My future as an Entrepreneur

A study on the Entrepreneurial Intentions of BUas students

DISCOVER YOUR WORLD

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Preface

For a number of years, we have been measuring students' intentions to become entrepreneurs at the beginning of the year. The reports have provided valuable insights over the years (van Liempt & van Es, 2019, 2020, 2021, 2022). We saw that more and more BUas students were interested in becoming entrepreneurs themselves. We also discovered a pattern within a cohort that is different from the overall growth pattern. The pattern within a cohort clearly shows that the closer people get to graduation, the more confident they become about their future. We also saw that within certain domains such as Hotel, Leisure & Events, and Tourism, students are more likely to have entrepreneurial intentions than within other domains such as Built Environment or Logistics. Due to the nature of the single question we could ask when students enrolled, we never had the opportunity to delve deeper into the causes that might explain the variation in students' entrepreneurial intentions. This report aims to answer some of those questions that have arisen over time.

Though the main author of this report, Adriaan van Liempt, remains solely responsible for what is written, the help of two BSc Leisure Studies students, Jasper Visser and Esmée van der Linden, who wrote their bachelor in science thesis on the causes of entrepreneurial intention, was very much appreciated. Based on their literature review, a questionnaire was designed and distributed among a random sample of BUas students in January and March 2021. A period marked by a lockdown caused by the infamous COVID-19 pandemic. This is the main reason why a concept such as the 'future time perspective' was used in this study, as we were also curious about the future prospects of the students in general.

Tijs van Es as coordinator of entrepreneurship education at Breda University of Applied Sciences (BUas), Tom Konings as controller at BUas, and Marina Brinkman as one of the driving forces behind BUas EdFactory, should be thanked for their valuable help in making this report possible.

Despite the fact that this report has not been peer-reviewed and is predominantly a solo product, it attempts to follow the structure and rigor of an academic text. At the same time, the report is intended to be readable by a wider audience. Students in particular. This is a study about students and students have played an important role by providing time, data and insights. Sometimes the statistical techniques that will be used in this report are appear quite sophisticated. An attempt will be made to explain more clearly the reason for using these techniques and, of course, what the results imply. In general, however, the statistical techniques used to answer some of the research questions are quite accessible and descriptive in nature.

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Summary

In the period March-April 2021, while a COVID-19 pandemic was taking hold of societies around the world, an invitation to an online survey "about their future" was sent via e-mail to a random sample of 3,000 students at Breda University of Applied Sciences (BUas). BUas is a Dutch medium-sized, internationally oriented institution of higher education. BUas has over 7,000 students, 15 percent of whom come from abroad. In the survey, students were questioned about their future prospects and their intention to become entrepreneurs. Most of the questions in the survey were included to help us understand why some students had entrepreneurial ambitions and others did not.

The study attempts to answer a number of questions, including the determinants that influence a student's intention to become an entrepreneur. Since 2018, at the time students enrol at BUas, students have had to answer a question about their intention to become entrepreneurs. Analyses of their answers over the years have shown a wide variation in students' entrepreneurial intention and we wanted to better understand their answers. What drives someone to become an entrepreneur?

There are also other questions that this study tries to answer, such as what leads students to delay their studies when they have started a business. We also wanted to know what kind of businesses they were planning to set up. The COVID-19 related lockdowns in the Netherlands may also have changed the future prospects of students and we wanted to find out more about that as well. Finally, we asked students about their ideas for entrepreneurship education and support at BUas; an open question to which students responded in large numbers.

A literature review and a combination of advanced and less advanced statistical techniques were used to answer the questions. The sample on which this research is based represents 17 percent of the total population of BUas students. It is a reasonably representative sample. Female, younger, and international students are slightly over-represented, but the BUas domains are nearly perfectly reflected in the sample.

What are the general determinants of entrepreneurial intentions?

The reasons for studying students' entrepreneurial intention is almost universal; innovations are the main generator of income and economic growth. These innovations are driven by entrepreneurship and entrepreneurs. Therefore, it is logical and important to understand what motivates and drives young people to become entrepreneurs. Education, obviously, is assumed to play an important role in this.

Our literature review revealed many different determinants of entrepreneurship besides education and the field is quite multidisciplinary in nature. There are studies that identify specific entrepreneurial characteristics on a personal and psychological level, e.g. innovativeness and need for achievement. Other studies focus on cultural and network influences, e.g. the positive, and sometimes negative, influences of role models or the ability to get help from people within their network. Then there are other studies that discuss institutional and structural determinants, e.g. the availability of grants and programmes for young aspiring entrepreneurs. While most of these studies combine the above determinants, there are a number of approaches that have prevailed at different periods in time.

Today, there is an increased international interest in entrepreneurial intention. The last two decades have seen a significant increase in the number of studies on the entrepreneurial ambitions of students from developing countries. This has had positive consequences for the study of the above mentioned characteristics in an intercultural perspective. The literature reveals many positive and negative aspects of culture. The role of acceptance towards entrepreneurship in the social environment. Also, having access to financial resources is often either conducive or discouraging for students to become entrepreneurs. At the same time, entrepreneurship is often a means for women in developing countries to both run the family and have a source of income. Entrepreneurship can empower people, especially women.

The determinant of entrepreneurial intention that BUAS, as an educational institution, has the most influence on is the extent to which students find entrepreneurship education supportive and inspiring. Entrepreneurship education is important because it can inspire students who would otherwise never have thought about entrepreneurship. At the same time, it can provide relevant know-how and dispel fears arising

from a lack of knowledge and familiarity. In this way, education can replace what students might otherwise lack in their social environment.

What are the determinants that predict the entrepreneurial intention of BUas students?

We measured many factors that, according to the literature, could influence the extent to which a student has entrepreneurial intentions. After analysing the results, only a few factors were found to have a real effect. The effect of a student's Entrepreneurial Alertness, which essentially measures whether a student thinks about business opportunities while not working or otherwise engaged, was found to have a large effect. Risk Aversion, the extent to which a student tries to avoid risky decisions, has a small negative effect on entrepreneurial intention. According to literature, Risk Aversion also has a negative effect on other personal characteristics, such as Entrepreneurial Alertness. This negative effect was also found in our study. Thus, Risk Aversion negatively affects a student's Entrepreneurial Intention in two ways. First, directly and second, indirectly through Entrepreneurial Alertness. Role models were also found to have a small positive effect on Entrepreneurial Intention.

In our report, we discuss the results in more detail and look at the quality of the constructs and what they measure. We are surprised that a lot of scales, that have often been used in the past to measure core personality traits related to entrepreneurial intention, turn out to be quite poorly constructed. Our conclusion is that, although we believe personality traits have a meaningful place in predicting and understanding entrepreneurial intention, the scales used either predict entrepreneurial intention in a circular and trivial way, or are based on questions that, together, measure several personality traits rather than what they were originally designed to measure. E.g., Locus of Control seems to have little relation to taking matters into one's own hands, as is the case with autonomy.

Another interesting result from the main analysis is that perceived educational support does not affect entrepreneurial intention. We looked at this result in more detail and found that it simply did not matter for most students and that there were also two groups for whom it did matter. Both groups for whom it mattered experienced entrepreneurial education and support either positively or negatively.

What kind of business do the students intend to set up?

We thought, based on growth statistics in entrepreneurship, in the Netherlands and the United States, that most students choose to become self-employed. While this is the case for students who have already started a business during their studies, students who plan to start a business after their studies see themselves as employers.

A considerable number of students, 52 percent, plan to start a company outside the domain of their studies. A total of 21 percent of the students plan to work outside the domain in which they have been educated.

What are the causes of study delay among students who have already started a business during their studies?

We discovered in our annual surveys on entrepreneurial intentions that students who have already started a business during their studies often experience study delays. The results of this research indeed show that their company often plays a role, but this is often connected to other factors besides their company. COVID-19 has certainly had a negative effect according to students, but they also experience their company as a means to generate income and still keep control over their lives.

How is entrepreneurship education and its support by BUas perceived by the students?

Already in the main analysis we noticed, by looking at the histograms, that there were three groups whom each perceived Entrepreneurship Education and support by BUas differently. The groups either perceived it a positive, negative, or were neutral. By analysing the results of an open question using a sentiment analysis algorithm, a machine learning algorithm trained to extract sentiments from various sources, we identified similar groups. Both positive and negative feedback seemed to revolve around either not knowing BUas offered support in this area, or the individual experience that they had was different from academy to academy.

How stable are Entrepreneurial Intentions among BUas students?

It is interesting and relevant to try to understand and predict entrepreneurial intentions. At the same time it is important to look at the stability of these intentions. In our annual reports, we have noticed that there is considerable fluctuation in preference over the years. Some students seem to change their position every year, while others remain consistent throughout their studies. In this report, we have compared students' position towards entrepreneurial intention at two different points in time: November 2020 and March 2021. Again, we find a significant difference between students' intentions in a time span of only four months.

Did COVID-19 influence the Entrepreneurial Intentions of students?

To find an explanation in COVID-19, we asked whether the COVID-19 pandemic so far has had a positive effect on how they perceive the future and tested whether their answer was in any way related to their entrepreneurial intentions. This proved not to be the case. We did find that female students had a slightly more negative view of the future as a result of COVID-19. The same applies to young people. Those who scored high on the Future Time Perspective Scale, which measures a person's overall view of the future, also seemed to have a more positive view of the future during the COVID-19 pandemic. This seems to suggest that those who are optimistic seem to experience fewer negative consequences from the pandemic.

How do the scaled and categorical measures of Entrepreneurial Intention relate to each other?

We have been measuring students' entrepreneurial intentions with a categorical measure for many years. In our study, we also included a scaled version. The construct validity of the EI scale was found to be good and we wanted to see how our categorical measure compares to the scaled measure. The categorical measure distinguishes between 'No', 'Maybe', and three instances of 'Yes'. The differences between no, maybe and yes were significant, but the difference between the three yes categories was not. This does not mean that it is useless to use the categorical measure that we do. In fact, the results show that we made the right choice. We meaningfully measure entrepreneurial intentions and are able to distinguish between those who have already started a business and those who intend to do so and when they intend to do so. What we could not determine is whether the scale would be equally sensitive to a student's shift in entrepreneurial intention. The categorical version captures the fluidity in intentions quite well and is able to indicate more intuitively than a continuous scale what students' intentions actually are and what they imply in the longer and shorter run.

Conclusion

This report answers many questions. Questions that we have had for a number of years now when looking at the results of the annual reports. Answers to the open questions in the questionnaire were sometimes heart-warming because students appreciated that someone showed an interest in them and their future prospects. Indeed, many students did not participate in the survey, but those who did, provided valuable information that we could combine and link to information we obtain from a central database. Data, we think, that can be brought to life when combined with the results of a more in depth survey like the one used in this study.

Although it is tempting to ask new questions based on the current report, it is more important to first ensure that the information in this report is well received by the organization. More thorough funding could even bring this report to a level where parts of it can be used to inform colleagues through peer reviewed articles. The current measurement model of the study simply lacks the rigor required to be published in this sense. While the results are still interesting to consider, a more thorough understanding and review of the existing literature would have improved the quality and selection of the items included in our questionnaire.

From a scientific point of view, reports such as this, which combine data from different sources such as longitudinal annual surveys, the student information system and surveys randomly distributed among students, are a rich source of information. In particular, the interaction between monitoring and assessment can help us better understand students' views and decisions, and provide information that helps both educational institutions and students.

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1 Introduction

Studies on the role and importance of education in entrepreneurship, build their argumentation on the premise that entrepreneurship is considered to be a pivotal driver of economic progress (Blöcher et al., 2020; Guth & Ginsberg, 1990; Iacobucci & Micozzi, 2012; Reynolds, 1987). New business firms are drivers of innovation and employment and generally help countries to be more competitive in the international economy. It is interesting to note in this context that several decades ago literature on this topic solely stemmed from studies taking place in developed countries, whereas today many examples of international studies can be found that include developing countries. This has positively influenced the intercultural validity and development of concepts used in studies on entrepreneurship intention and entrepreneurship education (Anwar & Abdullah, 2021; Arkorful & Hilton, 2021; Farrukh et al., 2018; Gürol & Atsan, 2006; Jena, 2020; Liñán & Chen, 2009; Neging et al., 2021; Singh Sandhu et al., 2011; Wang & Wong, 2004).

Schumpeter was the first major theoretical contributor to the role and position of entrepreneurs in economies as sources of innovation and therefor profits. According to Śledzik (2013), this is the early (2021 (1934)) Schumpeter. Schumpeter (2010 (1943)), would come to adopt a more pessimistic view on the role of entrepreneurship later on in his career. Schumpeter envisioned that the demand for more efficiency would drive capitalism towards monopolistic structures. Whilst this may indeed be the case when you consider the profound impact of companies such as Amazon on our economies, it does not necessarily mean that there is no more 'Schumpeterian' entrepreneurism left in today's world. At least in numbers, quite the opposite has happened. In the Netherlands, for instance, for decades, growth in entrepreneurship in terms of the numbers of companies, has been dominated by individuals starting up small businesses without employees for decades (CBS StatLine, 2022a, 2022b; Stam, 2013). Kuratko (2005) calls this the "entrepreneurial revolution", which took place at the same time in the U.S. as well. The question, however, is, whether this type of entrepreneurship, self-employment, or sole proprietorship, is indeed Schumpeterian and will the entrepreneurial revolution indeed lead to economic prosperity. Empirical research in Europe seems to indicate that this might not necessarily be the case (Blanchflower, 2000).

Despite the above relativising remarks about the role of entrepreneurism in economic growth, as well as the role of entrepreneurship education therein, it is this very context that provides the basis for study. What role can entrepreneurial education play, provided by a Dutch university of Applied Science situated in Breda (BUas), in the greater context of economic growth and prosperity? BUas is an, according to Dutch standards, medium sized higher education institute. It is government-funded and well over 7,000 students are studying. In 2021, 15 percent of the students, from some 100 countries, were studying at BUas. BUas offers both bachelor's and master's programmes at professional and scientific level, in many domains. These domains include: Built Environment, Facility, Games, Hotel, Leisure & Events, Logistics, Media, Tourism, and, since 2021, also Data Science & AI (Breda University of Applied Sciences, 2022a).

In order to get a better understanding for the demand in and effect of entrepreneurial education, BUas has been following the entrepreneurship intentions of its students since 2018 (van Liempt & van Es, 2019). Every year, during enrolment, students are asked to express their entrepreneurship intention. These studies, whilst informative, raise a number of questions, which we hope to answer in this report. The main question is to get a better grasp of the variance in entrepreneurship intentions. Literature has been very helpful in answering this question from a theoretical perspective. A rich body of knowledge exists about what explains entrepreneurial intentions in students and how to measure this. The literature is quite multidisciplinary in nature ranging from psychological factors such as personality traits and cognitive abilities, to social factors such as role models and available support networks, and, finally, contextual factors such as the role of education, institutional support for entrepreneurship. Other questions that stem from the results of the annual reports include the types of businesses students intend to start, or have already started. The economic domain they intend to work in and whether they think the business they have already started explains their study delay. As such the array of questions that will be answered is quite broad. Above we have argued that there is considerable international interest in the topic of entrepreneurial education, particularly in developing countries. As a result, many concepts have been trialled, tested and developed in an international context. This

study has used predominantly concepts used in studies that took place in developing countries, assuming these concepts have proven themselves in an intercultural context, and aims to test the strength and validity of these conceptualizations in the context of BUas, a Dutch institute of higher education.

Finally, since this is a study about the future of students and data was gathered during a lockdown, it made sense to try and see whether this period and situation also influenced students' perspectives on the future. Based on an analysis of aggregate data (van Liempt & van Es, 2022) this appears not to be the case for entrepreneurism, but this study can shed a little bit more light on what students themselves have to say.

2 What are the determinants of entrepreneurial intentions?

Literature discussed in this report stems largely from an explorative study by two, now graduated, BUas BSc Leisure Studies students; Jasper Visser and Esmée van der Linden.[1] The goal of their literature study was to find commonly used predictors for Entrepreneurial Intention (EI), which would then form the basis for our questionnaire.

