

2020

CHRISTIAN VAN DIJK

**Entrepreneurial
intention of university
students in the
Netherlands**

MASTER THESIS

Entrepreneurial intention of university students in the Netherlands

Author: Christian van Dijk
Registration number: 96112607080
E-mail address: christian.vandijk@wur.nl

Study programme: Management, Economics and Consumer studies (MME)
Specialisation: Management studies

Course code: BMO-80436
Supervisor: Prof. Dr. W.A. Dolfsma
E-mail address: wilfred.dolfsma@wur.nl
Second supervisor:

Date of submission: 25-03-2020

Abstract

Universities in the Netherlands are investing in entrepreneurship programmes and want to grow entrepreneurship at universities. However, there is little knowledge in which factors influence entrepreneurial intention of students. This study investigates which factors affect entrepreneurial intention of university students in the Netherlands.

For this study, a literature review was conducted, which revealed that the theory of planned behaviour is an important model for explaining variances in entrepreneurial intention. Another important aspect that was found in the literature is the influence of entrepreneurship education on entrepreneurial intention. Based on the literature, a conceptual framework was created which was empirically tested with a survey.

The survey was conducted among university students in the Netherlands. The analysis of the data showed that entrepreneurship education, personal attitude and perceived behavioural control are factors that positively influence entrepreneurial intention of students. Thus, by increasing these factors the entrepreneurial intention of an individual also increases. Besides that, the results revealed that students from a business, economics or law study have the highest entrepreneurial intention and males in general also have a higher entrepreneurial intention. Another finding is that if one of your parents have or have had a business before then your entrepreneurial intention is also likely to be higher.

The recommendations for universities are that they should invest in educational opportunities for students from a technological background as they have rather low entrepreneurial intentions. This can be done by offering custom-built courses or courses in entrepreneurship that have a technology aspect incorporated.

A limitation of this research is that the question remains which teaching methods are most effective for increasing entrepreneurial intention among university students. Further research is needed to find an answer to this question. Also, since this study was cross-sectional it might be good to see how intentions develop during a longer period with a longitudinal study.

Keywords: entrepreneurial intention, theory of planned behaviour, entrepreneurship education, students, entrepreneurship

Table of contents

Abstract	1
1. Introduction	3
2. Literature review	4
2.1 <i>Entrepreneurial intention</i>	4
2.2 <i>Conceptual framework</i>	5
2.3 <i>Entrepreneurial intention models</i>	5
2.3.1 <i>Theory of planned behaviour</i>	5
2.3.2 <i>Shapero's entrepreneurial event model</i>	6
2.4 <i>Research on Theory of Planned Behaviour and Entrepreneurial Intention</i>	7
2.5 <i>Education and Theory of Planned Behaviour</i>	9
2.5.1 <i>Education</i>	9
2.5.2 <i>Differences in Entrepreneurial intention between studies</i>	11
3. Methodology	13
3.1 <i>Research design</i>	13
3.2 <i>Variables</i>	13
3.3 <i>Operationalisation</i>	14
3.4 <i>Data collection</i>	15
3.5 <i>Population</i>	15
3.6 <i>Sampling</i>	15
3.7 <i>Analysis</i>	16
4. Results	16
4.1 <i>Sample characteristics</i>	16
4.2 <i>Analysis results</i>	17
5. Discussion	22
6. Limitations and future research	23
7. References	25
8. Appendix	27
a.....	27

1. Introduction

According to a report of 2014 from the Global Entrepreneurial Spirit Students' Survey (GUESS, 2014), there are still few people (6%) who choose to work for their own business after graduation in the Netherlands. Also, students from business, economics or law studies are more likely to start their own business (5.4%) right after their study compared to natural science studies (2.9%). Besides that, males are more likely to start a business than females according to the GUESS report. In 2011, GUESS also published a report looking into the entrepreneurial spirit of students. What's interesting is that the entrepreneurial intention of students has declined in those couple of years. Unfortunately, there isn't a more recent GUESS report of the Netherlands, thus it is hard to say if entrepreneurial intention among students has decreased or increased since 2014. However, new enterprises and entrepreneurship are important for economic growth in today's global economy and this is likely one of the reasons why universities and governments are promoting entrepreneurship (Acs & Storey, 2004; Zahra, 1999).

Entrepreneurship education could be an important factor that boosts a student's intention of starting a business. This is being underpinned by the 2014 GUESS report because they state that the entrepreneurial climate and entrepreneurial learning are important aspects when looking at entrepreneurial intention of students. Also, several studies (Rauch & Hulsink, 2015; Walter, Parboteeah, & Walter, 2013; Zhang, Duysters, & Cloudt, 2014) have looked into the effects of education on entrepreneurial intention of students, these studies suggest that there is a positive relationship between entrepreneurship education and entrepreneurial intention of students.

Universities have been investing in entrepreneurship education and activities around this theme, but still, only a few students (3%) are choosing a university because of its entrepreneurial climate and its education (GUESS, 2014). In the GUESS report, students were also asked what they thought of the current attention being paid towards entrepreneurship. Dutch students in 2014 thought that the encouragement of entrepreneurship and the 'climate' was average at their universities, thus there is still room for universities to improve this.

Dutch universities are investing a lot in entrepreneurial education programmes and want to grow entrepreneurship at their universities (Erasmus Universiteit Rotterdam, 2019; Universiteit Utrecht, 2016; Wageningen University & Research, 2019), but there is little knowledge in what the factors are that affect the entrepreneurial intention of students in the Netherlands. Thus, from this problem statement the following research question is created:

- *What are the differences in entrepreneurial intention of university students when comparing students following technological studies with students following non-technological studies?*

The objective of this research is to apply the theory of planned behaviour to the case of entrepreneurship. At first, a literature review of entrepreneurial intentions is conducted. From the literature review, a conceptual framework is formed with a couple of hypotheses. With a survey, the entrepreneurial intention of students in the Netherlands is researched and differences in entrepreneurial intention between studies are looked at. Also, the survey is a way of empirically validating the conceptual framework.

This survey is based on the intention model theory of planned behaviour (Ajzen, 1991). It is looked at if entrepreneurial intention can also be explained by this model when looking at the specific case of university students in the Netherlands. Also, differences between groups of students will be analysed with the analysis of the survey.

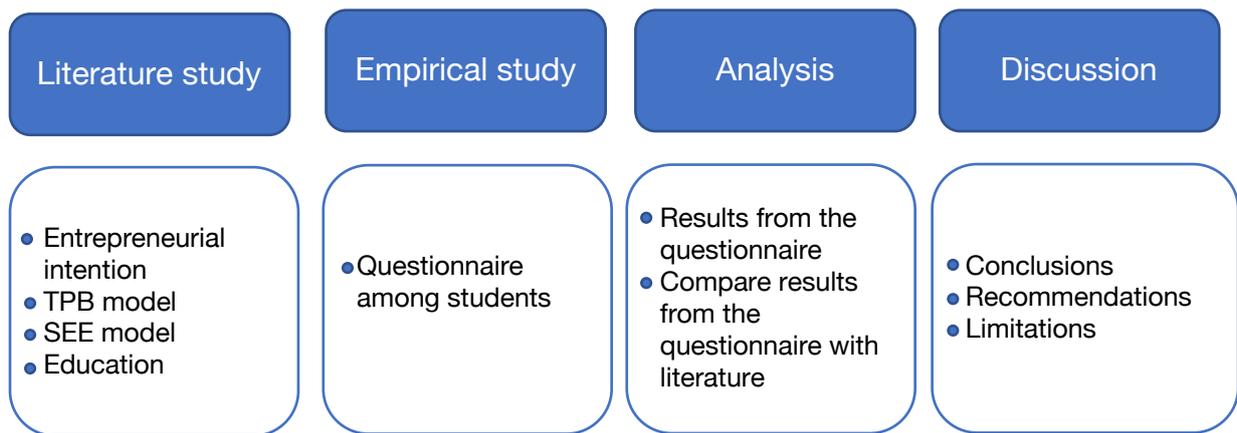


Figure 1: The Research framework

2. Literature review

2.1 Entrepreneurial intention

Before looking at the literature study, a definition of entrepreneurial intention needs to be presented. Entrepreneurial intention is defined in this research as the intent of an individual to start its own business in the (near) future (N. Krueger, 1993). As being stated in the article of Ajzen (1991), intention is the best predictor of actual behaviour, thus entrepreneurial intention could be a predictor of starting a business. However, Katz (1990) argued that the relationship between actual behaviour and intention in the field of entrepreneurship is quite weak. On the other hand, Krueger Jr, Reilly, and Carsrud (2000) argue that to understand entrepreneurship behaviour you need to figure out the antecedents of the intentions.

When looking at the literature regarding the concept of entrepreneurial intention, mostly two models are used to explain variances in entrepreneurial intention and entrepreneurial behaviour. These models are a good starting point since this study is looking for factors that are of influence on entrepreneurial intention.

These models that are being mentioned and used in entrepreneurial literature are the theory of planned behaviour (Ajzen, 1991) and the Shapero's entrepreneurial event model (Shapero & Sokol, 1982). While the theory of planned behaviour is known as a more general theory, it can also be applied to entrepreneurship, since entrepreneurship is a type of behaviour.

