignificant Studies

Mandatory classes - from here we can derive the research gap again

- von Graevenitz 2009: Study of MANDATORY EEP on EI; negative impact on intentions, positive impact on self-assessed skills

Hypothesis And Research Question

Classification of SEBA (according to classes from EE section)

Hypothesis (maybe collapse the following)

H1: Test of Ajzen's antecedents of EI

H2: Impact of TPC (SEBA) on antecedents of EI

H3: Impact of TPC (SEBA) on EI

Research Questions

3 Methodology

Research Design

Based on our extensive literature review, we pursue a quantitative research approach to test the hypotheses against empirical data. Two distinct regression designs are applied: A linear regression model is used to test the hypothesis concerning research question one. In this model, the three latent variables of Ajzen's TPB are exogenous variables predicting the EI. For research question two, we provide evidence by means of a mediation analysis based on [Baron and Kenny, 1986]. To gather the relevant data, we are using a structured questionnaire. The validated, multi-item questionnaire is assessed via a seven-point Likert scale and is administered once with students from technical study programs at the Technical University Munich. The survey assesses four latent variables: personal attitude, subjective norm, perceived behavioral control and the level of EI. Furthermore, we assess whether students have participated in a university course for developing a technical prototype. We also include questions to assess five control variables: Degree program, study subject, total number of semesters, gender and country of birth.

Data Collection

Variables

Sample

Regression Models

Refer to symbols or abbreviations with
`\gls{symbolname} \glstext{symbolname} \glsfirst{symbolname}`:
first $\mathbb{N}$ additional $\mathbb{N}$ first $\mathbb{N}$
Bachelorarbeit (BA) Diplomarbeit (DA) Masterarbeit (MA)

Refer to other sections with `\ref{labelname}`:
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Include figures with
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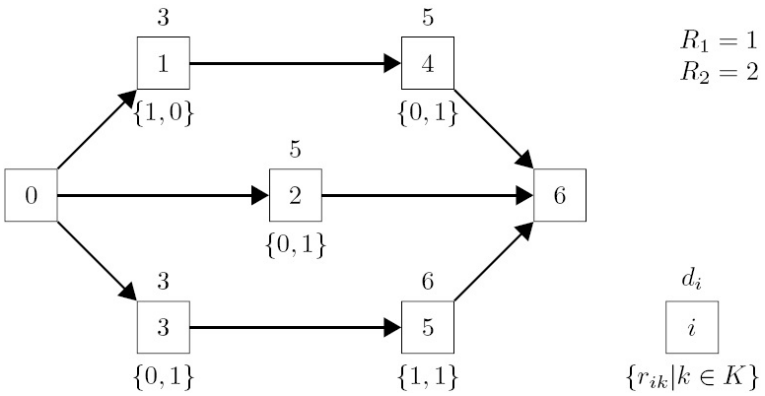

Figure 3.1: An example figure

Include only PostScript images (.eps) if you want to create a PostScript document using dvips and only .pdf, .png, .jpeg and .gif images if your goal is a PDF document using pdflatex.

4 Analysis and Results

Findings with Respect to Hypothesis

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Table 4.1: An example table

Parameter	Levels				
A	1	2	3	4	
B	1	2	3	4	
C	1	2	3	4	5
D	1	2	3	4	
E	1	2	3	4	

5 Discussion

Limitations

Despite our sophisticated research approach, there might still be implications that should be considered. Foremost, the research is going to be limited to a cross-sectional study on technical students. Our research question clearly demands a longitudinal study, which unfortunately cannot be conducted in our context. Additionally, focussing on technical students at a certain university might afflict the generalizability of the results. However, we address the former concern with the control group and the latter by choosing mandatory courses that the students were not free to choose. With all of this in mind, we are confident about achieving meaningful results with our research.

- only self reported measures (entrepreneurial test results or grades could be used to measure learnings)
- one University, one subject, one type of students
- selected course is limited
- no longitudinal study
- Criteria of studies according to Lorz 2013: - Clusters studies based on 4 criteria: Variables (dependent and independent), Research design (quantitative/qualitative, theory driven), data collection (time of measurement, sampling procedures), data analysis (reliability and validity procedurs, analytical procedures)

Theoretical Implications

(for example: does it contribute to TPB) By answering our research questions, we contribute to the understanding of the impact of classes on EI in general. In specific, by choosing a mandatory entrepreneurial prototyping course for technology students, we hope to raise awareness for a different teaching approach. Formerly, focus at universities and in research was on typical venture creation courses (i.e. business plans, value propositions etc.). If our hypothesis holds, mandatory entrepreneurial prototyping classes might ignite or strengthen the intent among students who initially had not or weakly aspired such a career. For universities and other educational establishments with a focus on entrepreneurship, this could change the approach of teaching and fostering startups.

Practical Implications

(for example: can we suggest improvements for EEP) suggested literature:

- Lorz 2011: "From a practical point of view, it provides recommendations on how to setup entrepreneurship education programmes and how to facilitate an environment, in which inspirations are triggered."

Additionally, it helps to create awareness about different types of university courses and leads to a more diverse discussion of entrepreneurial education.

6 Conclusion and Future Research

Suggested literature

- Fayolle 2008 - EI stable over time (time spent at university does not impact EI)

Ideas:

- Maybe SEBA does not have the desired effect, as other EE promotes a better spirit with more impact on desirability through motivated peers
- Other classes with clear entrepreneurial focus might have successful guest speakers or role models who ignite desirability

Future Research:

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Acronyms

EI Entrepreneurial Intention

SEE Entrepreneurial Event

TPB Theory of Planned Behavior

Appendix

Appendix One

Appendix Two