A large body of literature on measuring EI and the determinants of EI already exists as we mentioned in the introduction. In our search we did not come across a systematic literature review, which is usually beneficial and certainly would help a field of this, both in terms of history and international scope, magnitude. Most studies provide a state of the art of the field, and some go further and provide a deeper analysis of the developments within the field. Helpful sources in getting a good overview of the field have been both van Gelderen et al. (2008) and Jena (2020). Both studies describe a field that has a long history where initially a focus was on individual predictors, but later on more systemic and multidisciplinary approaches came about that used more complex models that measured the effect of more predictors at the same time. Gürol and Atsan (2006) mention a number of existing models, such as the Social Factors model, which focusses on the environment a person is growing up in. The Environmental Factors model, which includes factors such as cultural acceptance of entrepreneurship, existing economic stimuli such as tax benefits, etc. And finally, the Trait model, which puts emphasis on individual factors such as personality characteristics (Gürol & Atsan, 2006).

Today, one particular theoretical approach seems to have become quite popular in the field, which is the Theory of Planned Behaviour (TPB) and many studies make use of this approach (Maes et al., 2014; Neging et al., 2021; van Gelderen et al., 2008; Wibowo, 2019). TPB was introduced by Ajzen in Ajzen (1991) and later on refined in Ajzen (2002). The TPB approach is interesting as it considers three major factors when people make decisions about the future. The first is a person's self-efficacy, the believe in oneself that something can be achieved. The second element focusses on social norms and this highlights the direct and indirect environment individuals live in and amongst and which influence what is considered normal. The third focusses on the controllability of the future as experienced by individuals. Particularly this latter aspect fits well with modern work preferences which, according to van Gelderen et al. (2008), lean towards self-reliance and self-direction. van Liempt (2006) used the term 'opportunistic' when referring to the preferences of individual employees who were working in the Information Technology (IT) industry, which experienced a very tight labour market at the time of the study. During this period, a lot of IT specialists favoured to negotiate individually over their terms and conditions of employment rather than have those negotiations take place via a collective representative such as a union. 'Opportunity' should, in that sense, not be thought of as a negative personality characteristic, but rather as an expression of the opportunities that may exist at a given point in time.

Despite TPB's popularity, we have used only a few elements of TPB in our own model and have instead put more emphasis on personality factors. We have used the following predictors in our study: the need for achievement, locus of control, innovativeness, entrepreneurial alertness, risk aversion, social environment, role models, experienced educational support, the role of demographic features such as gender, and, finally, the role of the domain a student intends to work in, will be considered. Besides 'the usual suspects', we have also included a scale in our study, which has, so far, not been commonly studied and used in the context of EI; the future time perspective (FTP). FTP is a scale that is often used in the context of consequences. A meta study by (Kooij et al., 2018) reports use of the scale in the context of achievement, well-being, health behaviour, risk behaviour, and retirement planning. The scale is commonly used as either an outcome variable, or as moderator of, or mediator between, predictors. We wanted to use the scale to be able to say something about

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[1] The students were supervised and commissioned by Adriaan van Liempt. The results of their study formed the basis for the questions in the survey we have used. Whilst the initial review of literature students' played an important role for the questionnaire used in this study and a fair share of the literature that is discussed in this report, Adriaan van Liempt is solely responsible for the methodology, analyses and what is written and discussed in this report.

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the current mental state students are in regarding their future. The complete model, including the position of FTP therein, will be discussed in sections 2.5 and 2.6.

2.1   Entrepreneurial Intention

Entrepreneurial intention (EI) is essentially the self-acknowledged intend, or desire, to become an start a new business, or become the new driving force in an existing business (Arkorful & Hilton, 2021; Farrukh et al., 2018). Some of the studies we have consulted refers to 'entrepreneurial readiness', but this is not the same as EI and more closely linked to abilities (Olugbola, 2017). Though both concepts share predictors, in our study we do not include the ability of students to become entrepreneurs.

2.2   Personal traits and entrepreneurial intention

Literature discusses a number of personal characteristics closely associated with EI. A selection of the some that appeared to be used frequently in studies over the years are discussed below. Even though the interrelatedness between the concepts described below is quite high, literature presents them as relevant and separate dimensions and characterizes these as typical entrepreneurial traits. Five personal traits in total are mentioned in literature, they are: 1. Need for Achievement; 2. Locus of Control; 3. Innovativeness; 4. Entrepreneurial Alertness; and, finally, 5. Risk Aversion.

Need for achievement is part of someone's personality and already early on recognized to be an important predictor for EI (Smith & McClelland, 1964). In general, the need for achievement refers to a drive to become successful, to accomplish something. Entrepreneurship in this context is an opportunity to achieve a sense of achievement, a motivational force that allows students to make their ideas a reality (Neging et al., 2021). Various studies have found a positive correlation between the need for achievement and EI (Gürol & Atsan, 2006; Robinson et al., 1991).

Locus of control is another personality trait and predictor of EI and refers to the extent a person experiences control over one's life. The concept, originally introduced by Rotter (1954) according to Arkorful and Hilton (2021), discriminates between those that take control of their future by controlling it and not depending on luck, fate, or chance (internal locus of control) and those that do not take control and instead think success is a matter of luck (external locus of control). Though the study of Arkorful and Hilton (2021) reports that both internal and external locus of control are positively correlated with EI, they describe that most studies they have consulted expect a negative association between external local of control and EI, whereas internal locus of control is expected to have a positive association with EI.

Self-efficacy and perceived behavioural control are 'competing' conceptualizations of the locus of control. They are often used in approaches which depend less extensively on personal entrepreneurial characteristics in predicting EI (cf. Arkorful & Hilton, 2021).

We have already referred to the relevance of *innovativeness* in relation to entrepreneurship through the discussion of the development of Schumpeter's ideas by Śledzik (2013). Essentially innovativeness refers to anything new that did not exist before. Gürol and Atsan (2006) mention innovations in products, quality, market, source, supply, type of organization, or structure in business. Gürol and Atsan (2006) stress that entrepreneurs need to take opportunities which are brought forward through innovations. In this sense, many of these personal characteristics of entrepreneurs, are closely connected and together create a typical profile of the entrepreneur. In their study, Gürol and Atsan (2006) also found a positive association between innovativeness and EI.

In the discussion of innovativeness, we already referred to the link between innovations and making use of opportunities. Çolakoğlu and Gözükara (2016) refer to the work of Kirzner (1973), whose ideas on innovation are often compared to that of Schumpeter, to explain why *Entrepreneurial Alertness* has become so relevant in explaining EI. Entrepreneurial alertness is an antenna, a cognitive ability to recognize, or identify, opportunities to make a profit (Çolakoğlu & Gözükara, 2016). Kuratko (2007, p. 1) describes entrepreneurial alertness as a specific trait of entrepreneurs to "recognize opportunity where others see chaos".

Entrepreneurship involves taking risks such as using live savings to set up a business (Kuratko, 2007). However, it is not just taking risks that sets entrepreneurs apart from others Hentschke (2009) argues. Entrepreneurship is also a matter of being able to deal with setbacks and pitfalls and the ability to overcome these. In that sense, it is interesting that some authors have looked at the opposite of risk taking propensity of

entrepreneurs and instead have focused on risk aversion (Zhang & Cain, 2017). Risk aversion, Zhang and Cain (2017) demonstrate, does not directly influence students' EI, but risk aversions influence on EI is rather mediated through entrepreneurial characteristics.

2.3   The role of the social environment in entrepreneurial intention

As mentioned above, literature refers to many aspects beside individuals' personal characteristics that predict EI. Economic conditions may make starting a business inopportune and Hall (1985) even refers to so-called 'capstone powers' that take hold of entire nations and cultures, and block social and economic development of individuals throughout history. Similar things can be said about the role of culture and acceptances towards entrepreneurism and the existence of incentives via institutions, e.g., tax benefits or subsidies. These are, however, often elements beyond the control of individuals and hold for everyone and would not help explain the variance in EI of students in a cross-sectional design. Instead we will focus on those elements, that can explain differences in IE between students, such as a student's support network, the existence of role models in the student's environment, and the presence and influence of entrepreneurship education. Based on their own research, Henderson and Robertson (1999) argue that it is important to look beyond the seemingly 'innate' personality characteristics and focus instead on factors that empirically have proven to influence students' decision making process. Henderson and Robertson (1999) discuss the absence of role models with whom to identify, poor media presentation of individuals or small firms, and teachers as well as career guidance specialists.

In this study we will look at the availability of both role models, usually fathers according to Van Auken et al. (2006), as well as available support in the networks of students, e.g., parents that provide support. Van Auken et al. (2006) emphasize the importance of such networks. However, at the same time stress that these networks could also prove to be a double edged sword and have negative effects and prevent students from becoming entrepreneurs. E.g., in the case of negative role models (Van Auken et al., 2006). By identifying a positive relation between family business experience and EI, Wang and Wong (2004) implicitly highlight that both support network and role models can overlap.

In our study we also consider the role of the educational institution and the experienced support thereof by students. Entrepreneurship education can play an important role when students have no supporting network of their own. According to van Gelderen et al. (2008) entrepreneurship education can boost confidence, enthusiasm, or even make students realize that becoming an entrepreneur is perspective they can pursue. At the same time, education in entrepreneurism can result into a reality check in the sense that students become more realistic about their future as an entrepreneur, because entrepreneurial education should provide a reality-check for students who are over-optimistic or who underestimate the possible financial consequences of self-employment.

2.4   Demographic properties of entrepreneurs

Literature seems to suggest that men are more often inclined to become entrepreneurs than women (Gurel et al., 2021; Maes et al., 2014). Explanations range from cultural stereotypes and social and institutional barriers and gender differences can be considerable between different countries (Liñán & Chen, 2009). At the same time it is interesting how gender and entrepreneurial education are correlated and empower women into entrepreneurship and have a negative effect on men (Gurel et al., 2021). The results of Maes et al. (2014) suggested that women tend to use entrepreneurism as a means of retaining autonomy within the demanding context of work on the one hand and family on the other. Men, at the same time, were driven more by wealth and ambition.

Age also plays a role in EI. Even though age and maturity are not always perfectly correlated, Singh Sandhu et al. (2011) argue that students who are more mature and have greater job experience tend to more likely to be inclined towards entrepreneurship in the long run. Their study zooms in on barriers of entry to entrepreneurism, but in our study we have not measured socio-economic barriers to entrepreneurism, which often include a lack of funds. Liñán and Chen (2009) emphasize that differences between countries can be large, but entrepreneurial intentions do not have to be dissimilar.

In their annual reports van Liempt and van Es (2021) have noticed significant differences in EI among students in study programs of different domains. Students that intended to work in the Leisure & Events,

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Hospitality and Media industries, had greater EI than students intending to work in fields such a built environment. This pattern particularly applies to people starting smaller business, such as self-employed (CBS, 2021).

2.5   Future Time perspective

The Future Time Perspective measures the extent to which an individual is future oriented. It is an interesting concept to consider in the midst of a pandemic whilst students are being questioned on their intention to become entrepreneurs. Kooij et al. (2018) argue based on a meta study of more than 200 articles that have studied FTP that FTP can be successfully used as both predictor and outcome variable. Particularly in the context of goal oriented studies. In their study Kooij et al. (2018) conclude that FTP predicts outcomes better than the big five personality traits. The big five personality traits have been studied in the context of EI. The results are usually insignificant and Tuncer and Şahin (2018) have found only 'openness to experience' to increase EI significantly.

2.6   Conceptual model and hypotheses

The main research question of this report concerns explaining the variance in EI of BUas students. The above literature review has given overview of a rich field of study where many potentially relevant predictors for EI have been discussed. In the below conceptual model these concepts are brought together as predictors, mediators, or control variables. The conceptual model helps us understand EI and by which mechanism variance in EI is explained.
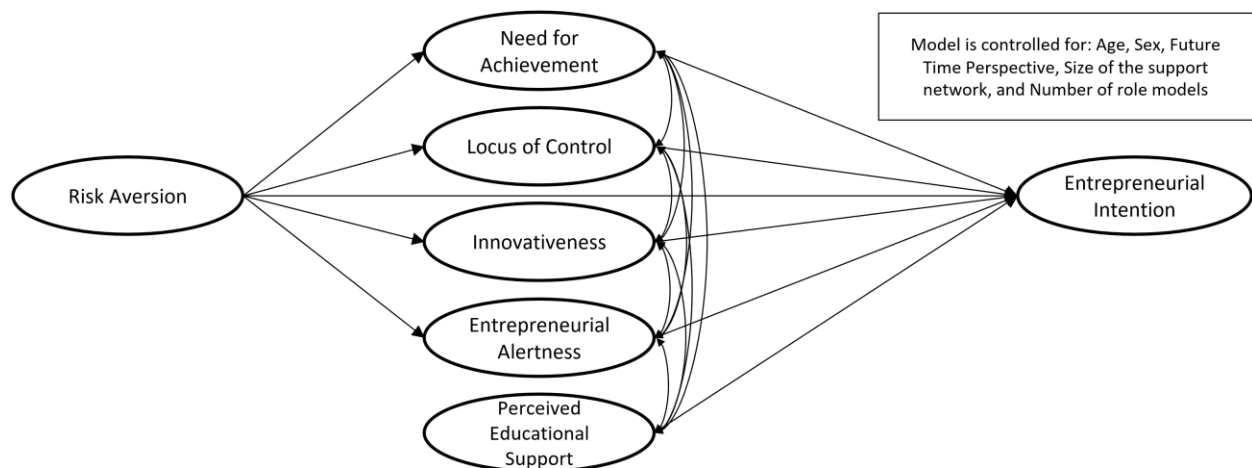
Figure 1 Conceptual model

Our model identifies various predictors of EI. Four positive entrepreneurial personality traits (Need for Achievement, Locus of Control, Innovativeness, and Alertness) are identified as predictors of EI in our model.

H_1 *Need for achievement increases entrepreneurial intention.* (Gürol & Atsan, 2006; Robinson et al., 1991)
H_2 *Locus of Control increases entrepreneurial intention.* (Arkorful & Hilton, 2021)
H_3 *Innovativeness increases entrepreneurial intention.* (Gürol & Atsan, 2006)
H_4 *Alertness increases entrepreneurial intention.* (Çolakoğlu & Gözükara, 2016)

The reason Risk Aversion, itself a negative entrepreneurship personality trait, is used as a predictor of the four positive entrepreneurship traits, is because of the work of Zhang and Cain (2017) who empirically discovered that Risk Aversion, by itself, does not directly influence EI. Risk Aversion only had a significant indirect effect. Though we do not use the same mediators as the authors did in their study, we position Risk Aversion in the same manner in our own model.

H5a Risk Aversion decreases entrepreneurial intention via students' need for achievement.
H5b Risk Aversion decreases entrepreneurial intention via students' locus of control.
H5c Risk Aversion decreases entrepreneurial intention via students' innovativeness.
H5d Risk Aversion decreases entrepreneurial intention via students' entrepreneurial alertness.
H5e Risk Aversion does not influence entrepreneurial intention directly. (Zhang & Cain, 2017)

The extent to which entrepreneurship education and support is experienced by students is also expected to predict EI. We have found no theoretical support that it mediates Risk Aversion.

H6 Perceived Educational Support increases entrepreneurial intention. (van Gelderen et al., 2008)

Empirically differences in EI between men and women have been found and literature discussed different ways in which sex influences both EI as well as other predictors (Gurel et al., 2021; Maes et al., 2014). Even though we expect a student's sex to influence most variables included in the model, we have no explicit hypotheses for all relations, hence why we have defined sex as a control variable and not a predictor.

H7a Female students have a lower entrepreneurial intention than men. (Gurel et al., 2021; Maes et al., 2014)
H7b,c,d,e Female students value positive entrepreneurial traits lower than men. (Gurel et al., 2021; Maes et al., 2014)

The role and position of age, size of the support network, and number of available role models is similar to that of sex. They are expected to influence both predictors as well as EI.

H8a The size of the support network increases entrepreneurial intention. (Lang & Carstensen, 2002)
H8b The size of the support network decreases a students' risk aversion.

H9a The number of available role models increases entrepreneurial intention. (Van Auken et al., 2006)
H9b The number of available role models decreases a students' risk aversion.

Whilst a study among adults worker has identified a decrease in entrepreneurship intention due to process of job identification (Hatak et al., 2015), we empirically discovered that students that have started a business already during their studies tend to have higher levels of study delay and are older as a result (van Liempt & van Es, 2022). We therefore will use competing hypotheses.

H10a Age decreases entrepreneurial intention. (Hatak et al., 2015)
H10b Age increases entrepreneurial intention. (van Liempt & van Es, 2022)

Finally, the role of FTP needs to be discussed in our model. In their meta study, Kooij et al. (2018) have shown that various studies use FTP in different roles. FTP has been used as predictor, mediator, moderator, and as outcome variable in different studies. Therefore, in our model, we have chosen to control for FTP, rather than use it as either predictor, mediator, or moderator. The scale is often used in the context of achievement, well-being, health behaviour, risk behaviour, and retirement planning.