2.2 Conceptual framework

Below the conceptual framework of this research is presented. After this figure, the literature and arguments for this framework are presented.

The first part of the literature review will deal with the broader picture by providing general literature that underlies the framework (*subchapter 2.3: Entrepreneurial intention models*). After that, the theory of planned behaviour is treated more in-depth, by looking at how previous studies have applied this theory to entrepreneurship research (*subchapter 2.4: Research on Theory of Planned behaviour and Entrepreneurial Intention*).

Then there is a part of the concept of education and its connection to entrepreneurial intention and TPB (*subchapter 2.5: Education and Theory of Planned Behaviour*). The final part is a part of the differences that might exist between studies when looking at entrepreneurial intentions (*subchapter 2.5.2: Differences in entrepreneurial intention between studies*).

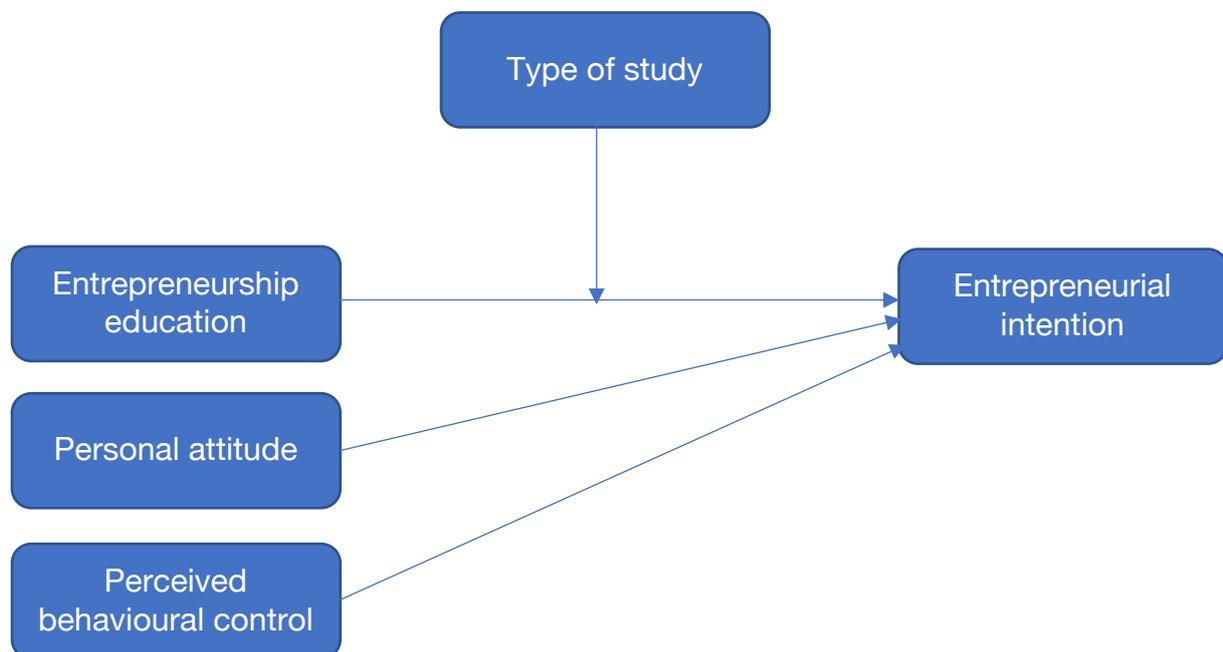


Figure 2: Conceptual framework

2.3 Entrepreneurial intention models

2.3.1 Theory of planned behaviour

The theory of planned behaviour (TPB) is one of the most well-known and influential models in the field of social sciences and was developed by Ajzen in 1991. It is based on the previous developed theory of reasoned action (Ajzen, 1980). Many researchers have used the TPB model in their research to explain variances in entrepreneurial intention (Kautonen, van Gelderen, & Fink, 2015; Krueger Jr et al., 2000; Liñán & Chen, 2009; Rauch & Hulsink, 2015; Schlaegel & Koenig, 2014; Souitaris, Zerbinati, & Al-Laham, 2007; Van Gelderen et al., 2008). Thus, it is necessary to first explain this theory and its components.

The TPB model can predict behaviour and can be applied in many behavioural situations. In this research, it can be applied to the behaviour of starting your own business. The model assumes that behaviour is best predicted by the intentions of that behaviour. And these intentions are formed by several concepts: *attitude towards behaviour*, *subjective norms*, *perceived behavioural control*, *behavioural intentions* and *behaviour*. *Perceived behavioural*

control was added to the original theory of reasoned action and this concept is essentially what differentiates the two models from each other.

The first three factors (*attitude towards behaviour*, *subjective norms* and *perceived behavioural control*) of the TPB model predict the *behavioural intention* of a person and *behavioural intention* subsequently influences the actual behaviour together with *perceived behavioural control*.

Attitude towards behaviour is essentially the attitude that a person has towards actually performing that behaviour, thus is he or she in favour of a particular behaviour. *Subjective norms* are about what is generally expected of somebody or what is seen as the social values in a person's environment. The *perceived behavioural control* is referring to a person's ability to perform that behaviour and can be based on previous experiences with a certain type of behaviour. In essence, if the *attitude* and *subjective norms* are positive and the *perceived behavioural control* is relatively high then intention to perform that behaviour will also be high (Ajzen, 1991). Applied to the entrepreneurship research, the *behaviour* would be starting your own business and *intention* would be about the intent of an individual to start its own business. The same holds for the other constructs of the model. *Attitude* would be about the attitude an individual has towards starting your own business. *Subjective norms* would be about what people important to you think of you when starting your own business, also called 'social pressure' (Liñán & Chen, 2009). *Perceived behavioural control* would be about the ability to start your own business, thus are you capable of actually doing it.

Behaviour is an important aspect of the TPB. However, for this study, the behavioural aspect is not taken into account as it requires a longitudinal study to measure actual behaviour. There are studies however who have done longitudinal studies (Kautonen et al., 2015; Rauch & Hulsink, 2015).

2.3.2 Shapero's entrepreneurial event model

Shapero and Sokol (1982) developed the entrepreneurial event model (SEE) to explain why an individual would start its own business. The underlying idea of the model is that inertia guides human behaviour until something happens (an event) that disrupts that inertia. Such a period of inertia could be disrupted by for example graduation or getting fired from your job. Thus, this disruption could be either positive or negative. The model consists of three elements, the first part is about a person's perception of the *desirability* of the behaviour. This is mainly about what an individual thinks of the attractiveness of starting your own business. The second element is about the *propensity to act* and the third element is about the *perceived feasibility*. *Propensity to act* is about being able to act on the decisions that you make, thus this is mainly about the volitional aspect. Thus, this is about being committed to do what you say. *Perceived feasibility* is about the ability of an individual to start its own business, thus do you have to capacities to run a business. This concept is quite similar to the concept *perceived behavioural control* of the TPB model. Together these three elements predict the *entrepreneurial intention* of an individual (Shapero & Sokol, 1982).

Again, this model is also mentioned and used in a lot of the entrepreneurial intention literature (Krueger Jr et al., 2000; Schlaegel & Koenig, 2014; Zhang et al., 2014). Both the SEE and the TPB model have a lot in common and sort of overlap each other. For example, *perceived behavioural control* (TPB) is similar to the *perceived feasibility* of SEE. Another concept that is closely related to that of perceived behavioural control is *self-efficacy* (Bandura, 1997) and this concept is also about an individual's capacity to perform a specific behaviour.

Several researchers have used the TPB or the SEE model in their research to explain entrepreneurial intention. And for answering the research question it is certainly useful to understand these models and to determine factors that could explain differences in students' entrepreneurial intention.

2.4 Research on Theory of Planned Behaviour and Entrepreneurial Intention

In the entrepreneurial intention literature, the TPB is an often-recurring model. In a study by Liñán and Chen (2009) an entrepreneurial intention questionnaire (EIQ) is developed based on this model. For their research, a sample from Spain and Taiwan was used, as these countries are quite different from each other and this could help with testing their model and figuring out if any cultural differences exist. They decided to include subjective norms in their framework and find out if there is a relationship between personal attitude, perceived behavioural control and entrepreneurial intention. The reason for Liñán and colleagues to include this variable in their framework is that they wanted to find out if this variable should be included in future research on this topic and see if indirect effects exist. Other studies sometimes remove this variable from their model (Rauch & Hulsink, 2015) or keep it and find insignificant results (Krueger Jr et al., 2000).

Liñán and Chen (2009) found that *personal attitude* and *perceived behavioural control* have a positive effect on *entrepreneurial intention*. This implicates that the TPB model is certainly able to explain variances in entrepreneurial intention. This also means that if your attitude is positive towards entrepreneurship, then your entrepreneurial intention is also likely to be higher. The same holds for perceived behavioural control, if you feel that you are capable of performing 'entrepreneurship behaviour' then your entrepreneurial intention will also be higher.