H11a A students' Future Time Perspective increases entrepreneurial intention. (Lang & Carstensen, 2002)
H11b A students' Future Time Perspective increases the Need for Achievement. (Kooij et al., 2018)
H11c A students' Future Time Perspective increases the Locus for Control. (Kooij et al., 2018)
H11d A students' Future Time Perspective decreases Risk Aversion. (Kooij et al., 2018)

All hypotheses are multivariate and will be tested whilst controlling for the effects of other variables.

3 Methods

3.1 Study design

This study aims to answer a number of questions stemming from the annual reports on entrepreneurship intention of BUas students by means of a cross-sectional quantitative design. This study's main question this study aims to answer is what the determinants are that can explain the variance in EI among BUas students. This question has already been partially answered via a brief review of existing literature. However, this literature review answered the question in a general sense and not in the particular context of BUas. This latter question will be answered by testing a number of hypotheses phrased in the previous section.

3.2 Data collection and analysis

The data for this study were collecting through an online survey using Qualtrics (2021). An example of the introduction screen on both Web Browser and Mobile Device can be seen in Figure 2.
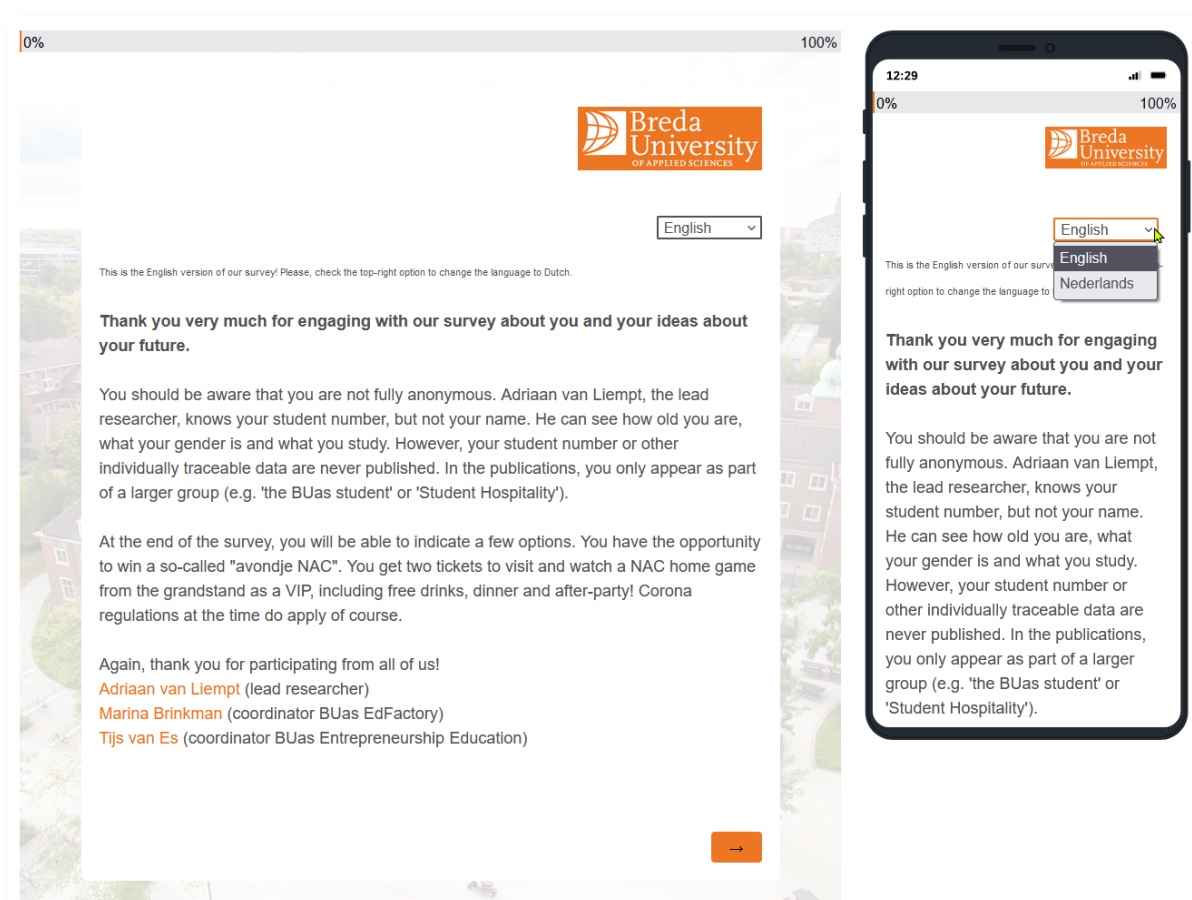
Figure 2 Example of how the survey was presented and introduced to students in a Web browser and on a mobile device

A copy of the questionnaire is provided in Bilingual Questionnaire. Questions were categorized into different blocks: 1: Introduction (2 Questions); 2: Your entrepreneurial intention (7 Questions); 3: BUas as an educational setting stimulating and supporting entrepreneurial education (2 Questions); 4: Entrepreneurship within a respondents' network (2 Questions); 5: Personality Traits (1 Question); and 6: Post-survey Preferences (2 Questions). All questions related to scales had their items presented in a random order to prevent measurement error (Lavrakas, 2008).

Questions were offered in both Dutch and English. All scales were originally available in English and have been translated to Dutch by the authors and have been critically reviewed before distributing the survey.

Data, e.g., sex, date of birth, etc., was supplemented with data from the BUas student information system. Data from the student registration system is collected during registration at the start of the study year and updated during the year. Below, a more detailed account of the data is provided.

We analyse our data using R version 4.1.1 (R Core Team, 2021).

3.3   Sampling and sample

In November 2020 a total of 7,159 unique students were registered at BUas. Two random samples of 1,500 students were drawn (without replacement). On March 26, 2021 a first batch of email was sent to the first sample of 1,500 students. A reminder was sent to 1,357 students that had not opened the link on March 31, 2021. A total of 373 students started the survey and 352 students finished the survey. A new batch of 1,500 students from the second sample received an email on April 6, 2021. A reminder was sent on April 15, 2021 to 1,278 students. 370 students started the survey and 341 finished the survey. Students could win a VIP-arrangement at the local professional football association NAC. Students could also indicate whether they would like to be informed about the results.

The two samples were merged and we started the analysis with a total of 693 observations. Our survey thus had a total response rate of 23.1 percent. Based on such a response rate it is debatable whether the sample can truly be considered to be a random sample, as it has more characteristics of a voluntary response sample, which could have introduced bias (Nield & Nordstrom, 2016).

During analysis of the data we had to remove a total of 160 observations due to students not having completed all questions. Our final sample thus consists of 533 observation, a 17.8 percent complete response rate.

Table 1 provides a detailed overview of the differences and similarities between the total BUas population, our sample frame, and the total initial response to our survey and the final sample. Whilst, overall, we are very happy Women seem to be overrepresented in our sample, which might be due to women being more inclined to respond to voluntary samples in general (Nield & Nordstrom, 2016). In our sample students aged between 19-22 are slightly overrepresented compared to students aged 23 and older. The domains in which students study are pretty evenly represented. As entrepreneurs are generally older in our annual reports (van Liempt & van Es, 2022), it is not surprising that a relative underrepresentation of older students leads to an under representation of entrepreneurs in our sample. Finally, in our sample international students are over represented. Van Liempt & van Es (2022) have demonstrated that international students have stronger entrepreneurship Intentions compared to Dutch but intend to starts their businesses after their studies. The latter, the fact that they intend to start their business after their studies, could be another reason why students that have already started their business are underrepresented in our sample.

Overall, we are quite happy with the representativeness of our sample. We should not complain about the response rate either, as the National Student Survey, which is held annually at BUas, had a 43 percent response rate that year and was extensively promoted via multiple channels for months in a row (Breda University of Applied Sciences, 2022b).

Table 1 Demographic profile of the final sample (March-April, 2021), the total initial response, and the sampling framework (all registered students at BUas in November 2020)

	Final Sample (N=533)	Response (N=693)	BUas (N=7,159)
Variable	%	%	%
Gender			
Female	64.2	64.9	59.5
Male	35.8	35.1	40.5
Age (years)			
16-18	15.8	16.0	16.8
19-20	37.0	36.1	31.2
21-22	27.0	26.4	25.5
23-24	11.1	12.1	14.2
25-30	8.3	8.7	10.6
31 and older	0.9	0.7	1.7
Study domain			
Built Environment	8.1	7.2	7.2
Facility	4.9	4.8	5.2
Games	10.7	10.2	9.3
Hotel	11.4	12.3	11.3
Leisure & Events	21.4	22.4	24.1
Logistics	8.8	7.9	7.0
Media	12.6	12.7	11.8
Tourism	22.1	22.5	24.0
Entrepreneurship Intention			
No	31.9	31.3	33.2
Maybe	54.8	55.6	50.7
Yes, after my studies	9.8	8.8	9.7
Yes, during my studies	1.3	1.6	2.4
Yes, I have already started a business	2.3	2.7	4.0
Nationality			
Dutch	78.6	79.2	85.2
International	21.4	20.8	14.8

3.4 Operationalization

At the end of this paper, in the Appendices section, our bilingual survey has been made available. Below we discuss the sources of the scale, the ways in which we have measured constructs and the data manipulations, which were sometimes necessary.

Entrepreneurial Intention

In our own annual studies (van Liempt & van Es, 2019, 2020, 2021, 2022), we have observed the intention to become entrepreneur directly by allowing students to select between one of five choices ("no", "maybe", "yes, after my studies", "yes, during my studies", and "I have already started a business"). Jena (2020) calls this type of approach 'operational' in the sense that it tries to obtain a measure which allows discrimination between those that want to become entrepreneurs from those that do not. However, the non-ordinal categorical nature of the question required us to look for a scale version, which we found in the studies by Maes et al. (2014) and Çolakoğlu and Gözükara (2016). The scale was based on the work by Liñán and Chen (2009) and van Gelderen et al. (2008). The four items were originally measured on a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree".

Entrepreneurial traits

The four positive and one negative entrepreneurial traits used in this study originate from different studies.

The *risk aversion* scale stems from a study by Zhang and Cain (2017). It was originally measured on a 7-point Likert scale ranging from 1 "strongly disagree" to 7 "strongly agree".

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Need for achievement scale is based on the work of Kristiansen and Indarti (2011) among young Norwegians and Indonesians. The four items were originally measured on a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree".

Innovativeness is an 8-item adaption of the revised Jackson Personality Inventory (JPI-R) innovativeness scale by Mueller and Thomas (2001). The complete JPI-R scale measures a total of 300 items using true-false questions (Jackson, 1994).

Internal locus of control is again based on an adaption by Mueller and Thomas (2001). They credit the locus of control scale to Rotter (1966). They however, did not report on how the scale was originally measured. Çolakoğlu and Gözükara (2016) have also used the scale in their study. They used a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree".

Entrepreneurial alertness is another scale that has been used in Çolakoğlu and Gözükara (2016). They report it was based on the work of Kaish and Gilad (1991). Kaish and Gilad (1991), however, did not use the scale on young students, but rather entrepreneurs (founders of companies) and executives. They used the scale to measure differences between the two groups. Çolakoğlu and Gözükara (2016) used a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree".

Entrepreneurship Role models, available support, and Perceived Educational Support

The availability of role models was measured through central question, followed by several multiple response options: "Within my network I find role models (examples) of entrepreneurship in the following person(s)". Multiple response options included, e.g., "Father", "Mother". We created an additional frequency variable, which counted the number of available role models to a student. This variable was dubbed "Number of Available Role models".

We measured a student's *support* network in a similar fashion through a central question, followed by several multiple response options: "Should I decide to start a business, I would find support within my network from the following person(s)". Multiple response options included, e.g., "Father", "Mother". Once again we created an additional frequency variable, which this time counted the number of people students could turn to in case support was needed. This variable was dubbed "Size of the available support network".

Perceived Educational Support was measured using a number of statements from the Entrepreneurial Support Model by Turker and Sonmez Selcuk (2009). In their study the three items were measured used a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree". We have also added an open question, allowing students to reflect on their Perceived Educational Support.

Future Time Perspective

Many measures of FTP exist. In their meta-analysis Kooij et al. (2018) analysed and compared existing scales. We have used the original 10-item scale by Lang and Carstensen (2002). Their conceptualization had the highest internal consistency, questions were simple and clear, and their scale was used in a lot of studies. Most of the times the scale is measured on a 7-point Likert scale ranging from 1 "Very untrue" to 7 "Very true". In practice this scale is used as a sum scale, the higher the score, the greater the future time perspective the respondent has (Kooij et al., 2018). As this scale was not intended to be used as a latent variable, we summed the 10 items and dividing the total by 10. As this scale included several reverse phrased items, these were reverse coded first before adding them.

Other variables used in this report

Other variables we have measured and used in answering different research questions include:

- *Type of business*, is a routed single response questions with three answer categories, which included: "Without staff (a.k.a. self-employed)", "With a partner (a.k.a. partnership)", and "With staff (E.g., A Limited Liability Company or Corporation)".
- *Study Delay*, is a routed yes/no question and allowed students that had already started a business to indicate whether they experienced a study delay. They were also invited to elaborate on the reason in an open question.
- *Study Domain*, is a question that was extracted from the Student Information System. It is a multinomial variable with eight categories, e.g., "Built Environment", "Media", etc.

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- *Work Domain*, is similar to Study Domain, but a single response question which included all domains offered at BUas including an open category "Other". Students were invited to provide more details about the "other" category.
- *Sex*, is extracted from the Student Information system. We created a dummy variable "Female", which makes interpretation easier. [0 = male, and 1 = female] The students' sex is based on their passport.
- *Age*, is variable extracted from the Student Information System. We used the age students had on April 1st, 2021. The students' birth date is based on their passport.
- *Nationality of the Student*, is extracted from the Student Information system. We created a dummy variable "International", which makes interpretation easier. [0 = Dutch, and 1 = International] The students' nationality is based on their passport.
- *The impact of COVID-19 on students' Future Time perspective*, this was a rather spontaneous question that was added to the survey to get an impression of the impact of the COVID-19 pandemic at that point in time. The question was phrased in the following manner: "Overall, I have become more optimistic about my future during the COVID-19 pandemic.". It was negatively phrased and mixed in with the 10 questions about FTP and measured on the same scale.

The use of sliders opposed to radio buttons in Likert items

Most scales discussed in this section are normally measured 5, 7, or 10 point Likert scales using radio buttons. However, in our study, we have opted to use a continuous slider scale with five marker points for all scaled questions. Scores ranged from 0 "Very untrue", 25, 50, 75, and 100 "Very true" and could thus obtain any integer value between and including 0 and 100. The middle thee marker points did not have text as it would not be readable on mobile devices according to the visual preview of the survey software we used Qualtrics (2021). No automated 'snapping', or 'snap to'-function was provided by the software, meaning that the three markers at 25, 50, and 75 provided only visual cues. See Figure 3 for an example of the slider. Bosch et al. (2018) suggest to have the slider set to the middle initially, but in our case the slider started at 0 as can be seen in the example. Students' were forced to answer all of our questions in order to prevent missing values and without actually clicking the slider, no score would be measured. Effectively forcing respondents to actively use the sliders.
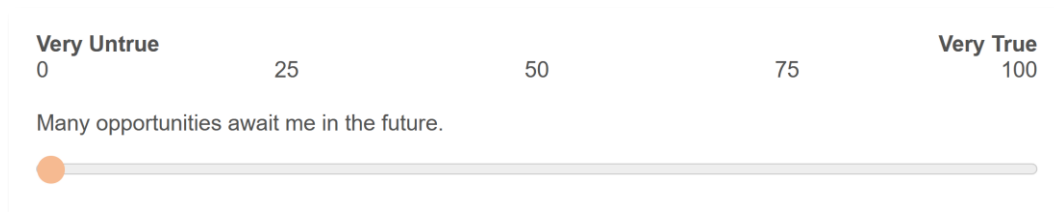
Figure 3 Example of the first presentation of the slider in a regular web browser.