There was also a significant relationship between *subjective norms* and *personal attitude*, and between *subjective norms* and *perceived behavioural control*. Meaning that the opinions of people around you can affect your personal attitude towards entrepreneurship and opinions of others also influence your perception of how capable you are of performing entrepreneurship behaviour.

The relationship between *subjective norms* and *entrepreneurial intention*, however, was insignificant. Thus, this shows that *subjective norms* indirectly have an influence through *personal attitude* and *perceived behavioural control* according to Liñán and Chen (2009).

Krueger Jr et al. (2000) also performed research into entrepreneurial intention models. They not only included the TPB model but also the previously mentioned (chapter 2.3.2) SEE model. According to them, former entrepreneurship models have been based on less robust and less predictive ways, by using personality traits or demographics for example (N. F. Krueger & Carsrud, 1993). Therefore, they suggest that it is fitting to consider two specific entrepreneurial intention models (Krueger Jr et al., 2000). What's interesting of their study is that they used several single-item scales, this is contrary to Liñán and Chen (2009) study where they used multiple-item scales. For their research, Krueger and colleagues tested the TPB and SEE models. It is interesting to see that the concept of *subjective norms* was found to be insignificant in relationship with *entrepreneurial intention*. This finding connects to that of Liñán and Chen (2009). The other relationships of both models were all significant. Thus, this means that both models are statistically tested and able to explain the variance in entrepreneurial intention. Overall, Krueger Jr et al. (2000) found that SEE model can explain more variance (adjusted R-squared of 0.408) compared to the TPB model (adjusted R-squared of 0.350). This doesn't necessarily mean that one model is better than the other because as they conclude both models are equally useful for assessing entrepreneurial intentions.

A similar study was performed by Schlaegel and Koenig (2014) since they also looked at both SEE model and TBP model by conducting a meta-analysis. They compared and analysed 98 studies with more than 100,000 respondents. From their results, it can be concluded that the effect sizes of the original determinants of the TPB model and SEE are the strongest compared to the effects of *entrepreneurship education* and *personality traits*, while *risk propensity* has almost the same effect on entrepreneurial intention as the original determinants (Schlaegel & Koenig, 2014). According to their results, the TPB model can explain more variance (R-squared of 0.28) compared to the SEE model (R-squared of 0.21).

These results from Schlaegel and Koenig (2014) contradict with the results of Krueger Jr et al. (2000) since they found that the SEE model can explain more variance.

In the Netherlands specifically, research was also done by Van Gelderen et al. (2008) into the entrepreneurial intentions of Dutch business students. For this research, they made use of the TPB model and extended the number of predictors. The reason for the authors for only researching business students is that business students generally don't have a fixed job after graduation because their education is quite broad. Thus, they are more open to entrepreneurship and consider it more easily as a career path. From their study, it seems that *entrepreneurial alertness* is an important variable, which means that having ideas to start your own business can stimulate individuals. Also, *financial security* is an important aspect for many students and this is what scares them to not become an entrepreneur (Van Gelderen et al., 2008). Next to that, *subjective norms* were also found to be of high importance. They found that there was a significant relationship between subjective norms and entrepreneurial intention. An explanation for this significant relationship given by the authors for this might be that business students often know people or family who have their own businesses. Thus, family or friends might stimulate these business students to start their own business. It's interesting to see that *subjective norms* were of high importance since Rauch and Hulsink (2015) didn't even include the concept in their framework and Liñán and Chen (2009) and Krueger Jr et al. (2000) found insignificant relationships. Also, half of the business students have a preference for being an entrepreneur, but when looking at the actual constraints that come with entrepreneurship the number of students who want to have their own business drops significantly. Overall the study of Van Gelderen et al. (2008) was able to explain 38% of the variance in entrepreneurial intention which is quite similar with the study of Krueger Jr et al. (2000) because they were able to explain 35% of the variance.

Souitaris et al. (2007) also performed research into entrepreneurial intention by looking at what the effect of entrepreneurship programmes is on intentions. They define *entrepreneurship programmes* as a programme that consists of four components: a taught component, a business planning component, interaction with practice component and a university support component. From their results, it seems that these kinds of programmes certainly increase attitudes and the overall entrepreneurial intention of students. For their study, they used the TPB model and found significant relationships between the independent variables *personal attitude*, *subjective norms*, *perceived behavioural control* and the dependent variable *entrepreneurial intention*. Thus, this again shows the usefulness of the TPB model in explaining variances in entrepreneurial intention and the empirical validity of the model.

Longitudinal studies are rare in this field of entrepreneurship research. Kautonen et al. (2015) performed such a type of study in Finland and Austria. Whereas most studies use students for their sample, this study used a group of people ranging from age 20-64 as their sample. The TPB model was also used in their research and they found significant relationships between all of the factors of the TPB model. They were able to explain 59% of the variance with TPB. Meaning that the predictive validity of the TPB model is validated in the area of starting your own business. The concepts of *attitude*, *subjective norms* and *perceived behavioural control* were thus all able to explain the variance in entrepreneurial intention.

Overall, there is an obvious trend among studies in this field to use elements from TPB to explain variances in entrepreneurial intention (Kautonen et al., 2015; Krueger Jr et al., 2000; Liñán & Chen, 2009; Rauch & Hulsink, 2015; Schlaegel & Koenig, 2014; Souitaris et al., 2007; Van Gelderen et al., 2008). Thus, based on the previously mentioned literature, it is suggested that there are relationships between the concepts of the TPB model (personal attitude, perceived behavioural control) and entrepreneurial intention (see Figure 2):

- *Hypothesis 1a: There is a positive relationship between personal attitudes and entrepreneurial intention*
- *Hypothesis 1b: There is a positive relationship between perceived behavioural control and entrepreneurial intention*

The reason for not including the concept of behaviour into the framework is that behaviour is difficult to establish in a cross-sectional study and a longitudinal study requires a long-time frame with several measuring points.

2.5 Education and Theory of Planned Behaviour

2.5.1 Education

Nowadays interest in entrepreneurship education has increased since entrepreneurship has an impact on the growth of an economy and it creates jobs (Audretsch, Grilo, & Thurik, 2011). Education on entrepreneurship is seen as one of the ways to stimulate the creating of new businesses. Entrepreneurship education is about transferring knowledge about how to start and run a business. Walter et al. (2013) argue that entrepreneurship education is teaching about business planning, market entry strategies, acquisition of resources and about managing a new business. Students also learn to create new and feasible business ideas. Entrepreneurship education should also increase self-efficacy of students because they are more confident of running their own business (Souitaris et al., 2007). A study by De Jorge-Moreno, Castillo, and Triguero (2012) suggest that entrepreneurship education can have different goals such as creating an 'entrepreneurial drive' among students, training in the skills required for entrepreneurship and the ability to see and exploit opportunities.

A study that was done in the Netherlands by Rauch and Hulsink (2015) showed that entrepreneurship education is indeed effective and that it certainly has an effect on entrepreneurship intentions and behaviour. They used the TPB model (Ajzen, 1991) to test whether entrepreneurship education would affect intention and behaviour. Intention based models such as the TPB model are good ways of looking at the influence of entrepreneurship education on entrepreneurial intentions and behaviour (Rauch & Hulsink, 2015).

Also, entrepreneurship education likely affects the concepts that influence intentions of becoming an entrepreneur (Fayolle, Gailly, & Lassas-Clerc, 2006), since education teaches individuals about entrepreneurship, their attitudes and perceived behavioural control may change as a result of that type of education. In the research of Rauch and Hulsink (2015) a framework was created based on the TPB model, the reason for using the TPB model is that it allows for explanation of variation in entrepreneurial intentions and behaviour. Elements from the TPB that are impacted by education according to Rauch and Hulsink (2015) are personal attitude, perceived behavioural control and intention.

In their framework *entrepreneurship education* directly affects *personal attitude*, *perceived behavioural control* and *entrepreneurial behaviour*. And *entrepreneurship education* has both an indirect and direct effect on *intentions* of an individual. Subsequently, *personal attitude* and *perceived behavioural control* affect (entrepreneurial) *intentions*.

Rauch and Hulsink (2015) state that personal attitudes can be changed by changing people's beliefs about the more positive side of entrepreneurship, a way of doing this is entrepreneurship education. They also believe that entrepreneurship education serves as a source of inspiration for students and that it can help remove any ego threats that students might think off.

Next to the previous relationship, they argue that perceived behavioural control of students can be changed by altering students' beliefs about the availability of resources. Thus, if you teach about ins and outs of entrepreneurship the student may think that entrepreneurship becomes more feasible for him or her. Also teaching about the tasks that an entrepreneur needs to perform helps to improve the perceived behavioural control of students (Kuehn, 2008). Entrepreneurship education also increases knowledge of students which builds assurance among students and boosts self-efficacy, which in turn creates higher perceived behavioural control (Krueger Jr & Brazeal, 1994). Education thus seems to be an appropriate way to alter elements of the TPB model.

Rauch and Hulsink (2015) decided to not include subjective norms in their model since they believe that entrepreneurship education cannot affect the opinions of family and friends. Their study is different from a lot of other studies in this field since Rauch & Hulsink include the behavioural component of the TPB, which is one of the main outcomes of the TPB. The reason for many studies to not include behaviour is that it requires a longitudinal study to see a change in behaviour. Rauch and Hulsink (2015) overcome this problem by looking at groups of students before the start of a master programme, during the programme and after the master programme. In this way, you can see a clear difference between before and after because they have several measuring points. The master programme that they used for their study was an entrepreneurship master and as a control group, they used students from the supply chain management master. They were able to confirm most of their relationships and hypotheses. Which implicates that: *education on entrepreneurship affects attitudes, perceived behavioural control, entrepreneurial intention and entrepreneurial behaviour. Attitudes on entrepreneurship and perceived behavioural control affect entrepreneurial intentions.* This confirms that the TPB of Ajzen (1991) is certainly useful for looking at entrepreneurship education and its effects on intentions and behaviour. This also confirms that entrepreneurship education can alter personal attitudes about entrepreneurship and that students feel more capable of doing entrepreneurship after following entrepreneurship education. Rauch and Hulsink (2015) recommendations are that universities should not just teach about theories of entrepreneurship but let students know that entrepreneurship is a viable career path. And since education affects attitude, education should be constructed in such a way that students develop a positive evaluation of entrepreneurship. This can be done by emphasising the positive aspects of entrepreneurship.

A finding by Maresch, Harms, Kailer, and Wimmer-Wurm (2016) that connects to the research about education and entrepreneurial intention is that if you have received business education then you are more likely to process and acquire knowledge related to entrepreneurship. This might be due to different forms of teaching and preferences of students. This finding most likely also holds for the research of Rauch and Hulsink (2015) since they use a sample of entrepreneurship and supply chain management students, these students likely have had business education before. It has to be noted that it is quite difficult to measure this in a study. In the research of Zhang et al. (2014), the role of education on the entrepreneurial intention of students was researched. They created a framework and used previous research to build their framework, by also using the TPB and the SEE. The conceptual framework that was created consisted of the following concepts: *perceived feasibility, perceived desirability, prior entrepreneurial exposure, university type, study major, gender, entrepreneurship education and entrepreneurial intention.* The relationships were as follows: *perceived feasibility, perceived desirability, prior entrepreneurial exposure, entrepreneurship education, university type, study major and gender* all have a direct influence on *entrepreneurial intention* according to their framework. The concepts of *university major, type of study and gender* are also expected to influence the relationship between *entrepreneurship education and entrepreneurial intention.* The variable *entrepreneurship education* can be seen as one of the main variables of this research. Looking at the concepts used in their framework, it is obvious that there are similarities with the previously mentioned SEE model (chapter 2.3.2) since they used *perceived feasibility* and *perceived desirability* in their framework. In the research of Zhang et al. (2014), using a sample of Chinese students, a positive direct relation was found between *entrepreneurship education and entrepreneurial intention.* Thus, if students have taken classes in entrepreneurship education, their intention to start a business increases. This relationship might be explained because education might give some students the confidence that they can start their own business (Dyer Jr, 1995). The positive relationship between entrepreneurship education and intention was also confirmed by Walter et al. (2013), but with a side note. In their study, they were only able to confirm the relationship for males and not for females.

Another research that was able to establish a relationship between entrepreneurship education and entrepreneurial intentions is the research from Souitaris et al. (2007). In their research, they compared a group of students before the start of an entrepreneurship programme and after 5 months of the programme. Their findings were that entrepreneurial intentions of students increased after these months of education.

Following the research from Rauch and Hulsink (2015), Souitaris et al. (2007), Walter et al. (2013) and Zhang et al. (2014) it is suggested that there is a relationship between entrepreneurship education and entrepreneurial intention. Thus, by following this type of education you learn about new things and can get inspired by examples of entrepreneurs which can increase your entrepreneurial intention. Your capacity to perform entrepreneurship can be increased as well by learning about the skills required for entrepreneurship. Which means that entrepreneurship education as a whole should affect entrepreneurial intention of students.

Thus, based on the literature from Rauch and Hulsink (2015), Souitaris et al. (2007), Walter et al. (2013) and Zhang et al. (2014) the following hypothesis is created (see Figure 2):

- *Hypothesis 2: Students who have followed entrepreneurship education will have higher entrepreneurial intention.*

2.5.2 Differences in Entrepreneurial intention between studies

Next to entrepreneurship education, there have also been studies that looked at differences between studies when comparing them based on their type of study. The study of Fietze and Boyd (2017) is an example of one of these studies. For their study, they used mainly the theory of the TPB model, as this is one of the most influential models and as mentioned before it is also used by a lot of other studies (Krueger Jr et al., 2000; Rauch & Hulsink, 2015; Van Gelderen et al., 2008). The data they used for their study was provided by the GUESS project, this project collects data on entrepreneurial intention in a lot of countries from around the world. One of the main findings of GUESS is that students in Denmark have a relatively low entrepreneurial intention and they generally choose to be an employee after graduating from university. Only 3% of the students want to start their own business right after they graduated. This is relatively low when comparing this number with the Netherlands, where 6% of the students want to start their own business after graduation (GUESS, 2014). Fietze and Boyd (2017) also looked at differences between different types of studies. For the current study, these differences are particularly interesting since the research question of this research is about finding whether there are differences in entrepreneurial intention between studies. Fietze and Boyd (2017) made a distinction between BECL (Business, economics and law students), NSM (natural sciences and medicine), SSC (social sciences) and other study fields. This distinction between studies is also coming from the GUESS project. The results of Fietze and Boyd (2017) show that in Denmark students following BECL studies have the highest entrepreneurial intention ($M=3.08$), followed by NSM ($M=2.63$), then other studies ($M=2.20$) and SSC had the lowest entrepreneurial intention ($M=1.99$). From their results, it seems that social sciences students generally have low entrepreneurial intentions. They argue that this might be because of that these students are rather sceptical about the entrepreneurship environment of their university and that they most often don't know what they will be doing 5 years after graduation. Also, students have rather low expectations of their ability to succeed in founding a business. Their article doesn't mention an argument for the relatively high entrepreneurial intentions for the group of business, economics and law students. A possible reason for this higher score could be that these students generally learn more about the skills required to start a business and they get to know how (large) companies operate, which could motivate them and increase their intentions to start their own company. Another argument that was previously mentioned in chapter 2.4 is that specifically business students don't have an 'institutionalised professional identity' after their graduation (Van Gelderen et al., 2008). The education of business students is quite broad and allows for a lot of different types of jobs. Thus, they might see entrepreneurship as one of their main options after graduation.

Zhang et al. (2014) also looked in their research at differences between studies. The researchers from the article by Zhang et al. (2014) found that students from technological universities have higher entrepreneurial intentions compared to regular universities. Also, the condition of being a student at a technological university has a positive impact on the relationship between entrepreneurship education and entrepreneurial intention. This might be because there are certain opportunities at these kinds of technological universities, that stimulate entrepreneurship among students. A same positive relationship can be found between a technological major and entrepreneurial intention. Having a technological major results in a higher entrepreneurial intention. This might be because students from technological studies possess technical skills which increase their self-efficacy. Thus, they might have skills that not many students possess which create entrepreneurial intentions and opportunities. Zhang et al. (2014) primarily base this hypothesis on the research from Wu and Wu (2008) and Hassan and Wafa (2012). Next to that, having a technological major and combining this with entrepreneurship education will result in higher entrepreneurial intention. The research of Zhang et al. (2014) also found that the type of major has a moderating effect on the relationship between entrepreneurship education and entrepreneurial intention. Thus, it would be worth researching if this is also the case in the current research.

Zhang et al. (2014) measure the differences between studies using only the distinction of technological versus non-technological studies, whereas Fietze and Boyd (2017) use multiple categories of studies. Technological studies are Natural sciences and Medicine from their research and non-technological studies are Business, economics and law students and Social sciences students.

These results from Fietze and Boyd (2017) and Zhang et al. (2014) certainly illustrate that differences between studies exist and should be researched further to see if they also apply in other countries such as the Netherlands. There also differences between these two articles, the study from Denmark found that business students are more likely to have higher entrepreneurial intentions while the study from China found technological students to have higher entrepreneurial intentions. Thus, it is interesting to see which group of students would have the highest entrepreneurial intentions in the Netherlands. Since the Netherlands is quite similar in terms of culture to that of Denmark and since it is also a Western-European country the following hypothesis is mainly created based on the results from Fietze and Boyd (2017) (see Figure 2). Besides that, the most recent national report from GUESS (2014) in the Netherlands also found that students from studies in business, economics and law have the highest entrepreneurial intention of students. Thus, this also supports the following hypothesis:

- *Hypothesis 3a: Business, economics and law students are expected to have the highest entrepreneurial intention*

In the article by Zhang et al. (2014) they state that if a student has received entrepreneurship education and was also following a technological major then their entrepreneurial intention would be higher. Their results showed that the moderator 'type of major' influences the relationship between entrepreneurship education and entrepreneurial intention. While the article of Fietze and Boyd (2017) doesn't necessarily mention the type of major as a moderator, it could be argued that they also concluded that there are certainly differences between entrepreneurial intention and the study that you are following.

The research from Maresch et al. (2016) offers two opposite arguments for the strength of the impact of entrepreneurship education when looking at different types of studies. They argue that the impact of entrepreneurship education, on the one hand, should be greater for technological students (science and engineering) as they start with relatively low levels of knowledge about entrepreneurship. Thus, following this argument it would be logical that technological students have relatively more benefits from entrepreneurship education and would thus result in higher entrepreneurial intentions. The relationship between

entrepreneurship education and entrepreneurial intention, in that case, would be enhanced for students from a technological background.

The other argument according to Maresch et al. (2016) is that if a student has prior knowledge or experiences about a topic, then new knowledge is processed more efficiently compared to a student that doesn't have this experience or knowledge. Thus, technological students might think differently because of a lack of knowledge, which results in a less efficient way of learning. Which in turn makes entrepreneurship education for business students more effective.

Using the argument from the previous hypothesis (3a) that the Netherlands is quite similar in terms of culture to that of Denmark, and the second argument from Maresch et al. (2016) it is expected that students from a major in the category 'business, economics and law' have a significant impact on the relationship between entrepreneurship education and entrepreneurial intention. Thus, it is argued that the relationship between entrepreneurship education and entrepreneurial intention is enhanced by students from a business, economics or law study (see Figure 2).

Therefore, the following hypothesis is created:

- *Hypothesis 3b: The relationship between entrepreneurship education and entrepreneurial intention is enhanced by students from business, economics and law.*

3. Methodology

3.1 Research design

For this study a comparison is made, comparing the entrepreneurial intention of students across multiple Dutch universities. The chosen method of research is quantitative research, thus a survey is created and analysed afterwards. The reason for choosing a quantitative approach is that it allows for testing relationships in a more robust way. The type of research is cross-sectional since the answers of respondents are recorded at a single moment in time. The survey is created with WUR Qualtrics since this software offers convenience and allows for easy exporting of the data afterwards. Thus, the chosen method of collecting data is via a web-survey since this saves time with registering the data. The questions will be asked in English because most university students in the Netherlands will understand this and no further translations of the items are needed.

3.2 Variables

The dependent variable in this research is *entrepreneurial intention*. The independent variables are *entrepreneurship education* and *type of study*. The control variables in this study are *gender*, *age*, *entrepreneurial parents* and *student Wageningen*.

Next to the aforementioned factors in the literature review, it seems that the control variable of gender also plays a role in entrepreneurial intention. Rauch and Hulsink (2015) control for gender in their study as they argue that men have higher intentions of starting a business compared to women.

When looking at students in China, it seems that males, in general, have a higher entrepreneurial intention compared to females (Zhang et al., 2014). They think that this might be due to masculine characteristics that are associated with entrepreneurship. It could also be because of that females may find the environment more difficult and don't find it that rewarding compared to males (Zhang et al., 2014). They argue that differences between males and females should not be ignored, thus a way needs to be found to promote entrepreneurship among females. As this research was conducted in China, the question remains if this also holds for Western European countries such as the Netherlands.

In the article by Fietze and Boyd (2017) there is also a statement regarding the relationship between males and females and entrepreneurial intention. Namely, the GUESS report from Denmark that they used for their data showed that males seem to have higher entrepreneurial intentions than females. In the paper of Walter et al. (2013) they state that females want to find a balance between work and family, whereas males, on the other hand, are more striving for autonomy with self-employment.

Thus, looking at previous literature, it is expected that there is a difference in entrepreneurial intentions between males and females.

3.3 Operationalisation

Construct and items	Sources/adapted from	Factor loadings
Entrepreneurial intention* <i>Indicate your level of agreement with the following statement from 1 (total disagreement) to 7 (total agreement)</i>	(Liñán & Chen, 2009)	
- I am ready to do anything to be an entrepreneur		0.604
- My professional goal is to become an entrepreneur		0.822
- I will make every effort to start and run my own firm		0.768
- I am determined to create a firm in the future		0.811
- I have very seriously thought of starting a firm		0.764
- I have the firm intention to start a firm some day		0.836
Personal attitude* <i>Indicate your level of agreement with the following statement from 1 (total disagreement) to 7 (total agreement)</i>	(Krueger Jr et al., 2000; Liñán & Chen, 2009)	
- Being an entrepreneur implies more advantages than disadvantages to me		0.698
- A career as an entrepreneur is attractive for me		0.822
- If I had the opportunity and resources, I'd like to start a firm		0.740
- Being an entrepreneur would entail great satisfactions for me		0.736
- Among various options, I would rather be an entrepreneur		0.834
Perceived behavioural control* <i>To what extent do you agree with the following statements regarding your entrepreneurial capacity? Value them from 1 (total disagreement) to 7 (total agreement).</i>	(Krueger Jr et al., 2000; Liñán & Chen, 2009)	
- To start a firm and keep it working would be easy for me		0.518
- I am prepared to start a viable firm		0.669
- I can control the creation process of a new firm		0.790
- I know the necessary practical details to start a firm		0.805
- I know how to develop an entrepreneurial project		0.801
- If I tried to start a firm, I would have a high probability of succeeding		0.632
Entrepreneurship education	(Zhang et al., 2014)	
<i>Have you followed entrepreneurship courses?</i>		
- I have no intentions to follow entrepreneurship education (1)		
- I intend to follow entrepreneurship education (2)		
- Yes, I followed entrepreneurship education (3)		
- I have followed entrepreneurship education and intend to follow entrepreneurship education in the future (4)		

Type of study	(Fietze & Boyd, 2017; Zhang et al., 2014)	
<i>What type of study are you following?</i> 1- Business, economics and law (BECL)/ 2- natural sciences and medicine (NSM)/ 3- social sciences (SSC)/ 4- other fields of studies		
Parents entrepreneur		
- <i>Does a parent currently own or have they ever owned a business? (Yes/No)</i>	(Carr & Sequeira, 2007)	
- <i>Are you currently an entrepreneur? (Yes/No)</i>		

**All items are measured with 7-point Likert scales*

3.4 Data collection

For the literature study literature was found via search engines such as Scopus and Google Scholar. The following search terms were used in multiple variations:

("entrepreneurial intention" OR "entrepreneurial orientation") AND (universit* OR "Academic institut*") AND (student?),("entrepreneurial intention") AND ("theory of planned behaviour") and ("education") AND ("entrepreneurial intention").

Furthermore, the primary data was generated via a web-survey on the internet, which can be easily sent out to numerous people via an URL link. The data was collected via WUR Qualtrics, as it offers easy data collection methods.

The survey was mainly distributed via the internet, via for example Facebook groups, via WhatsApp, e-mail or via LinkedIn. Before sending the final survey out the target group, a pilot survey was conducted among some students to test whether the questions are understandable for the respondents. The feedback that was created from this pilot survey was then used to enhance the final survey.

The survey consisted of several parts. The first part introduced the survey and checked whether the respondent fitted the target population. If this was not the case, the respondent was sent to the end of the survey. The second part of the survey consisted of more in-depth questions. These more in-depth questions are about the variables that can be seen in the framework and the questions that are asked can be found in the previous subchapter about 'operationalisation'. Most questions used a 7-point Likert scale as this is one of the most common and used scales with surveys. The third part of the survey involved several demographic questions. The final part of the survey had room for any remaining questions or feedback that respondents might have had.

3.5 Population

For this study, the unit of analysis are students from Dutch universities. The idea is to get responses from as many different universities in the Netherlands as possible. Both students from technological studies and non-technological studies will be researched. Ideally, the survey is sent out to all university students in the Netherlands, but this is hard to do since the research isn't part of a national institution who has the authority and capacity to do this.

The total population of university students studying at a Dutch university according to DUO (2018) are 292,721 students. The required sample size for this study is a minimum of 100 observations, it would be ideal to have more respondents.

3.6 Sampling

For this study one of the sampling methods used is the purposive sampling method. This type of sampling belongs to the category of non-probability sampling methods. It entails that specific groups of people are included in the sample. In this case a group of people who have

followed entrepreneurship education and a group of people who haven't followed entrepreneurship education. Also, students from business, economics and law students are included in the sample, as well as students from non-business, economics and law studies are included.

For this study convenience sampling was also used and this sampling method also belongs to the category of non-probability sampling.

One of the advantages of convenience sampling is that time is saved with this method, you don't have to precisely know how big your population is to create the best sampling with this method. Another advantage is that participants in the survey can decide for themselves if they want to participate or not.

Although there are some disadvantages connected to this method of sampling. One of these disadvantages is that it is difficult to fully represent the entire population of students in the Netherlands. It could be that some groups are overrepresented and other groups are underrepresented. Also, generalisation of the results is difficult with convenience sampling.

3.7 Analysis

One of the ways the data that is generated will be analysed is by using SPSS, which offers numerous statistical analyses for the data. Since there are several items for each factor, factor analysis is performed. The factor analysis allows seeing an overlap between different constructs and shows if a certain item needs to be deleted. Also, it would be interesting to see if there is a difference between certain groups in this research. Thus, to be able to show this difference ANOVA will be used. Since *type of study* is a categorical variable, this variable will be simplified in the analysis with 1 for business, economics and law students and 0 for non-business, economics and law students. Gender is also simplified into 1 for males and 0 for females. Another control variable that is coded as 1 and 0 is 'entrepreneurial parents', if you have entrepreneurial parents it is coded as 1 and coded as 0 for the opposite. The last variable that is coded as a dummy variable is the control variable 'student Wageningen', 1 for students from Wageningen and 0 for students not from Wageningen.

Hierarchical regression analysis is used to test whether there is a relationship between the variable *entrepreneurship education* and *entrepreneurial intention*. Since the conceptual framework also involves a moderator (*type of study*), a test for moderation will also be used. Andrew Hayes developed a tool for SPSS (PROCESS) which allows for testing for moderation (Hayes, 2017). Since the type of moderation is simple, model 1 is used from PROCESS. The independent variable and moderator are mean centred to prevent multicollinearity.

4. Results

4.1 Sample characteristics

Overall the survey had 113 respondents of which 40.7 per cent was male and 59.3 per cent was female. In the survey, 93 Dutch people participated and 20 non-Dutch people participated. The average age of the respondents was 22 years old. Of these students 39 were following a bachelor, 72 were following a master and 2 students were doing a PhD. Of these students 29 of them were following a study in business, economics or law, 43 students were following a study in natural sciences and medicine, 23 students were following a study in social sciences and 18 students selected the choice 'other field of studies'. In the research the majority of respondents came from Wageningen University & Research (77 people), 6 respondents from Universiteit Utrecht, 6 respondents from Universiteit van Amsterdam, 2 respondents from Rijksuniversiteit Groningen, 2 respondents from Radboud Universiteit Nijmegen, 10 respondents from Erasmus Universiteit Rotterdam, 2 respondents from Vrije Universiteit Amsterdam, 1 respondent from Universiteit Leiden, 3 respondents from University

of Twente, 4 respondents from Tilburg University and 3 respondents from Maastricht University. It has to be noted to the total comes out to 116, but this can be explained by the fact that respondents had to option to select multiple universities. Thus, they could have been following education at several universities. What is interesting to see however is that 54 respondents had parents who have or have had their own business. While 59 respondents didn't have parents who have owned their own business.

4.2 Analysis results

The items of the survey were tested using Cronbach's alpha. This measurement showed no deviations since all values are well above 0.5. Thus, this shows that the scales are reliable. The validity of the items is also considered since the items are originating from previously developed scales. The results of the Kaiser Meyer Olkin test for sample adequacy (0.942) and Bartlett's test of sphericity ($P < 0.001$) show that the data can be used for factor analysis. Thus, a factor analysis was conducted to see if the items load on the correct construct. The factor shows that there are only two components while there should be 3 components (entrepreneurial intention, personal attitude and perceived behavioural control). There seems to be a lot of overlap between the items of entrepreneurial intention and personal attitude towards entrepreneurship since the items are all loading on the same factor. The items of 'perceived behavioural control' however are loading on the correct factor. When taking a look at the questions asked in the items of 'entrepreneurial intention' and 'personal attitude' they do resemble each other, thus this could explain why they overlap each other. Since the items for the scales are mostly used from the study of Liñán and Chen (2009) and they did find that these factors could be used next to each other, it is decided to continue with further analysis of these factors.

Table 1 - Cronbach's Alpha

	Number of items	Cronbach's alpha
Entrepreneurial intention	6	0.954
Personal attitude	5	0.943
Perceived behavioural control	6	0.913

To perform a hierarchical regression, it is necessary to take the assumptions of regression into account. These assumptions are that there should be no multicollinearity, homoscedasticity, normality and independence of residuals (Aljandali, 2017). The test for multicollinearity (tolerance and VIF) showed that there is no reason for concern regarding multicollinearity since the tolerance is well above 0.1 and the VIF has values around 1 and 2 (see appendix a). For testing the homoscedasticity a graph was made between ZRESID and ZPRED. Normality was tested via a normal probability plot and the independence of residuals was tested using the Durbin Watson test. The graphs for testing homoscedasticity and normality showed that there is no reason for concern (see appendix a). The Durbin Watson test had a value of 1.76, this means that it lays between the critical values of 1.5 and 2.5 and means that there is independence of residuals.

A six-stage hierarchical regression was conducted with 'entrepreneurial intention' as the dependent variable. In step 1 Entrepreneurship education was entered to see what the effect would be if this would be the only independent variable. In step 2 the variables 'personal attitude' and 'perceived behavioural control' were entered. In step 3 Type of study was entered as this variable is part of moderation. In step 4 the cross effect of Type of Study * Entrepreneurship Education was entered into the model. In step 5 the control variables Entrepreneurial Parents and Student Wageningen were entered into the analysis. Finally, in step 6 the control variables Age and Gender were entered in the model. It was decided to no

enter all control variables at once in the model to see whether it would make a difference in the significance of the predictors. Correlations between the variables can be seen in table 2 and the regression statistics can be found in table 3.

The hierarchical regression showed that at step 1, Entrepreneurship education contributed significantly to the regression model, ($F(1,111) = 72.79$, $p < 0.001$ and $R^2=0.39$). Adding 'personal attitude' and 'perceived behavioural control' to the model explained an additional 40% of the variance in entrepreneurial intention and this change was significant, $\Delta F(2,109) = 109.03$, $p < 0.001$, $\Delta R^2=0.40$. Adding Type of Study did not result in a change in R^2 , $\Delta F(1,108) = 0.02$, $p = 0.880$, $\Delta R^2=0.00$. Also, adding the cross effect of Type of study * Entrepreneurship Education did not result in a significant change, $\Delta F(1,107) = 0.02$, $p = 0.882$, $\Delta R^2=0.00$. Then by adding the two control variables Entrepreneurial parents and Wageningen Student into the model this also did not result in a significant change in R^2 , $\Delta F(2,105) = 0.05$, $p = 0.955$, $\Delta R^2=0.00$. Finally, by adding the control variables Gender and Age into the model there was again no significant change in R^2 , $\Delta F(2,103) = 0.661$, $p = 0.518$, $\Delta R^2=0.003$. When all the variables were entered into the last model the predictors 'entrepreneurship education' ($\beta=0.148$), 'personal attitude' ($\beta=0.628$) and 'perceived behavioural control' ($\beta =0.205$) were still significant, thus indicating that these are strong predictors. Together the variables accounted for a total of 74.8% of the variance in entrepreneurial intention. This implicates that the higher an individual's personal attitude towards entrepreneurship is, the higher their entrepreneurial Intention is, thus supporting hypothesis 1a. Thus, if you have a more positive attitude towards the idea of entrepreneurship then it is more likely that your entrepreneurial intentions are also higher. The same holds for perceived behavioural control: the higher an individual's perceived behavioural control is, the higher their entrepreneurial intention is, thus supporting hypothesis 1b. Thus, this means that if you feel capable of performing the tasks associated with entrepreneurship then it is likely that your own intent to start a business is also higher since you believe that you are capable of doing it. Also, if an individual has followed entrepreneurship education then their entrepreneurial intention will be higher, thus supporting hypothesis 2. Thus, this shows that is beneficial to follow classes or other sorts of education since it increases the entrepreneurial intention of an individual. It has to be noted though that the effect of 'personal attitude' ($\beta=0.628$) on 'entrepreneurial intention' is the largest followed by the effect of 'perceived behavioural control' ($\beta=0.205$) and then the effect of 'entrepreneurship education' ($\beta=0.148$).

Next to the hierarchical regression analysis, there was a test to see if moderation would occur between 'type of study' and the relationship between the variables 'entrepreneurship education' and 'entrepreneurial intention'. Thus, would the type of study influence this relationship. To test for moderation, the PROCESS tool from (Hayes, 2017) was used. Since it is a simple form of moderation model 1 from PROCESS could be used. Since the variable 'Type of Study' consisted of several categories a new variable was created with dummy variables. If a student followed a study in business, economics and law they were labelled as '1' and if they followed another study they were labelled as '0'. The results from this moderation analysis show that there is no moderation since the interaction effect between entrepreneurship education and type of study is insignificant ($p=0.7015$) and change in R^2 is limited to 0.008, $F(1,109)=0.148$. Thus, hypothesis 3b isn't supported. This implicates that the condition of being a business, economics or law student doesn't affect the relationship between entrepreneurship education and entrepreneurial intention. Thus, having received education in business, economics or law doesn't lead to an increase in the effect of entrepreneurship education on entrepreneurial intention.

Also, when dummy coding the other studies there is no significant case of moderation between type of study and the relationship between entrepreneurship education and entrepreneurial intention.

When comparing the means of entrepreneurial intention between different studies it seems that there is a significant difference between these groups of students. A higher mean means that there is a higher entrepreneurial intention. Business economics and law students have a mean of 4.10, natural sciences and medicine students have a mean of 3.10, social sciences have a mean of 2.82 and “other studies” have a mean of 2.82. Thus, this shows that students from business, economics and law have the highest entrepreneurial intention. This difference is also significant when looking at ANOVA since $p < 0.001$. Thus, this result supports hypothesis 3a.

When looking at the control variables of this research there are also some interesting findings. It seems that male students, in general, have a higher entrepreneurial intention (mean of 3.75) than female students (mean of 2.91). This difference is also significant since $p < 0.01$. Meaning that males, in general, have higher intentions to start their own business in the future compared to females. Also, if you have a parent that currently has a business or has had their own business then your entrepreneurial intention will also be higher. For students with entrepreneurial parents, the mean is 3.77 and for students, without entrepreneurial parents, the mean is 2.78. This difference is also significant since $p < 0.001$. This means that having entrepreneurial parents might influence your attitude about entrepreneurship or it influences your capabilities of performing entrepreneurship positively that it enhances your entrepreneurial intentions. It could also be that you get inspired by your parents and want to achieve to same things as they have achieved in entrepreneurship.

Table 2 - Descriptive statistics and variable correlations (N=113)

Variable	Min.	Max.	Mean	Std. Dev	1	2	3	4	5	6	7	8	9	10
(1) Entrepreneurial intention	1	6.83	3.25	1.63	1.00									
(2) Personal attitude	1	7	3.86	1.56	0.86****	1.00								
(3) Perceived behavioural control	1	7	3.02	1.35	0.71****	0.63****	1.00							
(4) Entrepreneurship education	1	4	1.75	0.97	0.63****	0.57****	0.52****	1.00						
(5) Type of study (business, economics and law=1)	0	1	0.26	0.44	0.31****	0.27***	0.42****	0.24***	1.00					
(6) Type of study* entrepreneurship education	-0.58	1.72	0.10	0.44	0.11	0.08	0.17**	0.15*	0.26***	1.00				
(7) Gender (1=male)	0	1	0.41	0.49	0.26***	0.23***	0.33****	0.14*	0.26***	0.05	1.00			
(8) Age	18	33	22.43	2.54	0.27***	0.20**	0.31***	0.23***	0.07	-0.06	0.12	1.00		
(9) Entrepreneurial parents (1=Yes)	0	1	0.48	0.50	0.31***	0.31****	0.30***	0.23***	0.13*	0.08	0.07	0.04	1.00	
(10) Student Wageningen (1=Wageningen)	0	1	0.68	0.47	-0.02	0.02	-0.15*	0.10	-0.21**	-0.05	0.06	-0.06	-0.18**	1.00

**** Significant (<0.001) (2-tailed)
 *** Significant (<0.01) (2-tailed)
 ** Significant (<0.05) (2-tailed)
 * Significant (<0.10) (2-tailed)

Table 3 - Regression results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Standardized Beta coefficient					
Entrepreneurship education	0.629**** (8.531)	0.151*** (2.792)	0.151*** (2.776)	0.151*** (2.765)	0.153*** (2.728)	0.148** (2.589)
Personal attitude		0.627**** (10.534)	0.627**** (10.487)	0.627**** (10.403)	0.627**** (10.147)	0.628**** (10.122)
Perceived behavioural control		0.232**** (4.059)	0.229 (3.770)****	0.230**** (3.755)	0.226**** (3.576)	0.205*** (3.083)
Type of study			0.007 (0.152)	0.009 (0.179)	0.007 (0.140)	0.007 (0.137)
<i>Cross effects</i>						
Study* entrepreneurship education				-0.007 (-0.149)	-0.007 (-0.153)	-0.001 (-0.014)
Control variables						
Entrepreneurial parents					0.008 (0.165)	0.011 (0.241)
Student Wageningen					-0.010 (-0.221)	-0.010 (-0.209)
Age						0.050 (1.074)
Gender						0.017 (0.364)
Constant	1.398**** (5.631)	-0.563*** (-2.852)	-0.558*** (-2.789)	-0.559*** (-2.779)	-0.535** (-2.296)	-1.204* (-1.800)
Adjusted R-squared	0.391	0.793	0.792	0.789	0.786	0.784
R-squared change	0.396	0.403	0.000	0.000	0.000	0.003

**** Significant (<0.001) (2-tailed)
 *** Significant (<0.01) (2-tailed)
 ** Significant (<0.05) (2-tailed)
 * Significant (<0.10) (2-tailed)

5. Discussion

In the introduction of this study the problem that universities don't have that much knowledge in what factors affect entrepreneurial intention was presented. Also, previous studies into entrepreneurial intention in the Netherlands showed that the intention of Dutch university students is rather low (GUESS, 2014). Education was proposed as one of the ways entrepreneurial intention could be increased. The results of this study demonstrate that the predictors 'entrepreneurship education', 'personal attitude' and 'perceived behavioural control' can explain a significant amount of variance in entrepreneurial intention of university students. In the conceptual framework, it was also proposed that there was a moderation effect from 'type of study' on the relationship between entrepreneurship education and entrepreneurial intention. This moderation, however, couldn't be confirmed in the analysis since the interaction was found to be insignificant.

In the introduction, the research question for this study was presented. The research question of this study was: *What are the differences in entrepreneurial intention of university students when comparing students following technological studies with students following non-technological studies?*

The means of the variable entrepreneurial intention indicate that there are certainly differences between different types of studies. The results show that students from business, economics and law have the highest entrepreneurial intention (4.10), followed by students from natural sciences (3.10) and medicine, then social sciences students (2.82) and lastly students from other studies (2.82). Thus, this implicates that students from business, economics and law studies (non-technological) have the highest intent to start a business in the future. Students from natural sciences and medicine (technological) are in the middle. It could be that students from technological studies also belong to the category of 'other studies', then they also have relatively low entrepreneurial intentions. A possible reason for this might be that business, economics and law students feel more capable of starting their own business as they had classes in it or they have parents who also did a business, economics or law study. Another explanation for rather low entrepreneurial intentions among university students could be that students first want to gain some work experience before starting their own business. Most people start their own business when they are 25-34 years old in the Netherlands (Bosma et al., 2020).

Next to this research question, several hypotheses were proposed. The first hypothesis that was proposed is: *Hypothesis 1a: There is a positive relationship between personal attitudes and entrepreneurial intention.* This hypothesis was confirmed, meaning that if your personal attitude is high, your entrepreneurial intention is also likely to be higher. In words, this means that if you have a positive attitude towards the idea of entrepreneurship then your intention will also be higher to start your own business. The next hypothesis that was proposed is: *Hypothesis 1b: There is a positive relationship between perceived behavioural control and entrepreneurial intention.* This hypothesis was also confirmed, meaning that if your perceived behavioural control is high, your entrepreneurial intention will likely also be higher. Thus, if you believe that you are capable of starting and running your own business then the intention to start your own business will be higher. These two relationships are mainly coming from the theory of planned behaviour that was mentioned in the literature review (Ajzen, 1991). The previous studies that researched entrepreneurial intention also made use of this model. Thus, the fact that these relationships were confirmed means that the results match that of previous research (Kautonen et al., 2015; Krueger Jr et al., 2000; Liñán & Chen, 2009; Rauch & Hulsink, 2015; Schlaegel & Koenig, 2014; Souitaris et al., 2007; Van Gelderen et al., 2008). This also means that the concepts of personal attitude and perceived behavioural control are useful predictors for explaining variance in entrepreneurial intention.

When looking at the results of the hierarchical regression analysis it became clear that entrepreneurship education has a positive effect on the entrepreneurial intentions of students

(hypothesis 2). This result corresponds to the results of Rauch and Hulsink (2015), Souitaris et al. (2007), Walter et al. (2013) and Zhang et al. (2014). It could be beneficial for the types of studies that had lower entrepreneurial intentions to follow classes (or other sorts of education) in entrepreneurship. The implications for universities are that they could offer more entrepreneurship education in the form of lectures or cases to students that are not from business, economics or law studies if they desire to increase the entrepreneurial intentions of their students. This corresponds to the recommendations of Zhang et al. (2014), as they argue that more and customised entrepreneurship programs can be helpful for students from technological studies. Instead of offering the same education as for business studies, emphasis could be placed on the 'technology aspect' combined with entrepreneurship for students from technological studies.

Looking at the last two hypotheses something interesting is going on. Hypothesis 3a: *Business, economics and law students are expected to have the highest entrepreneurial intention* was confirmed by the results. This result matches with that of the previous research from (Fietze & Boyd, 2017) and that of (GUESS, 2014). Implicating that there is certainly some resemblance between students from Denmark and students from the Netherlands as results from both countries show that business, economics and law students have the highest entrepreneurial intention. The other hypothesis that is linked to this is: *Hypothesis 3b: The relationship between entrepreneurship education and entrepreneurial intention is enhanced by students from business, economics and law.* This hypothesis couldn't be confirmed by the results, as no moderation occurred. Meaning that the relationship between entrepreneurship education and entrepreneurial intention isn't enhanced by students from business, economics and law. This is thus not in line with the research from Fietze and Boyd (2017), Maresch et al. (2016) and Zhang et al. (2014).

6. Limitations and future research

In this research, some limitations need to be mentioned. First of all, it seemed that the concepts of 'entrepreneurial intention' and 'personal attitude' were quite interrelated to each other. Thus, the scales of Liñán and Chen (2009) may need some changes in further research or there need to be more clear differences between the items of 'entrepreneurial intention' and 'personal attitude' as they now sort of overlap each other. Another limitation of this research is that the majority of students that participated in the research came from Wageningen University & Research. This affects the generalisability of the results since the population of this research included all the university students in the Netherlands. Also, there might have been self-selection bias as respondents could choose to participate in the survey or not. In future research, it would be good to also conduct interviews to extract more detailed argumentation from respondents about why they would or why they wouldn't want to start a business. This phenomenon of triangulation would positively affect the validity and reliability of the results. Interviews may also reveal why females have lower entrepreneurial intentions than males. Is it because of classical role models or is this not applicable in the Netherlands? Zhang et al. (2014) argue that a possible way to increase entrepreneurial intentions of females would be to have more female role models, but their study was conducted in China, thus would this also apply in the Netherlands?

Since this study was cross-sectional it only measures the entrepreneurial intention at one moment. Future studies could make use of longitudinal techniques to see if the entrepreneurial intentions of students develop during their time at university.

This research showed that entrepreneurship education does affect entrepreneurial intention. However, the question remains which teaching methods are most effective in increasing entrepreneurial intention of students. Fietze and Boyd (2017) mention in their research that if a university's objective is to increase entrepreneurial intention then it is necessary to make use of 'purposeful' courses and more custom-built courses. This could be courses that are specifically made for different types of studies, as business students might have more

knowledge about how to start a business then for example students with a technological background. In the article of Rauch and Hulsink (2015) it is argued that entrepreneurship education shouldn't be all about learning about (theoretical) concepts but more about applying certain concepts to create new opportunities (Neck & Greene, 2011; Sarasvathy, 2001). By improving entrepreneurship education at universities there is likely to be an increase in entrepreneurial intentions which in turn can create more businesses and can be beneficial for an economy (Acs & Storey, 2004; Zahra, 1999).

7. References

- Acs, Z., & Storey, D. (2004). Introduction: Entrepreneurship and economic development.
- Ajzen, I. (1980). Understanding attitudes and predicting social behavior. *Englewood Cliffs*.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.
- Aljandali, A. (2017). *Multivariate methods and forecasting with IBM® SPSS® Statistics*: Springer.
- Audretsch, D. B., Grilo, I., & Thurik, A. R. (2011). *Handbook of Research on Entrepreneurship and Regional Development*. Cheltenham: Edward Elgar.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bosma, N., Hill, S., Ionescu-Somers, A., Kelley, P. D., Levie, P. J., & Tarnawa, A. (2020). *Global Entrepreneurship Monitor 2019/2020 Global Report*. London: Global Entrepreneurship Research Association.
- Carr, J. C., & Sequeira, J. M. (2007). Prior family business exposure as intergenerational influence and entrepreneurial intent: A theory of planned behavior approach. *Journal of business research*, 60(10), 1090-1098.
- De Jorge-Moreno, J., Castillo, L. L., & Triguero, M. S. (2012). The effect of business and economics education programs on students' entrepreneurial intention. *European Journal of Training and Development*.
- DUO. (2018). WO - Open Onderwijsdata - DUO. Retrieved from <https://duo.nl/open-onderwijsdata/databestanden/ho/ingeschreven/wo-ingeschr/index.jsp>
- Dyer Jr, W. G. (1995). Toward a theory of entrepreneurial careers. *Entrepreneurship Theory and Practice*, 19(2), 7-21.
- Erasmus Universiteit Rotterdam. (2019). Creating positive societal impact the Erasmian way - Strategy 2024. Retrieved from <https://www.eur.nl/sites/corporate/files/2019-09/eur-strategy-2020-2024-creating-positive-societal-impact-the-erasmian-way.pdf>
- Fayolle, A., Gailly, B., & Lassas-Clerc, N. (2006). Assessing the impact of entrepreneurship education programmes: a new methodology. *Journal of European industrial training*.
- Fietze, S., & Boyd, B. (2017). Entrepreneurial intention of Danish students: a correspondence analysis. *International Journal of Entrepreneurial Behavior & Research*, 23(4), 656-672.
- GUESS. (2014). *Global University Entrepreneurial Spirit Students' Survey National Report for the Netherlands 2013-2014*. Retrieved from http://www.guesssurvey.org/resources/nat_2013/GUESSSS-National-Report-for-the-Netherlands-2013-2014.pdf
- Hassan, R. A., & Wafa, S. A. (2012). Predictors towards entrepreneurial intention: a Malaysian case study. *Asian Journal of Business and Management Sciences*, 1(11), 1-10.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*: Guilford Publications.
- Katz, J. A. (1990). Longitudinal analysis of self-employment follow-through. *Entrepreneurship & Regional Development*, 2(1), 15-26.
- Kautonen, T., van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 39(3), 655-674.
- Krueger Jr, N. F., & Brazeal, D. V. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship Theory and Practice*, 18(3), 91-104.
- Krueger Jr, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of business venturing*, 15(5-6), 411-432.

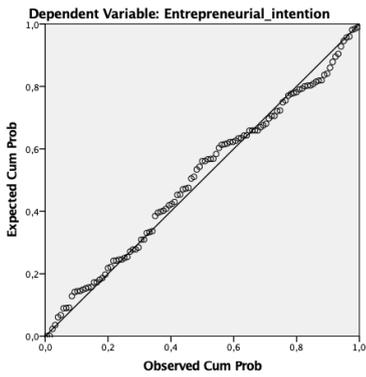
- Krueger, N. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory and Practice*, 18(1), 5-21.
- Krueger, N. F., & Carsrud, A. L. (1993). Entrepreneurial intentions: Applying the theory of planned behaviour. *Entrepreneurship & Regional Development*, 5(4), 315-330.
- Kuehn, K. W. (2008). Entrepreneurial intentions research: Implications for entrepreneurship education. *Journal of Entrepreneurship Education*, 11, 87.
- Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593-617.
- Maresch, D., Harms, R., Kailer, N., & Wimmer-Wurm, B. (2016). The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs. *Technological forecasting and social change*, 104, 172-179.
- Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: known worlds and new frontiers. *Journal of small business management*, 49(1), 55-70.
- Rauch, A., & Hulsink, W. (2015). Putting entrepreneurship education where the intention to act lies: An investigation into the impact of entrepreneurship education on entrepreneurial behavior. *Academy of management learning & education*, 14(2), 187-204.
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management Review*, 26(2), 243-263.
- Schlaegel, C., & Koenig, M. (2014). Determinants of entrepreneurial intent: a meta-analytic test and integration of competing models. *Entrepreneurship Theory and Practice*, 38(2), 291-332.
- Shapero, A., & Sokol, L. (1982). The social dimensions of entrepreneurship. *Encyclopedia of entrepreneurship*, 72-90.
- Souitaris, V., Zerbini, 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.
- Universiteit Utrecht. (2016). Strategisch plan 2016-2020. Retrieved from https://students.uu.nl/sites/default/files/uu_nieuws_strategischplan.pdf
- Van Gelderen, M., Brand, M., van Praag, M., Bodewes, W., Poutsma, E., & Van Gils, A. (2008). Explaining entrepreneurial intentions by means of the theory of planned behaviour. *Career development international*, 13(6), 538-559. doi:<https://doi.org/10.1108/13620430810901688>
- Wageningen University & Research. (2019). Strategisch plan 2019-2022. Retrieved from https://www.wur.nl/upload_mm/0/a/8/a441cc68-655b-4a39-849b-64a56038afc1_CC_StrategischPlan_NL_LR.pdf
- Walter, S. G., Parboteeah, K. P., & Walter, A. (2013). University Departments and Self-Employment Intentions of Business Students: A Cross-Level Analysis. *Entrepreneurship Theory and Practice*, 37(2), 175-200.
- Wu, S., & Wu, L. (2008). The impact of higher education on entrepreneurial intentions of university students in China. *Journal of Small Business and Enterprise Development*, 15(4), 752-774.
- Zahra, S. A. (1999). The changing rules of global competitiveness in the 21st century. *Academy of Management Perspectives*, 13(1), 36-42.
- Zhang, Y., Duysters, G., & Cloudt, M. (2014). The role of entrepreneurship education as a predictor of university students' entrepreneurial intention. *International entrepreneurship and management journal*, 10(3), 623-641.

8. Appendix

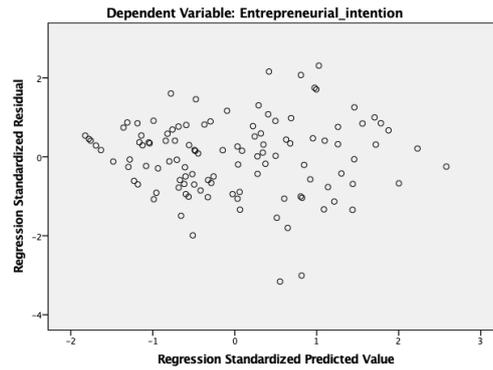
a.

	Tolerance	VIF
Personal attitude	0.50	2.00
Perceived behavioural control	0.44	2.30
Entrepreneurship education	0.59	1.69

Normal P-P Plot of Regression Standardized Residual



Scatterplot



Histogram