As our target population would be students that were very likely to use mobile devices when answering the survey, we thought it opportune to use sliders, rather than the usual radio buttons. Another advantage we thought was that we would be having data that approximates continuous characteristics rather than categorical. The use of sliders is sometimes criticised in literature. People generally do not become more precise or accurate in the context of Likert scales when given the opportunity. People are generally also more familiar with radio buttons and these buttons work well on both touch and non-touch devices. Some studies even report a preference for traditional radio buttons (Buskirk, 2015; DeCastellarnau, 2018). At the same time, a comparison of the validity, reliability and quality of the measures between slider scales versus button scales by Bosch et al. (2018), demonstrated that the differences were not significant. The advice of the authors, however, is to continue using tradition radio buttons as the quality of the measurements by using sliders, is not greatly improved.

Answering the research questions and testing the hypotheses

Methods of analysis, results, conclusion and discussion are split per research question and discussed separately in the following chapters.

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4 What are the determinants that predict the entrepreneurial intention of BUas students?

4.1 Methods of Analysis

In order to answer this question we use the most rigorous test available to us. The reason is that we are using a combination of existing latent scales which stem from different theoretical approaches. We aim to use a relevant conceptual framework, but can only determine whether this is the case when we test the model and its latent structure well. We will test the extent to which our theoretical model 'fits' the empirical data we have collected. The process of 'fitting' theory to empirical data closely resembles the workings of a Chi^2-test. However, rather than getting a significant result when the actual data deviates strongly enough from the predicted outcomes, we hoping for an insignificant result. Because if theory and empery do not differ significantly from one another, it means there is hardly a difference between theory and empery and hence our theoretical model 'fits' the empirical data.

Because things are never as simple as they are, we test this so-called 'fit' of our structural model in two phases. First, we test the underlying measurement model (the latent variables present in the model) for potential problems using confirmatory factor analysis (CFA). Once we are satisfied, we continue to phase two where the structural model itself, the actual relations between the latent and manifest variables, is tested. For this a similar approach to CFA is used and is called Structural Equation Modelling (SEM). Anderson and Gerbing (1988) stress this procedure is important as the structural models can hide underlying problems related to the measurement model (Nunkoo et al., 2013). Optimistically phrased, when a structural model has a good fit and we trust our theoretical model well enough, we can conclude that our theoretical model reflects the real world. This means that when our model fits, the resulting regression scores have become meaningful in comparison to regular untested results of a regression analysis (Bollen & Pearl, 2013). This is also one of the main reasons a lot of researchers are using SEM to test statistical models. Besides being the most critical test available for our purposes, structural equation modelling has another advantage. It has the ability to correct latent variables for the sources of measurement errors that affect the reliability of the measurement (Little, 2013).

Part of the first phase includes, next to CFA, testing the so-called unidimensionality of latent constructs. The reason for testing this is that we want to make sure that the various items that aim to refer to the same latent construct, indeed do so. We do not want indicators to refer to multiple constructs. We will use a combination of Cronbach's alpha, McDonald's Omega Total, Average Variance Explained (AVE), and CFA.

The two-phase procedure described above fits our goals as we want to make sure that the measurements we have used are meaningful in our context. The R package we used for both CFA and SEM, is lavaan version 0.6-9 (Rosseel, 2012). The semTools package 0.5-5 is used to provide additional information about tested models (Jorgensen et al., 2021).

As our model contains mediation, we follow Hayes (2017) and bootstrap the confidence interval of the indirect effects.

As SEM is a multivariate technique, as such it is important to look at multivariate outliers. We have checked the data for multivariate outliers using the Mahalanobis Distance via the R-package MASS version 7.3-54 (Venables & Ripley, 2002). However, removing the outliers, would lead to an additional loss of 24 respondents. We chose not to exclude these outliers. We looked more carefully at our data and the main problem with our data was that it was often unbalanced. Fortunately, special estimators exist that allow SEM to deal with unbalanced data. We have provided histograms of all scale variables in Histograms. We used the MLR estimator for estimating the fit of the model. MLR is a robust maximum likelihood estimator that test the fit of a model when unbalanced variables are used (Hox et al., 2010). The use of this robust estimator has implications for several fit indices we will report in this study (Brosseau-Liard & Savalei, 2014; Brosseau-Liard et al., 2012; Savalei, 2018).

We have attempted to control our model for the influence of common method variance (CMV), which is variance introduced via the measurement instrument rather than the respondents' predispositions. We have described how are data was collected and we think we did our best to control for CMV ex-ante. Ex-post, we

have been unsuccessful at using a method suggested by Podsakoff et al. (2003) to include an unmeasured latent common methods factor in our model. We instead used a Harman's single factor test, which is also discussed by Podsakoff et al. (2003), but deemed untrustworthy by them and others. The resulting single factor solution explains 19 percent of the variance in all variables. This is a safe distance from the criterion Harman suggests. Fuller et al. (2016) have tested the potentially negative effects of CMV on the validity of research findings and conclude that CMV is hardly ever present in practice and, when it is, CMV often has a negligible effect on the results.

Finally, it is important to stress that no post-hoc modifications were made to the models we have tested. We have not modelled our models to fit the data. This would utterly defeat the purpose of using SEM and teach us nothing.

4.2   Results

The literature review has identified meaningful and relevant determinants of IE in general. Our analysis here tries to answer the question in the context of BUas students. A descriptive univariate analysis of the variables used to answer this question can be found in Table 2.

Table 2 Means and Standard Deviations of variables used in "Determinants of BUas Students' EI"-analysis (N = 533)

Variables and dimensions	*M*	*SD*	Min	Max
Entrepreneurial Intention (Liñán & Chen, 2009; van Gelderen et al., 2008)				
Entint1: I never see myself becoming an entrepreneur. [-]	71.2	30.2	0	100
Entint2: I have considered becoming an entrepreneur one day.	62.3	33.0	0	100
Entint3: When the opportunity arises, I will become an entrepreneur.	59.9	29.2	0	100
Entint4: I have never given the start-up of an enterprise much thought. [-]	65.3	32.3	0	100
Perceived Educational Support (Turker & Sonmez Selcuk, 2009)				
EntEdu1: The education from BUas encourages me to develop creative ideas for being an entrepreneur.	49.3	26.9	0	100
EntEdu2: BUas provides the necessary knowledge about entrepreneurship.	46.2	26.3	0	100
EntEdu3: BUas develops my entrepreneurial skills and abilities.	48.0	25.9	0	100
Risk Aversion (Zhang & Cain, 2017)				
P_RskAv1: I do not feel comfortable about taking chances.	32.8	25.3	0	100
P_RskAv2: I prefer situations that have foreseeable outcomes.	50.8	24.6	0	100
P_RskAv3: Before I make a decision, I like to be absolutely sure how things will turn out.	49.5	26.7	0	100
P_RskAv4: I avoid situations that have uncertain outcomes.	39.8	25.8	0	100
P_RskAv5: Fear of failure is a barrier for me.	41.9	32.0	0	100
Need for Achievement (Kristiansen & Indarti, 2011)				
P_Achiv1: I will do very well in fairly difficult tasks related to my study and my work.	69.5	20.4	0	100
P_Achiv2: I will try hard to pass work performance.	80.0	20.2	0	100
P_Achiv3: I will seek added responsibilities in jobs assigned to me.	69.0	22.6	0	100
P_Achiv4: I will try to perform better than my friends.	56.5	29.0	0	100
Locus of Control (Mueller & Thomas, 2001)				
P_Contr01: My success depends on whether I am lucky enough to be in the right place at the right time. [-]	60.8	23.6	0	100
P_Contr02: To a great extent my life is controlled by accidental happenings. [-]	66.0	23.3	0	100
P_Contr03: When I get what I want, it is usually because I am lucky. [-]	71.6	21.6	0	100
P_Contr04: My life is determined by my own actions.	74.6	19.4	0	100
P_Contr05: When I get what I want, it is usually because I worked hard for it.	74.0	20.2	0	100
P_Contr06: It is not wise for me to plan too far ahead, because things turn out to be a matter of bad fortune. [-]	72.1	23.8	0	100
P_Contr07: Whether or not I am successful in life depends mostly on my ability.	64.4	23.0	0	100

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P_Contr08: I feel that what happens in my life is mostly determined by people in powerful positions. [-]	66.8	24.6	0	100
P_Contr09: I feel in control of my life.	63.8	24.2	0	100
P_Contr10: Success in business is mostly a matter of luck. [-]	66.4	22.7	0	100
Entrepreneurial Innovativeness (Mueller & Thomas, 2001)				
P_Innov1: I often surprise people with my novel ideas.	53.4	25.0	0	100
P_Innov2: People often ask me for help in creative activities.	54.9	26.9	0	100
P_Innov3: I obtain more satisfaction from mastering a skill than coming up with a new idea. [-]	49.5	24.3	0	100
P_Innov4: I prefer work that requires original thinking.	59.9	24.3	0	100
P_Innov5: I usually continue doing a new job in exactly the way it was taught to me. [-]	58.5	23.3	0	100
P_Innov6: I like a job which demands skill and practice rather than inventiveness. [-]	47.6	23.7	0	100
P_Innov7: I am not a very creative person. [-]	66.7	28.0	0	100
P_Innov8: I like to experiment with various ways of doing the same thing.	55.4	26.0	0	100
Entrepreneurial Alertness (Kaish & Gilad, 1991)				
P_Alert1: I read news, magazines, or trade publications regularly to start my own business.	26.4	26.6	0	100
P_Alert2: I do not think about work-related matters in my free time to start my own business. [-]	61.3	32.4	0	100
P_Alert3: I think about work-related matters even during my holidays to start my own business.	37.7	32.0	0	100
P_Alert4: I think about new business ideas in my free time to start my own business.	42.0	32.4	0	100
Control variables				
FTPmean: Future Time Perspective	64.9	15.0	10	97
Female: Female = 1, Male = 0	0.6	0.5	0	1
Age: Age at the time of the survey	20.9	3.1	16	55
EntRoleModel: Number of available Role Models	1.7	1.4	0	7
EntSupport: Size of the Support Network	3.0	2.0	0	7

[-] reverse-scored item

The measurement model

Checking the measurement model for unidimensionality is the first phase of this analysis.

An initial CFA on the latent constructs resulted in a poor fit: $\chi^2(644) = 1808.006$, $p < .001$; $\chi^2/df = 2.81$; CFI = .820; TLI = .804; RMSEA = .061, 90% C.I. (.058 - .064), $p < .001$; SRMR = .078. In our case, using 38 variables and 533 observations, Hair et al. (2019, p. 642) suggest that in order to demonstrate Goodness-of-Fit: χ^2 is expected to be significant; CFI or TLI should be .92 or higher; SRMR should be .08 or lower, and; RMSEA should be .07 or lower. None of the basic fit criteria Hair et al. (2019) mention, are thus met. This implies that our measurement model contains one or more constructs that do not measure what they intend to measure; a single dimension, or, at least appear to do so. Reliability scores were extracted from the CFA and summarized in Table 3 We have used the subjective interpretations of the reliability values by DeVellis (2016). The reliability scores mentioned in Table 3 show that most latent constructs have very good to respectable reliability scores except for Need for Achievement.

Table 3 Construct Reliability scores of the original measurement model

Latent constructs	Cronbach's α	McDonald's ω_t	AVE
Entrepreneurial Intention (Liñán & Chen, 2009; van Gelderen et al., 2008)	.86	.87	.62
Perceived Educational Support (Turker & Sonmez Selcuk, 2009)	.87	.87	.70
Risk Aversion (Zhang & Cain, 2017)	.80	.80	.45
Need for Achievement (Kristiansen & Indarti, 2011)	.58	.59	.27
Locus of Control (Mueller & Thomas, 2001)	.76	.77	.27
Entrepreneurial Innovativeness (Mueller & Thomas, 2001)	.74	.75	.29
Entrepreneurial Alertness (Kaish & Gilad, 1991)	.80	.82	.54

Note. Subjective scale reliability of α & ω_t should according to DeVellis (2016, pp. 136-137): "below .60, unacceptable; between .60 and .65, undesirable; between .65 and .70, minimally acceptable; between .70 and .80, respectable; between .80 and .90, very good; and much above .90, consider shortening scale.". Average Variance Explained (AVE) should not be lower than .5 according to Hair et al. (2019, p. 676) as it "indicates that, on average, more error remains in the items than variance held in common with the latent factor upon which they load".

Despite showing respectable reliability scores across the board, the very poor AVE scores of more than half of the constructs confirm that the scales we used are not unidimensional. In order to identify the problems with both factors and indicators, an exploratory factor analysis (EFA) was run. We used Principal Axis Factoring (PAF) with oblimin rotation on all 38 items. PAF is known to handle unbalanced data well and is better at recovering weak factors (Costello & Osborne, 2005; de Winter & Dodou, 2012; Fabrigar et al., 1999). Oblimin rotation was used because we expect different factors to correlate. The R package we use for EFA is psych version 2.1.9 (Revelle, 2021). The R package GPArotation version 2014.11-1 was used for oblimin rotation (Bernaards & Jennrich, 2005). The results of the initial EFA can be seen in Output Initial EFA. The EFA shows that multiple constructs use items that cluster with other items they are not intended to cluster with. We have removed these items and ran a second EFA. The results of the second EFA can be found in Table 4.

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Table 4 Factor loadings and communalities based on Principal Axis Factoring with oblimin rotation for 38 items from 7 dimensions and set to extract 7 factors (N = 533)

Items	RA	EI	PES	LoC	Ale	Inn	nAc	Com
P_RskAv4	**0.80**							0.67
P_RskAv2	**0.73**							0.55
P_RskAv3	**0.72**							0.50
P_RskAv1	**0.57**							0.51
P_RskAv5	0.49							0.27
Entint2		**0.81**						0.74
Entint1		**0.79**						0.60
Entint4		**0.69**						0.57
Entint3		**0.65**						0.65
EntEdu3			**0.91**					0.83
EntEdu2			**0.85**					0.70
EntEdu1			**0.74**					0.60
P_Contr03				**0.73**				0.56
P_Contr01				**0.69**				0.47
P_Contr02				**0.61**				0.37
P_Contr10				**0.59**				0.45
P_Alert4					**0.74**			0.78
P_Alert1					**0.72**			0.46
P_Alert3					**0.70**			0.59
P_Innov2						**0.80**		0.68
P_Innov7						**0.60**		0.36
P_Innov1						**0.54**		0.51
P_Innov4						0.49		0.32
P_Achiv3							**0.68**	0.47
P_Achiv2							**0.50**	0.30
P_Achiv1							0.49	0.33
% var	0.09	0.10	0.08	0.07	0.08	0.07	0.04	
% cum	0.09	0.19	0.27	0.35	0.42	0.49	0.53	

Note. Factor loadings ≥ .5 are in bold. Factor loading < .3 have been suppressed for readability. Column abbreviations: RA = Risk Aversion; EI = Entrepreneurship Intention; PES = Perceived Educational Support; LoC = Locus of Control; Ale = Entrepreneurial Alertness; nAc = Need for Achievement; Com = communalities

After the second EFA, we ran a new CFA on only the items that had factor loading that were greater than, or equal to .5. Ideally we would have randomly split the original dataset into two separate sets and ran the EFA and CFA on separate sets as it seems trivial to first identify and then confirm constructs on the same data. At the same time, the constructs originally used have a long history and have been tested before. However, in our study three of these constructs simply did not appear to be unidimensional. We think that our current approach is the best way to guarantee unidimensionality of the used constructs at no 'loss' of observations for the analyses that follow. Moreover, as we intend to answer more questions in this report and want to compare the results from these answers to one another, the impact of the loss of observations would have been quite severe. Our choice, however, does make it tenuous to compare our results to studies that have used complete versions of the scales.

The results of the second EFA, shown in Table 4, look promising. They show both a simple structure and unidimensionality. Items load high on only one factor (Pett et al., 2003) and items that are expected to cluster theoretically, do cluster. A test of the new measurement model looks acceptable to good: $\chi^2(231) = 459.86$, $p < .001$; $\chi^2/df = 1.99$; CFI = .950; TLI = .940; RMSEA = .045, 90% C.I. (.039 - .051), $p = .981$; SRMR = .050. Using 533 observations and 23 variables Hair et al. (2019, p. 642) suggest that in order to demonstrate Goodness-of-Fit: χ^2 is expected to be significant; either CFI or TLI should be .94 or higher; SRMR should be .08 or lower, and; RMSEA should be .07 or lower. The construct reliability has improved as well (see Table 5). However, Need for Achievement has become more problematic due it now being based on two indicators. Also, both Locus of Control and Entrepreneurial Innovativeness have lower than .5 AVE scores. We are, however, based on our EFA and consequent choices, confident that our measurement model is based on unidimensional constructs.

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Table 5 Construct Reliability scores of the corrected measurement model

Latent constructs	Cronbach's α	McDonald's ω_t	AVE
Entrepreneurial Intention (Liñán & Chen, 2009; van Gelderen et al., 2008)	.86	.87	.62
Perceived Educational Support (Turker & Sonmez Selcuk, 2009)	.87	.87	.70
Risk Aversion (Zhang & Cain, 2017)	.82	.82	.54
Need for Achievement (Kristiansen & Indarti, 2011)	.44	.46	.31
Locus of Control (Mueller & Thomas, 2001)	.76	.76	.44
Entrepreneurial Innovativeness (Mueller & Thomas, 2001)	.73	.74	.42
Entrepreneurial Alertness (Kaish & Gilad, 1991)	.81	.83	.63

Note. Subjective scale reliability of α and ω_t should according to DeVellis (2016, pp. 136-137): "below .60, unacceptable; between .60 and .65, undesirable; between .65 and .70, minimally acceptable; between .70 and .80, respectable; between .80 and .90, very good; and much above .90, consider shortening scale.". Average Variance Explained (AVE) should not be lower than .5 according to Hair et al. (2019, p. 676) as it "indicates that, on average, more error remains in the items than variance held in common with the latent factor upon which they load".

The structural model

In phase two, we test the structural model. Two models will be tested and compared. The first is a simple structural multivariate model without mediation. The second is model is more complex in that we follow Zhang and Cain (2017) and want to test whether Risk Aversion indeed is not directly related to EI, but instead indirectly via entrepreneurial personality traits. We will refer to the two models as "simple model" and "mediated model".

Table 6 shows that both models meet the required Goodness-of-Fit criteria. A Likelihood Ratio test was used to compare both models. The result shows that a model that uses mediation does not improve the fit significantly: (χ^2(1, N = 533) = 3.784, p = 0.052). We know that we are expected to select the most parsimonious model. However, since 'insignificance' also implies that the mediated model does not decrease the fit significantly and, since it is our preferred model, can be used for hypothesis testing, we use the mediated model.

Table 6 Goodness-of-Fit indicators of the structural models

Models	χ^2	df	p	χ^2/df	CFI	TLI	RMSEA	90% C.I.	P	SRMR
Simple model	596.263	316	< .001	1.89	.942	.927	.042	.037 - .047	.999	.046
Mediated model	600.102	317	< .001	1.89	.941	.927	.042	.037 - .048	.999	.047

Note. Using 533 observations and 29 variables Hair et al. (2019, p. 642) suggest that in order to demonstrate Goodness-of-Fit: χ^2 is expected to be significant; either CFI or TLI should be .94 or higher; SRMR should be .08 or lower, and; RMSEA should be .07 or lower.

Below, the mediated model is shown in Figure 4. For the sake of readability, we have not included the factors, factor loadings, and error variances. Also, only significant correlations and control variable effects are shown in Figure 4.
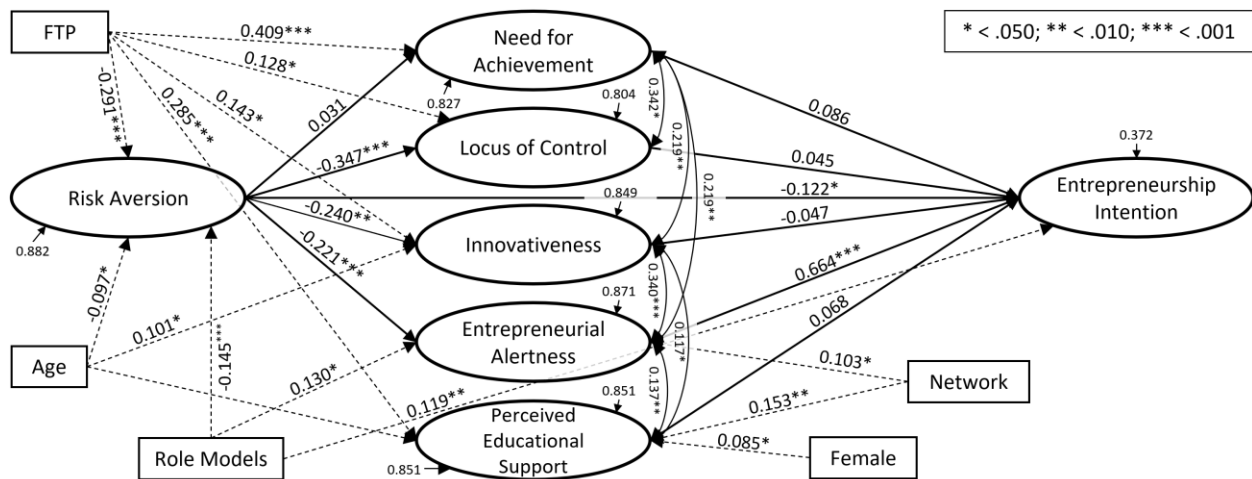
Figure 4 Main Standardized Path Estimates Mediated Model.

Both Factor Loadings and Error Variances of the latent constructs are reported in Table 7.

Table 7 Factor Loadings and error variances of the Latent Constructs used in the Mediated model

	Factor Loadings			Error Variances		
	B	SE B	β	B	SE B	β
Perceived Educational Support						0.851
EntEdu1	18.891	0.910	0.763***	301.245	30.046	0.418***
EntEdu2	19.962	0.880	0.824***	222.011	28.540	0.322***
EntEdu3	21.915	0.782	0.920***	102.743	18.942	0.154***
Entrepreneurial Intention						0.372
Entint1	13.597	1.036	0.738***	415.397	50.488	0.455***
Entint2	17.246	1.046	0.855***	294.431	37.578	0.269***
Entint3	14.256	0.853	0.800***	306.476	29.441	0.359***
Entint4	14.757	1.056	0.749***	456.754	43.980	0.438***
Need for Achievement						0.827
P_Achiv1	11.379	2.365	0.615***	257.484	61.343	0.622***
P_Achiv2	8.425	1.758	0.459***	320.663	50.690	0.789***
Locus of Control						0.804
P_Contr01	14.068	1.070	0.667***	307.072	31.852	0.555***
P_Contr02	12.387	1.091	0.593***	352.334	28.657	0.649***
P_Contr03	14.235	1.119	0.735***	215.114	28.512	0.460***
P_Contr10	13.638	0.970	0.672***	281.044	28.904	0.548***
Entrepreneurial Innovations						0.849
P_Innov1	16.854	1.039	0.731***	291.241	33.815	0.466***
P_Innov2	19.830	1.198	0.800***	260.822	40.201	0.360***
P_Innov4	12.160	1.140	0.543***	416.000	34.795	0.705***
P_Innov7	12.679	1.356	0.491***	594.735	48.661	0.759***
Entrepreneurial Alertness						0.871
P_Alert1	14.950	1.149	0.602***	451.101	31.133	0.637***
P_Alert3	22.740	1.174	0.762***	429.675	47.250	0.420***
P_Alert4	28.035	0.898	0.926***	150.207	32.434	0.143***
Risk Aversion						0.882

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P_RskAv1	16.354	0.991	0.690***	333.275	26.311	0.523***
P_RskAv2	17.021	0.964	0.738***	275.317	25.085	0.456***
P_RskAv3	16.866	1.062	0.674***	387.623	34.811	0.546***
P_RskAv4	19.890	0.880	0.820***	217.956	23.202	0.327***

Note. *** p < .001

Results of the hypothesis testing

Figure 5 summarizes the hypotheses and Table 8 reports on the results of hypotheses testing.
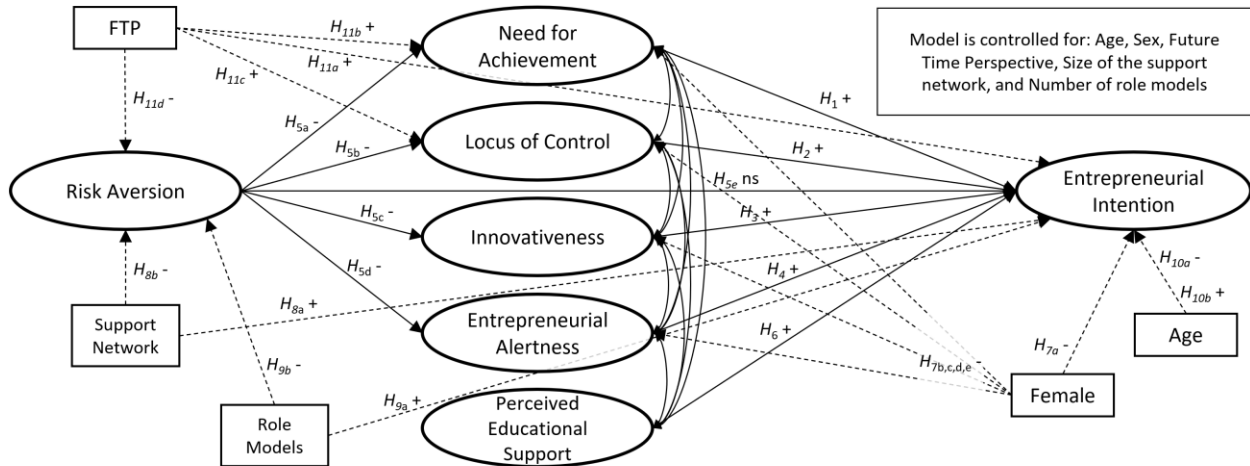

Figure 5 Mediated model including hypotheses

Table 8 summarizes the results of the hypothesis testing. Most hypotheses had to be rejected based on the results as the results show. The results will be further examined in the discussion and conclusion.

Table 8 Summary of the hypothesis tests

Hypothesis		β	95% C.I.	*p*	Supported?
H_1	nAchievement + → EI	0.086		0.270	No
H_2	Locus of Control + → EI	0.045		0.456	No
H_3	Innovativeness + → EI	-0.047		0.443	No
H_4	E. Alertness + → EI	0.664		< .001	Yes
H_{5a}	Risk Aversion - → nAchievement → EI	0.003	(-0.025 - 0.050)		No
H_{5b}	Risk Aversion - → Locus of Control → EI	-0.016	(-0.103 - 0.053)		No
H_{5c}	Risk Aversion - → Innovativeness → EI	0.011	(-0.028 - 0.078)		No
H_{5d}	Risk Aversion - → E. Alertness → EI	-0.147	(-0.359 - -0.120)		Yes
H_{5e}	Risk Aversion ns → EI	-0.122		0.028	No
H_6	PES + → EI	0.068		0.095	No
H_{7a}	Being Female - → EI	-0.004		0.908	No
H_{7b}	Being Female - → nAchievement	0.055		0.541	No
H_{7c}	Being Female - → Locus of Control	-0.056		0.241	No
H_{7d}	Being Female - → Innovativeness	0.092		0.066	No
H_{7e}	Being Female - → E. Alertness	-0.043		0.336	No
H_{8a}	Support Network + → EI	0.062		0.108	No
H_{8b}	Support Network - → Risk Aversion	0.007		0.892	No
H_{9a}	Role models + → EI	0.119		0.001	Yes
H_{9b}	Role Models - → Risk Aversion	-0.145		0.001	Yes

H$_{10a}$ Age + → EI	-0.043	0.206	No
H$_{10b}$ Age - → EI	-0.043	0.206	No
H$_{11a}$ FTP + → EI	-0.023	0.600	No
H$_{11b}$ FTP + → nAchievement	0.409	< .001	Yes
H$_{11c}$ FTP + → Locus of Control	0.128	0.026	Yes
H$_{11d}$ FTP - → Risk Aversion	-0.291	< .001	Yes

4.3   Discussion

This discussion needs to start with this study's major weakness; its measurement model. Three of the five personality traits had serious construct reliability issues and even after making serious changes to the scales, construct validity problems remained. Looking at the results, it is exactly these three constructs, Need for Achievement, Locus of Control, and Innovativeness that had no effect on EI. The question now is, is this because we are measuring a different construct, an element of the original scale that does not influence EI, or do these three constructs simply not determine the choice for EI of our students? likely both points are valid at the same time.

Firstly, when analysing the questions behind the items that were removed from the original construct and compared to the items that have remained in the new construct, there are differences (see A closer look at the Entrepreneurial traits-scales):

- *Innovativeness* had 4 items removed and now seems to be measure "creativity and originality in daily life", not the type of innovativeness you would associate with entrepreneurship. For that matter, the question related to inventiveness seemed like an interesting one to consider, but has instead been re-moved as it stood by itself and clustered with nothing really when considering its position in the initial EFA (see Output Initial EFA).
- *Need for Achievement* had 2 items removed and is associated to "working hard in the context of work". It has hardly any relevance in relation to Entrepreneurship in its present form.
- *Entrepreneurial Alertness* had 1 item removed and its meaning has not changed a great deal. It still measures "I use my spare time to think about business ideas". It is very closely related to Entrepreneur-ial Intention. So close in fact that it becomes a matter of circular reasoning.
- *Locus of Control* had 6 items removed and only includes 4 negatively phrased questions about success is a matter of luck, so after recoding, it measures that "success in life is not a matter of luck". The question is whether not-luck is the same as being in control.
- *Risk Aversion* had 1 item removed that referrer to fear of failure being a barrier. The questions, to-gether, refer to "not taking chances and being certain about things before doing something".

Secondly, in most of the studies where the scales were used, the scales were only tested using Cronbach's alpha, but never in a more critical manner. The scales aimed to give people scores on a scale. Perhaps they served well in that manner, but in this context, not all of them measure a single dimension as they intend to.

Thirdly, when consulting an earlier paper that had used exactly the same scales, Çolakoğlu and Gözükara (2016), the results showed differences and similarities to our study. In their study all four scales showed significant differences between those that intended to become entrepreneurs and those that did not, which was different to our results where only Entrepreneurial Alertness was a significant predictor of EI. In their study Entrepreneurial Alertness stood out as well in terms of t-values, which were closer to 7, whilst those of the other three predictors ranged between 2 and 4.

Fourthly, there is also the matter of the broadness of the constructs to consider. Where some constructs were measured using eight to ten predictors, others were measured using three to five predictors. Constructs like Need for Achievement and Entrepreneurial Alertness are now measured using 2 and 3 items. Harvey et al. (1985) indicate the minimum should be four, however later on Hardesty and Bearden (2004) argued that it is more important to consider how broad or narrow the construct itself is. In that sense, it makes sense to return to the first point above and conclude that this is what has taken place: in cherry picking the highest loading items of each scale and removing the items that clustered elsewhere, we have narrowed down what the scales originally stood for. At the same time, however, it is questionable what the scaled did in fact aim to measure.

Fifthly, both the translation of the questionnaire to Dutch and the reversed phrased questions, may have influenced the internal consistency of scales to a certain degree as well. Entrepreneurial Alertness, for instance, has a negatively phrased question which has a considerably different mean to the other items (see Table 2). Then again, Innovativeness, which also had negatively phrased questions, did not show similar differences in means between the items.

Sixthly, we have wondered whether randomization at the item level has had an effect on the scales that we have used. We used item randomization because we thought it could prevent measurement error. Buchanan et al. (2018) have tested the potential negative effects of item randomization and concluded that it did not have a negative effect.

Finally, this study has used a 0-100 slider scale. We already reflected on the usage of sliders in the study design section. Now, after having seen the response to the survey, the data and the results, we do not think having used the scale has helped us to get a higher response rate, nor do we think it has had a negative impact on the quality and validity of the measurements. We think we would have run into the same construct validity issues and data would have been just as skewed had students been able to use 5-point Likert items.

The results show that most of our hypotheses have been rejected. We think that the issues with construct validity has influenced the results all instances where hypotheses were related to Need for Achievement, Locus of Control, and Innovativeness. These personality traits just mentioned, all measure something different than was originally intended.

Risk Aversion, was negatively associated with most of the entrepreneurial personality traits, except the Need for Achievement, which we redefined above as "working hard in a work context", something not usually associated with taking risks. We think that, again, the problems with construct validity and actual meaning of the scales were the most important reasons for having to reject these hypotheses.

Perceived Educational Support was not a general statement about the support students received, but specifically focused on entrepreneurial support. When looking at the histograms of the items that measured Perceived Educational Support two aspects are striking: 1. Most students were impartial about entrepreneurial education and; 2. There appear to those that are more outspoken on the matter. In total, the result is that PES does not predict students' EI.

We hypothesized that female students would have lower entrepreneurial personality traits. We noticed in our annual BUas reports that women were, on average, less inclined to have already started a business during their studies. Those differences, however, would become way smaller when also taking into account the intention to start a business after, rather than during, their studies (van Liempt & van Es, 2022). Female students are perhaps more cautious or more focused on finishing first things first as Meyers-Levy and Loken (2015) seem to suggest. At the same time, we must be cautious to gender stereotypical perceptions (Ellemers, 2018). In terms of EI, female students are no different from male students.

 Despite the suggested overlap of role models and available entrepreneurial support as suggested by Wang and Wong (2004), there is a difference according to our results. Size of the support network also did not predict EI as we hypothesized. Perhaps this has to do with the way the variable was constructed. The number of people students can fall back on when needing entrepreneurial support does not predict their EI. The number of role models does in fact appear to predict EI to a small but significant degree. It also negatively relates to Risk Aversion as we hypothesized. Literature disclosed that role models could have both a negative and positive effect on EI (Van Auken et al., 2006). Having more role models in your vicinity on average, apparently, works out in favour of EI and negatively influences a students' inclination to avoid risks.

We have formulated competing hypotheses about the effect and role of age. Obviously, the variance in age is not great on a school. The literature we consulted discussed the role of age in workers in relation to their EI (Hatak et al., 2015). The competing hypothesis was phrased because in our own studies we noticed that those students that had already started a business experienced study delay and hence tended to be older (van Liempt & van Es, 2022).

Future Time Perspective was measured using 10 items. We, however, did not use it as a latent variable in our analysis. We instead derived an average FTP score of the 10 items. The reason is that this is the way in which Lang and Carstensen (2002) have developed the scale and how the scale is expected to be used. It, however, also hides the fact that this scale also had construct validity issues. Basically, by creating the scale in

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its original summed score form, we are assuming that all the items contributing to the FTP scale have the same weights (factor loadings, error terms, and even possible correlations between error terms), which is not very realistic. This can influence the relations to other variables. With this in mind, FTP did not have a significant effect on EI as we hypothesized. However, three remaining hypotheses related to the Need for Achievement, Locus of Control and Risk Aversion did have significant effects. FTP and the ability to control outcomes seems to be positively correlated. Need for Achievement implicitly measures, at least in our study, the drive to working hard. It is possible that students feel that working hard will pay off. In the same sense FTP is related to Locus of Control, which in our case measure that results are not caused by luck. The negative relation to Risk Aversion makes sense as well. Having confidence in the future expresses faith and control and those circumstances can make students be less afraid of taking risks.

The results also showed a number of small, but significant, relations we did not hypothesize about. Their effects are both small and significant at the .05 level. We think that these small positive associations are simply caused by the size of our sample and do not need to be explained in detail. Perhaps the very small positive effect of female students in relation to Perceived Educational Support is interesting to consider as it hints that females appreciate the support they revive more than male students do. Still, the effect is very small.

To conclude the discussion we want to return to the topic of being in control as predictor of EI. Many of the predictors in our model relate to risk aversion, control, and not depending on luck. None of them, however, refers to autonomy in any explicit manner. This is a shame as there is enough supporting evidence that autonomy plays an important role in EI. Literature has hinted at the opportunities entrepreneurship offers in terms of control over one's live (Maes et al., 2014). Entrepreneurship is often associated with autonomy and multiple studies exist that define autonomy in different ways (independence versus taking responsibility) and have theoretically argued for its positive role on EI and provided empirical confirmation (Baluku et al., 2019; Jubari et al., 2017; Lumpkin et al., 2009; Mahajan & Arora, 2018; Tufa, 2021; Yukongdi & Lopa, 2017).

4.4   Conclusion

The main question we wanted to answer was which determinant of EI were relevant in the case of BUas. Despite there being a number of determinants identified in literature, only a few predictors really seem to matter in the case of BUas. The predictor that stands out is Entrepreneurial Alertness, but we have identified that Entrepreneurial Awareness measures as students' interest in looking for business opportunities during holidays, or when the student is otherwise not occupied with work. Risk Aversion is negatively associated with IE in our students. The negative effect works directly and indirectly via Entrepreneurial Alertness. When a student has positive role models in his or her environment it also increases their IE.

What is striking about the results is that despite their being so many causes. They are almost all out of control of an educational setting. Perceived Educational Support did not have a significant effect, which is perhaps a bad sign as this is one and only manner in which BUas could have an impact on students' intentions.

5 What kind of business do the students intend to set up and in what domain?

In the introduction we talked about the 'great entrepreneurial explosion' and showed the Dutch case where most growth in entrepreneurship in the past 30 odd years stems from self-employed entrepreneurs. In our annual reports, we obtain no information as to what the detailed plans of our students are (van Liempt & van Es, 2022). What kind of business do they have in mind? In what domain or industry would they like to start a business? Both are questions to which we currently had no answer.

5.1 What type of business do students intend to start?

In our survey we allowed those students with entrepreneurial intentions to select one of three business types. The results can be found in Figure 6.
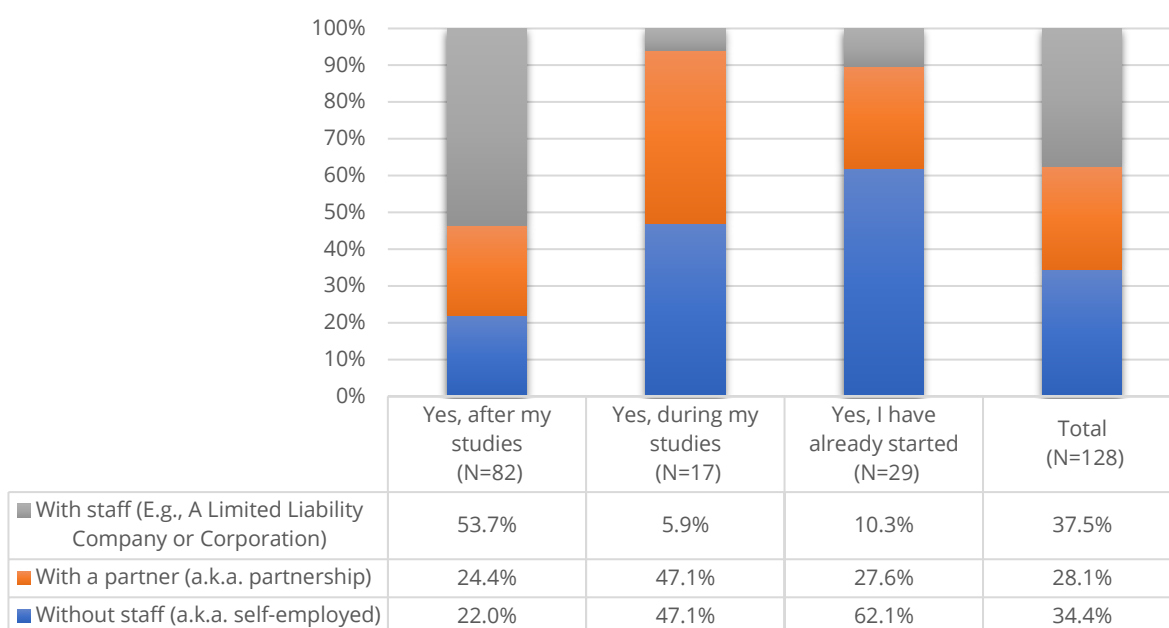

	Yes, after my studies (N=82)	Yes, during my studies (N=17)	Yes, I have already started (N=29)	Total (N=128)
■ With staff (E.g., A Limited Liability Company or Corporation)	53.7%	5.9%	10.3%	37.5%
■ With a partner (a.k.a. partnership)	24.4%	47.1%	27.6%	28.1%
■ Without staff (a.k.a. self-employed)	22.0%	47.1%	62.1%	34.4%

Figure 6 Type of Business versus Entrepreneurial Intention (N = 128)

Overall there appears to be an even spread between the intended business types. Upon closer inspection, distinct preferences become clearer. Where self-employment is the most popular type of business whilst studying, students tend to have aspirations that involve also being responsible for others and opt for bigger businesses.

5.2 What domains do students intend to start a business in?

We also were curious in what domain they intended to be in after their studies. Many obviously selected the domain they did their studies in, but we also allowed students to select domains that were not offered at BUas. As these are quite diverse, they are summarized as other. The results can be seen in Figure 7. Noteworthy observations include that 35 percent of those that have already started a business, have done so outside of the domain they are studying in. Nearly 52% plan to start a business outside of the domain they are trained in after their studies.
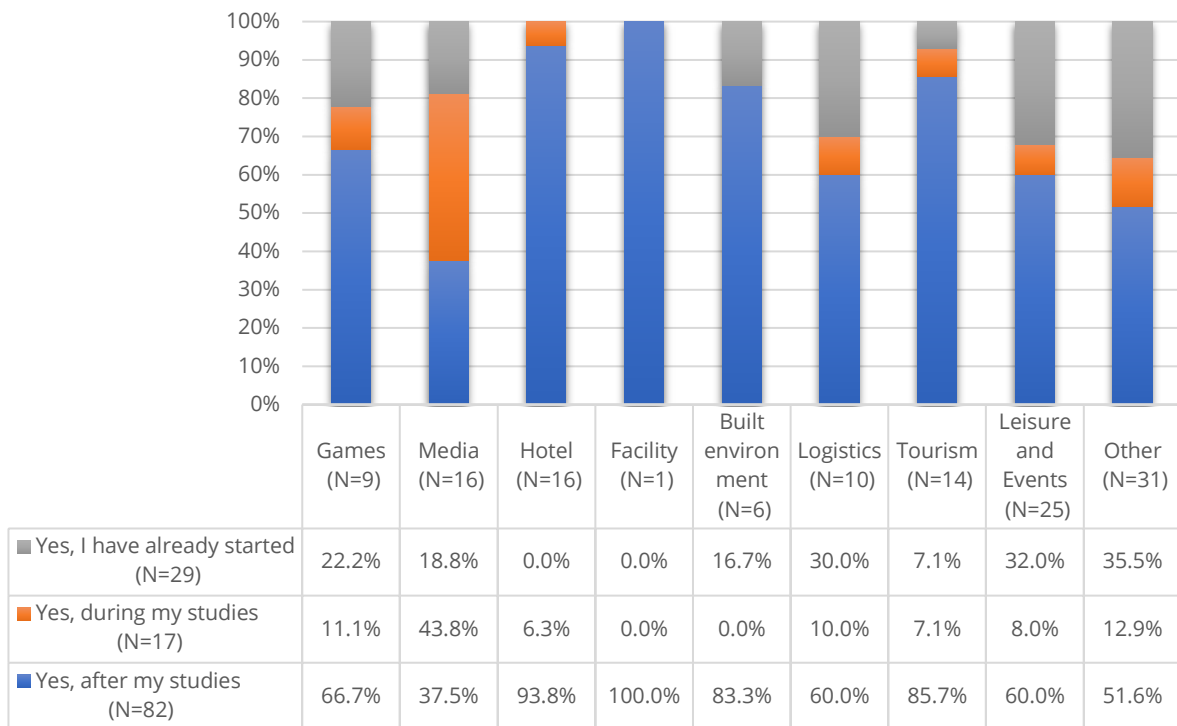
	Games (N=9)	Media (N=16)	Hotel (N=16)	Facility (N=1)	Built environ ment (N=6)	Logistics (N=10)	Tourism (N=14)	Leisure and Events (N=25)	Other (N=31)
▓ Yes, I have already started (N=29)	22.2%	18.8%	0.0%	0.0%	16.7%	30.0%	7.1%	32.0%	35.5%
▓ Yes, during my studies (N=17)	11.1%	43.8%	6.3%	0.0%	0.0%	10.0%	7.1%	8.0%	12.9%
▓ Yes, after my studies (N=82)	66.7%	37.5%	93.8%	100.0%	83.3%	60.0%	85.7%	60.0%	51.6%

Figure 7 Type of Domain versus Entrepreneurial Intention (N = 128)

5.3   How stable are domain preferences?

Not directly related to entrepreneurship, but there is quite a bit of diversity associated between domain and the intend to work within or outside of the domain students are trained in Table 9 Domain of study versus domain of intend after study (N = 594). The total number of observations is higher than in other tables and figures because more students have answered this question.

Table 9 Domain of study versus domain of intend after study (N = 594)

	Built Environment	Facility	Games	Hotel	Leisure & Events	Logistics	Media	Tourism	BUas
Built environment	**45**	1	0	0	0	0	0	0	46
Facility	0	**18**	0	0	0	0	0	0	18
Games	1	0	**62**	0	2	0	1	0	66
Hotel	0	2	0	**46**	2	0	0	5	55
Leisure and Events	0	4	0	5	**93**	0	0	8	110
Logistics	0	0	0	0	2	**46**	0	0	48
Media	0	0	1	0	1	0	**68**	2	72
Tourism	0	0	0	3	3	0	0	**91**	97
Other	1	5	1	17	24	1	8	25	82
Total	**47**	**30**	**64**	**71**	**127**	**47**	**77**	**131**	**594**
Outside domain	4.3%	40.0%	3.1%	35.2%	26.8%	2.1%	11.7%	30.5%	21.0%

Because we also allowed students to indicate which domain or industry they intended to work in when they selected 'other', we were given a closer look at what other actually entailed. These answers have not been filtered for those students that have expressed Entrepreneurial Intend. Answers can be clustered into: "I don't know yet", "different name that is related to the domain they are studying in", "health and well-being", and a surprising amount of students want to move into real-estate. The original answers can be found in Answers to open question about the domain students intend to work in.

6 Is experienced study delay caused by having already started a business during the study?

In our annual reports we noticed a strong association between students that have already started a business and the number of years they have been enrolled in one of our programs (van Liempt & van Es, 2022). Students that had started a business were invited to reflect on whether they experienced study delay and what explained the delay. Table 10 provides an overview of all the answers that we received. Some students argue that indeed the business is the reason, for most, however, it is a combination of factors. COVID-19 also has an impact, as some types of businesses were not allowed to operate because of lockdown regulations.

Table 10 Answers to the open 'other' question related to the question about the domain students intend to work in after their studies

No motivation in 2nd internship after a somewhat disappointing 1st internship. The 2nd internship was already after 3 months after the end of the 1st internship...
I would say my study delay resulted in the business, however only a third to half of my delay can be directly attributed to the starting of a business
I started a partnership during my study, unfortunately it did not turn out as hoped, the reason for this is because finding an indoor location for starting an event organisation with a night permit was impossible. In addition, I am a self-employed person. This is easy to combine as a side job next to my studies.
I do not experience study delays because of my company, because my study is currently number one. I do experience study delay because of online lessons. It makes me less motivated to study. I can't taste anything of the practice and I don't hear much from my fellow students and lecturers.
It is not the reason for my study delay but it did gave me more (financial) space to discover what to do with my company and still be a student at the same time
My graduation assignment is a film. I want to make it as good as possible, and this could take longer if necessary.
Besides business, I work in the cultural sector for 32 hours a week. Run triple weeks, but no real study delay yet. However, it is possible
No that is not the reason.
No, nu own business was not the reason for the study delay. I passed all my courses but writing a research thesis seams less relevant that experience in the real world
Study delay due to COVID-19
Perhaps postponing the thesis to devote more time to working on the company
Yes, I started a business that is part of a big project for uni. Because this business is in Hospitality, the virus meant that I am still waiting to open my food stand, thus still waiting to finish the project.

7 How is entrepreneurship education and its support by BUas perceived by the students?

In the main study, this question was already answered to a certain degree. In the discussion of the results we already hinted that probably the reason for the non-existing relation between Entrepreneurial Intention and Perceived Educational Support stemmed from students being either positive, negative or neutral. We have used a sentiment analysis algorithm commonly used in online feedback on the quality of information and provided services by MonkeyLearn to analyse the 138 responses we received. Sentiment Analysis is an AI text classification system that is trained with specific data to be able to identify either positive, negative, or neutral sentiments based on English texts (Garreta, 2022). Not accidentally, we had to translate all Dutch answers into English first as well as remove spelling errors before the algorithm worked well. For the translation we also used a translation algorithm provided by DeepL (DeepL Translator, 2022).

The algorithm identified three clusters and also informed about how certain it was about its prediction. In the Table 11 the top and bottom three answers within each cluster are given. The entire table can be found in

Answers to open question about Perceived Educational Support.

Table 11 Sentiment Clusters by confidence

Top-3 sentiments in each sentiment clusters	Confidence
Negative least certain	
Electives on entrepreneurship, legal systems, etc. would be a great place to start. I believe such courses have not been offered to me.	0.360
More finance related topics, investing and international communication classes should be in the programs.	0.384
More mentoring and advertisement about different entrepreneur programs at the university.	0.400
Negative most certain	
Focus on the people who really want it. During the Entrepreneurship course, you are expected to show some of your creativity in a group. I hate the idea of developing and doing something new, so forcing me to be creative is a waste of energy and only leads to irritation, both for me and for the teachers who are trying to help you. But even worse is the fact that group members who do want to work on it seriously are thwarted by unmotivated students. Make sure this is available for the serious ones.	0.960
entrepreneurship was a super nice course plus the teacher (REDACTED) really stimulated you. Unfortunately, that was only 1 subject in my entire school career :(	0.983
i don't even know how to spell entrepreneur but if i was to look into starting own business i wouldn't know anything about it. while it's true I've never tried to dig into that, i don't even remember hearing about BUas offering that much help	0.984
Neutral least certain	
I have yet to see any such programs at BUas. Maybe I have just missed them. I am in my First year. So maybe more awareness of these programs?	0.446
Showing more interest in students instead of very sad 50 min a week and for the rest just figure it out.	0.453
Include them in the curriculum and do not let them depend on extracurricular activities because that is not always an option.	0.469
Neutral most certain	
Maybe offer an extra weekly class where you can get information and ask questions about starting a business	0.887
I would like to find out what my options are for becoming an entrepreneur while studying. In what way can I combine entrepreneurship with my studies?	0.906
Describe ways to get funding	0.925
Positive least certain	
Give more information about this in the first years of education. Indicate how BUAS wants to and can help	0.378
Trainings/master classes for those interested. so not compulsory.	0.452
It's a good thing, a lot of people want to start something new, but I also think this is done right with a lot of time and attention. with the current way set up for us game developers, I'm not sure how well this can be executed.	0.464
Positive most certain	
How to deal with money, taxes and mindset. These are points that can make a huge difference. In addition, there are many tips in "Rich Dad, Poor Dad" that actually - in my opinion - need to be discussed and taught.	0.989
When a good concept is thought up during a school assignment, teachers can stimulate students to elaborate on this concept, for instance by supervising students for a few hours per week with the knowledge expertise of the teacher in question. There are plenty of teachers from different disciplines at Breda University, so there is a good supervisor for every concept. Of course, there can be more than one supervisor. In this way, enthusiastic (enterprising) students are 'rewarded'. Moreover, this makes school assignments even more tangible.	0.993
Learning how we can and may make mistakes and how we can learn from them. In addition, giving students more insight into what they are individually good at and less good at. This gives students a better image of themselves, which increases their self-confidence and indirectly also ensures better cooperation, because students then know what they can and cannot do in a group.	0.993

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8 How stable are Entrepreneurial Intentions among BUas students?

This is a question which is not often answered in the studies we have read. By following our own students for a number of years now, we have noticed that Entrepreneurial Intent changes quite a bit over the years. van Liempt and van Es (2022) have distinguished between two different patterns. The first pattern is a global pattern which transcends gender, age, domain of study. It is a pattern of growth. From year to year the relative number of students with an Entrepreneurial intent grows. It is a pattern of slow growth. Some of this growth is explained by study delay, some of it by the growing number of international students, but there is also endogenous growth that stems from more students being interested in a career as entrepreneur. The second patterns can be seen when a specific cohort is followed throughout the years. There we see a decline in the number of students that answer 'maybe' in favour of answering 'no'. During their study students become more certain about their intent to become entrepreneurs or not. This affects the 'no' category more than it does the group of students that say 'yes'.

What was interesting to learn from some of the answers students provided in the question about study delay was that they felt a company was easy to combine with a study as it gave them more control. This is a recurrent theme in literature on Entrepreneurial Intent.

In this study we will compare the students Entrepreneurial Intent in November 2020 to their intent expressed in the questionnaire on March 2021. So a four month gap between the two measurements. The total number of respondents is 596 rather than the 533 used in the main study. The reason is that once again, more students answered this question than the latter ones on personality characteristics associated with Entrepreneurial Intent.

Table 12 Stability and instability in Entrepreneurial Intent

		Ambitions to start as an entrepreneur (Mar 2021)				
		No	*Maybe*	*Yes, after I graduate*	*Yes, during my studies*	*I have already started my own business*	*Total*
Ambitions to start as an entrepreneur (Jan 2020)	*No*	**98**	45	3	0	0	**146**
	Maybe	80	**215**	16	1	3	**315**
	Yes, after I graduate	6	45	**32**	2	1	**86**
	Yes, during my studies	0	13	3	**3**	0	**19**
	I have already started my own business	3	13	3	1	**10**	**30**
	Total	**187**	**331**	**57**	**7**	**14**	**596**

When we look at Table 12 we see the same patterns as we usually see in the annual reports. The light-green cells depict what we call positive EI changes, in the direction of EI. The pink cells depict the negative EI changes, away from EI. Most of the changes stem from students switching between 'no' and 'maybe' and vice versa. This is sometimes quite radical. Of the 30 student who say they owned a business at the start of the college year, 14

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were left. Not because 16 stopped, but because 4 started a business and 20 stopped. These are considerable numbers and tell you how fluid Entrepreneurial Intent can be. Figure 8 shows a Sankey Diagram of the fluidity of Entrepreneurial Intent (SankeyMATIC, 2014).
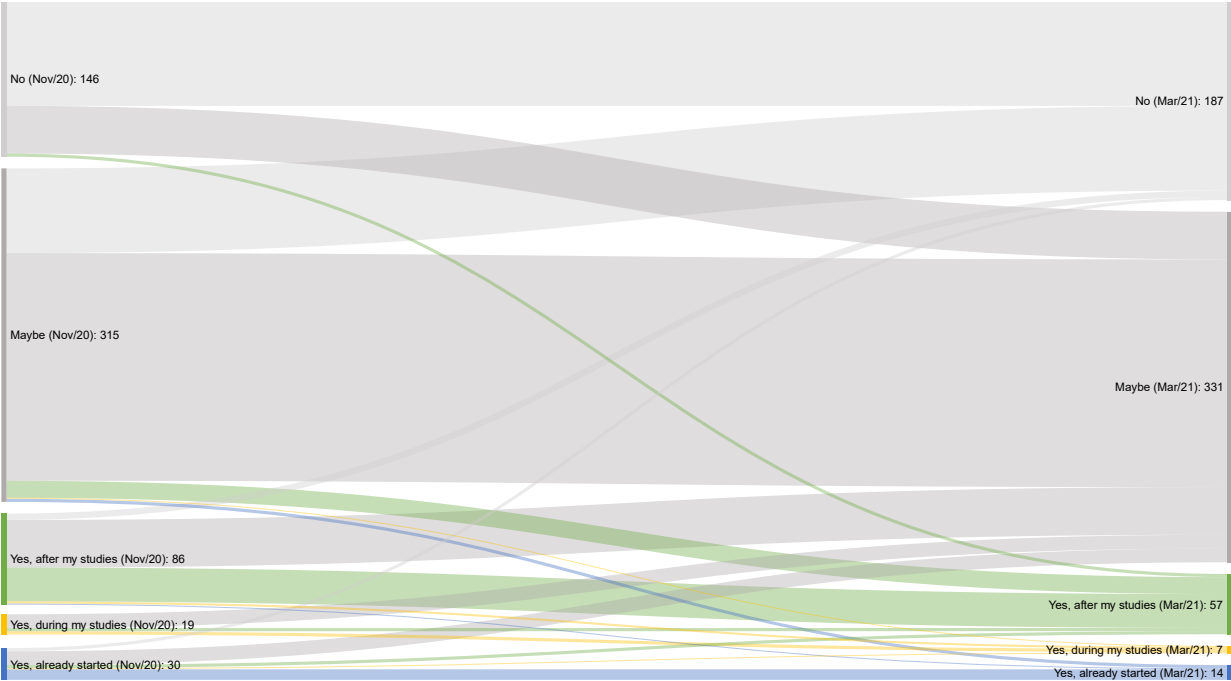

Figure 8 Sankey Diagram of the fluidity of Entrepreneurial Intent of BUas students

9 Did COVID-19 influence the intentions of students?

It might be possible that COVID-19 explains some of the differences in EI in between the start of the year and March the next year, a span of four months. The differences in Entrepreneurial Intention seem to be more than just coincidental. A Chi^2-test in combination with Cramer's V can help us determine whether the difference in EI between the two moments is significant, which it is, $\chi^2(16) = 371.21$, $p < .001$, Cramer's V = .395. Had there been no difference between the two measurements, Cramer's V would have been 1.000.

      The question now is, whether COVID-19 has had some influence on the decision of the students because we thought it might influence their perspective of the future. In order to test, this we are using a question which we have so far not used and which has itself, as a question, has not been tested: "Overall, I have become more optimistic about my future during the COVID-19 pandemic.". The question uses the same 0-100 slider scale we have used in other questions. We have not treated the question as a reverse phrased question. A histogram of the variable can be found on page 60 called FTP11.

      We probably should have designed a proper scale, but we have not because the decision to include the variable was spontaneous. In that sense perhaps the results of the following analysis should not be accepted as final proof. However, we do believe that the results are indicative. Since we are trying to do a regression analysis on a scale (Entrepreneurial Intention), we are once again returning to the SEM analysis using the MLR estimator. Since we have already confirmed the EI scale in the main analysis and reported extensively, we are moving forward to phase two and are going to use a very simple bivariate model which we will control for gender, age and FTP. We control for FTP since we have used the COVID-19 related question in the context of FTP. We will also control the relation for age and sex as we are interested whether age and sex play a role in the bivariate relation. The model fit is good: $\chi^2(14) = 31.166$, $p = .005$; $\chi^2/df = 2.23$; CFI = .983; TLI = .969; RMSEA = .051, 90% C.I. (.027 - .075), $p = .528$; SRMR = .023.

      Figure 9 shows the complete model including factor loadings and error variances. The extent to which COVID-19 has influences the students' perception of the future has not impacted their Entrepreneurial Intentions ($\beta = .024$, $p = .605$). The reason FTP ($\beta = .224$, $p < .001$) has a significant effect on Entrepreneurial Intention in this model and not the original model, can only be explained because of omitted variable bias (Clarke, 2005). Relevant predictors in the original model are not included in the current model. FTP influences Entrepreneurship indirectly in the original model, there is no direct effect to entrepreneurial intention. Because the variables are not included in this model, a direct effect is suggested. FTP has a medium positive effect on the extent to which students experience has influenced their perspective of the future ($\beta = .316$, $p < .001$). Those with higher levels of FTP have also become more optimistic about their future during the COVID-19 pandemic. This obviously also works the other way around and students probably did not know how long the pandemic would last. This report is written almost a year after data collection and only now are we seeing society opening up little by little. Age ($\beta = .113$, $p = .004$) also plays a small but significant role. The older people are, the more optimistic they have become about their future during the COVID-19 pandemic. This does not apply to females ($\beta = -.185$, $p < .001$). The effect is again small, but significant, but female students, on average, have become less positive about their future during the COVID-19 pandemic.
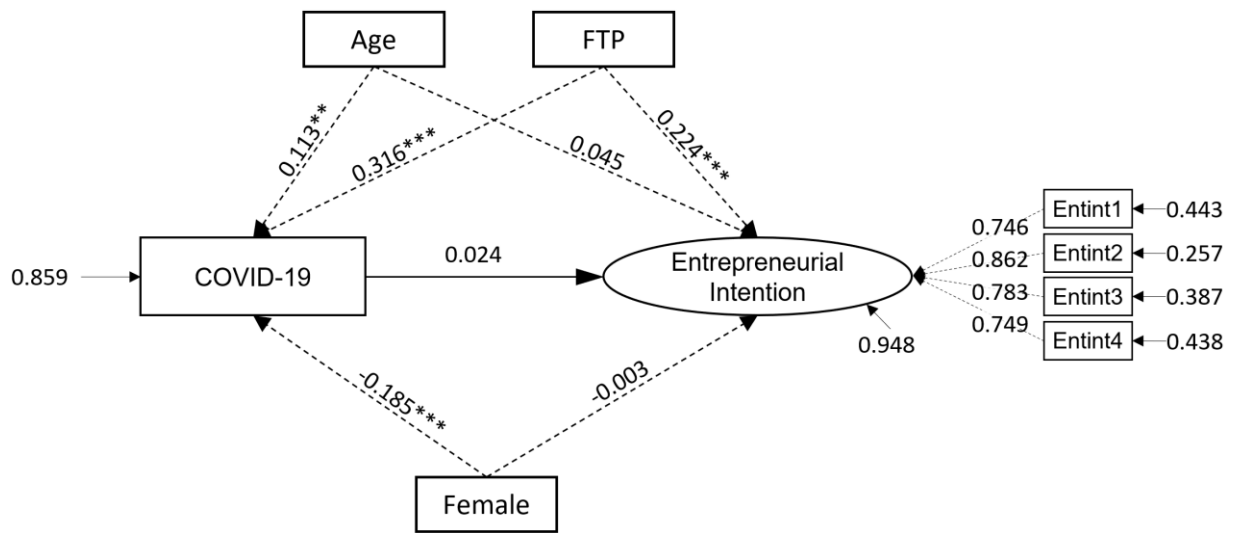
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Figure 9 Structural model to test whether COVID-19 has influenced the Entrepreneurial Intention of BUas students

10 How do the scaled and categorical measures of Entrepreneurial Intention relate to each other?

It is interesting and important to compare the two measurements of Entrepreneurial Intent with one another as it can help us understand to what extent the results of the report's primary study can be compared to the results of our annual studies. From the main study in this report, we could learn that the four question scale showed good construct reliability figures (see Table 5). We created a mean sum score variable from these four questions, which we then divided by four, so we get a new variable that represents all four scaled question with a range of 0-100. We refer to this variable as the 'Mean EI'. A one-way ANOVA was conducted to compare the mean Entrepreneurial Intention between the five categories of the categorical version of EI: "no", "maybe", "Yes, after my studies", "Yes, during my studies", and "Yes, I have already started". There was a statistically significant difference between the effects of the five answer categories on the Mean Entrepreneurial Intention ($(F_{4,528})$ = 140.3, p = 2e-16). Tukey's HSD post hoc tests provided the necessary insights:

- The Mean EI for 'maybe' is significantly higher than 'no' (difference 34.87, $p < .0001$).
- The Mean EI for 'Yes, after my studies' is significantly higher than 'no' (difference 53.64, $p < .0001$).
- The Mean EI for 'Yes, during my studies' is significantly higher than 'no' (difference 55.24, $p < .0001$).
- The Mean EI for 'I have already started' is significantly higher than 'no' (difference 49.22, $p < .0001$).
- The Mean EI for 'Yes, after my studies' is significantly higher than 'maybe' (difference 18.76, $p < .0001$).
- The Mean EI for 'Yes, during my studies' is significantly higher than 'maybe' (difference 20.36, $p = .0001$).
- The Mean EI for 'I have already started' is significantly higher than 'maybe' (difference 14.34, $p = .0007$).
- The Mean EI for 'Yes, during my studies' is not significantly different from 'yes, after my studies' (difference 1.60, $p = .9975$).
- The Mean EI for 'I have already started' is not significantly different from 'yes, after my studies' (difference -4.14, $p = .8007$).
- The Mean EI for 'I have already started' is not significantly different from 'yes, during my studies' (difference -6.01, $p = .8214$).

What was surprising in the above results, was that the Mean EI for those that had already started a company during their studies was lower, though not significantly, than those that intended to start a business during their studies. But overall, the differences matched up with our expectations. The more certain the student is about becoming an entrepreneur in the future, the greater the mean EI. There are no statistical differences between the three positive EI categories, which was also an interesting find as it gives a clearer perspective on how these categories relate to overall EI measures.

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11 Conclusion

This report answers many questions. Questions that we have had for a number of years now when looking at the results of the annual reports. Answers to the open questions in the questionnaire were sometimes heart-warming because students appreciated that someone showed an interest in them and their future prospects. Indeed, many students did not participate in the survey, but those who did, provided valuable information that we could combine and link to information we obtain from a central database. Data, we think, that can be brought to life when combined with the results of a more in depth survey like the one used in this study.

Although it is tempting to ask new questions based on the current report, it is more important to first ensure that the information in this report is well received by the organization. More thorough funding could even bring this report to a level where parts of it can be used to inform colleagues through peer reviewed articles. The current measurement model of the study simply lacks the rigor required to be published in this sense. While the results are still interesting to consider, a more thorough understanding and review of the existing literature would have improved the quality and selection of the items included in our questionnaire.

From a scientific point of view, reports such as this, which combine data from different sources such as longitudinal annual surveys, the student information system and surveys randomly distributed among students, are a rich source of information. In particular, the interaction between monitoring and assessment can help us better understand students' views and decisions, and provide information that helps both educational institutions and students.

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13 Appendices

Appendix A – Bilingual Questionnaire

Start of Block: Introduction

This is the English version of our survey! Please, check the top-right option to change the language to Dutch.

Thank you very much for engaging with our survey about you and your ideas about your future.

You should be aware that you are not fully anonymous. Adriaan van Liempt, the lead researcher, knows your student number, but not your name. He can see how old you are, what your gender is and what you study. However, your student number or other individually traceable data are never published. In the publications, you only appear as part of a larger group (e.g. 'the BUas student' or 'Student Hospitality').

At the end of the survey, you will be able to indicate a few options. You have the opportunity to win a so-called "avondje NAC". You get two tickets to visit and watch a NAC home game from the grandstand as a VIP, including free drinks, dinner and after-party! Corona regulations at the time do apply of course.
Again, thank you for participating from all of us!
Adriaan van Liempt (lead researcher)
Marina Brinkman (coordinator BUas EdFactory)
Tijs van Es (coordinator BUas Entrepreneurship Education)

This is the Dutch version of our survey! Please, check the top-right option to change the language to English.

Hartelijk dank voor je deelname aan onze enquête over jou en jouw ideeën over je toekomst.
Ben je ervan bewust dat je niet volledig anoniem bent. Adriaan van Liempt, de verantwoordelijke onderzoeker, is op de hoogte van je studentnummer (niet je naam!). Hij kan zien hoe oud je bent, wat je geslacht is en wat je studeert. Je studentnummer of andere individueel traceerbare gegevens worden echter nooit gepubliceerd. In de publicaties verschijn jij enkel als een onderdeel van een grotere groep (bijvoorbeeld 'de BUas student' of 'student Hospitality').

Aan het eind van de enquête kun je een aantal opties aangeven. Je maakt kans op een zogenaamd "avondje NAC". Je mag dan als VIP een thuiswedstrijd van NAC bezoeken en bekijken vanaf de hoofdtribune, inclusief gratis borrel, diner en afterparty! Onder voorbehoud van de op dat moment geldende corona maatregelen natuurlijk.

Nogmaals, hartelijk dank namens ons allen!
Adriaan van Liempt (verantwoordelijke onderzoeker)
Marina Brinkman (coördinator BUas EdFactory)
Tijs van Es (coördinator BUas Entrepreneurship Education)

Page Break

COVID-19 and your Future Time Perspective

Read each item and answer the question: 'How true is this of you?'

NB! When a statement is very untrue for you, you still have to tick the slider. Your position will only be registered if the dot has turned to a darker shade.

	Very Untrue		Very True		
	0	25	50	75	100
Many opportunities await me in the future. ()					
I expect that I will set many new goals in the future. ()					
My future is filled with possibilities. ()					
Most of my life lies ahead of me. ()					
My future seems infinite to me. ()					
I could do anything I want in the future. ()					
There is plenty of time left in my life to make new plans. ()					
I have the sense that time is running out. ()					
There are only limited possibilities in my future. ()					
As I get older, I begin to experience time as limited. ()					
Overall, I have become more optimistic about my future during the COVID-19 pandemic. ()					

FTP1 **COVID-19 en je toekomstperspectief**

Lees elk item en beantwoord de vraag: "Hoe waar is dit voor jou?

NB. Wanneer een uitspraak 'zeer onwaar' voor je is, zul je toch de slider moeten bewegen. Het bolletje moet een donkerder tint hebben gekregen.

	Zeer onwaar		Zeer waar		
	0	25	50	75	100

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In de toekomst liggen er veel kansen voor mij. ()	
Ik verwacht dat ik in de toekomst veel nieuwe doelen zal stellen. ()	
Mijn toekomst is gevuld met mogelijkheden. ()	
Het grootste deel van mijn leven ligt nog voor me. ()	
Mijn toekomst lijkt oneindig lang te zijn. ()	
Ik zou in de toekomst alles kunnen doen wat ik wil. ()	
Er is nog genoeg tijd in mijn leven om nieuwe plannen te maken. ()	
Ik heb het gevoel dat de tijd opraakt. ()	
Er zijn maar beperkte mogelijkheden in mijn toekomst. ()	
Naarmate ik ouder word, begin ik de tijd als beperkt te ervaren. ()	
Over het geheel genomen ben ik optimistischer over mijn toekomst geworden tijdens de COVID-19 pandemie. ()	

Page Break

I_IE2
Your entrepreneurial intention
Based on your answer a follow up question may appear.

I_IE2 **Je intentie om ondernemer te worden**

 Op basis van je antwoord kan een vervolgvraag verschijnen.

IE1 Are you planning to start your own business?

○ No (1)

○ Maybe (2)

○ Yes, after my studies (3)

○ Yes, during my studies (4)

○ Yes, I have already started (5)

IE1 Ben je van plan een eigen bedrijf te beginnen?

○ Nee (1)

○ Misschien (2)

○ Ja, na mijn studie (3)

○ Ja, tijdens mijn studie (4)

○ Ja, ik ben al gestart (5)

IE2 Which type of business do you plan to start, or have you already started?

○ Without staff (a.k.a. self-employed) (1)

○ With a partner (a.k.a. partnership) (2)

○ With staff (E.g., A Limited Liability Company or Corporation) (3)

IE2 Welke bedrijfsvorm heb je in gedachten, of ben je al gestart?

○ Zelfstandige ZONDER personeel (ook wel ZZPer genoemd) (1)

○ Vennootschap onder firma (ook wel vof genoemd, het is een partnerschap met meerdere eigenaren) (2)

○ Zelfstandige MET personeel (de belangrijkste eigenschap is dat je mensen in dienst hebt en eigenaar bent) (3)

Page Break

SD1
Do you experience study delay?

○ Yes (1)

○ Maybe (2)

○ No (3)

SD1 Ervaar je studie vertraging?

○ ja (1)

○ Misschien (2)

○ Nee (3)

Page Break

SD2
Not mandatory
Could you please explain whether your business is the reason for your study delay? Your answer can provide valuable information for your study experience in the future.

SD2
Niet verplicht

Kun je uitleggen of je bedrijf de reden is van je studievertraging? Jouw informatie kan belangrijk zijn om ons onderwijs aan te passen op jouw situatie.

IE3 Below you can find four statements that again inquire about your entrepreneurial intention.

	Fully Disagree			**Fully Agree**	
	0	25	50	75	100
I never see myself becoming an entrepreneur. ()					
I have considered becoming an entrepreneur one day. ()					
When the opportunity arises, I will become an entrepreneur. ()					
I have never given the start-up of an enterprise much thought. ()					
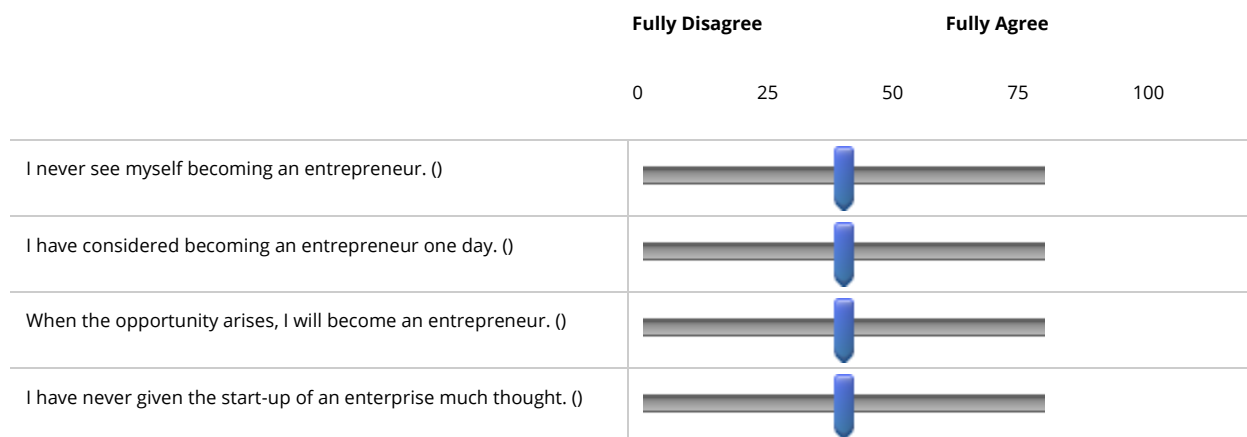
IE3 Hieronder tref je vier stellingen aan die opnieuw vragen naar je ondernemersintentie.

	Volledig mee oneens			**Volledig mee eens**	
	0	25	50	75	100
Ik zie mezelf nooit ondernemer worden. ()					
Ik heb overwogen om ooit ondernemer te worden. ()					
Als de gelegenheid zich voordoet, zal ik ondernemer worden. ()					
Ik heb nooit veel nagedacht over het opstarten van een onderneming. ()					
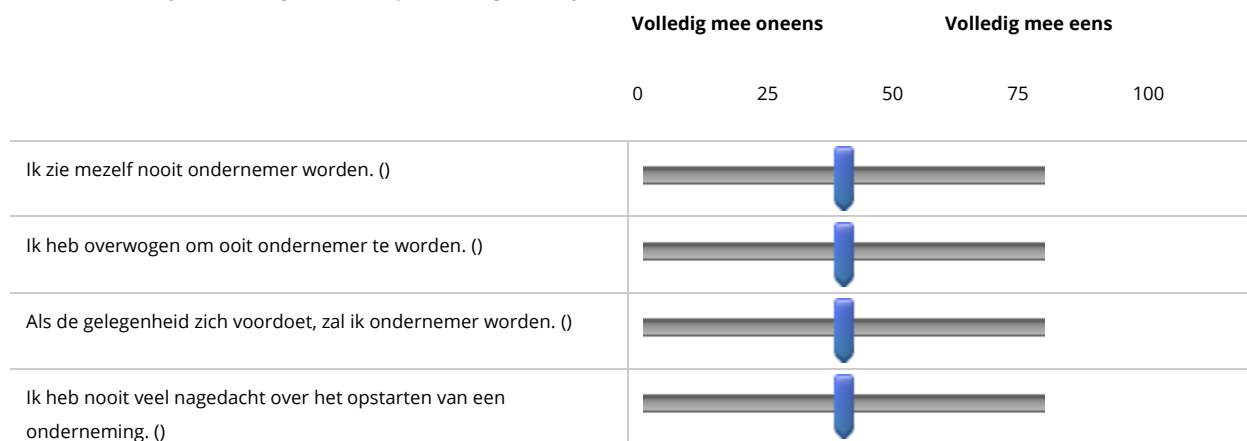
Domain In what field or domain do you plan to work or operate?

○ Games (1)

○ Media (2)

○ Hotel (3)

○ Facility (4)

○ Built environment (5)

○ Logistics (6)

○ Tourism (7)

○ Leisure and Events (8)

○ Other (9) _____

Domain Op welk gebied of in welk domein ben je van plan te gaan werken of actief te zijn?

○ Games (1)

○ Media (2)

○ Hotel (3)

○ Facility (4)

○ Built environment (5)

○ Logistiek (6)

○ Tourisme (7)

○ Leisure & Events (8)

○ Ander domein (9) _____

EntEdu **BUas as a place to hone your entrepreneurial skills and knowledge**

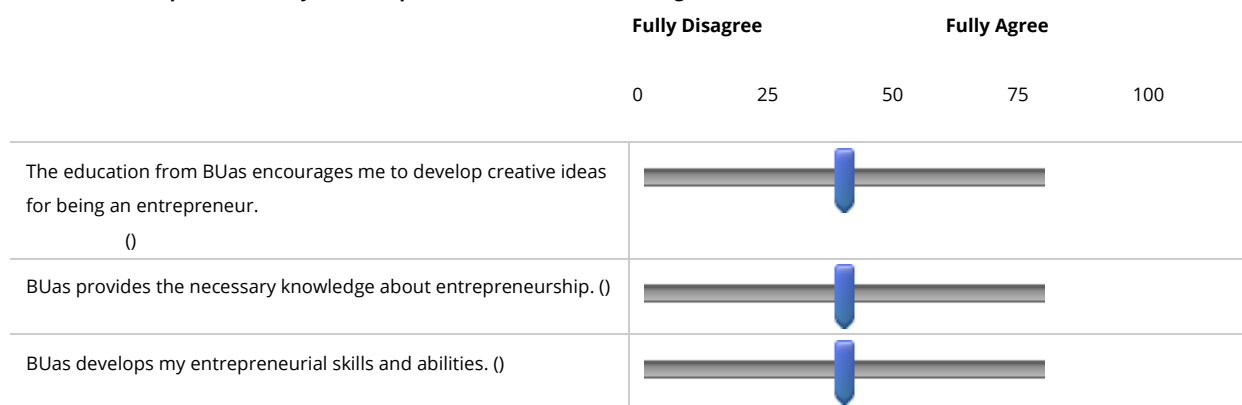|	Fully Disagree		Fully Agree	
	0 25	50	75	100
The education from BUas encourages me to develop creative ideas for being an entrepreneur. ()				
BUas provides the necessary knowledge about entrepreneurship. ()				
BUas develops my entrepreneurial skills and abilities. ()				

EntEdu **BUas als plek om je ondernemerschapsvaardigheden te ontwikkelen**

	Volledig mee oneens		Volledig mee eens	
	0 25	50	75	100
Het onderwijs van BUas stimuleert mij om creatieve ideeën voor ondernemerschap te ontwikkelen. ()				
BUas verschaft de nodige kennis over ondernemerschap. ()				
BUas ontwikkelt mijn ondernemersvaardigheden en -capaciteiten. ()				
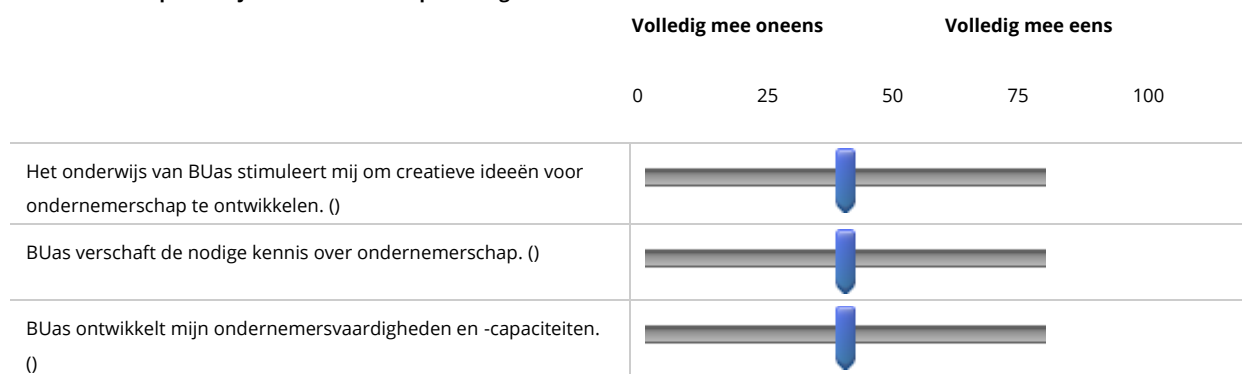
Page Break

EntEdu_o *Not mandatory*

 BUas aims to support students who have the intention to start a business or have already started one. Here you can post your thoughts and ideas that can help BUas achieve this ambition.

EntEdu_o

Niet verplicht

BUas wil studenten ondersteunen die de intentie hebben een bedrijf te starten of dat al hebben gedaan. Hier kunt jij je gedachten en ideeën kwijt die de BUas kunnen helpen deze ambitie te verwezenlijken.

End of Block: BUas as an educational setting stimulating and supporting entrepreneurial educat

Start of Block: Entrepreneurship within a respondents' network

Network1

Entrepreneurship in your own network

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Within my network I find role models (examples) of entrepreneurship in the following person(s):

☐   Father (1)

☐   Mother (2)

☐   Sibling (3)

☐   Other relative (4)

☐   Friend (5)

☐   Teacher (6)

☐   Other non-relative (7)

☐   None (8)

Network1 **Ondernemerschap in je eigen netwerk**

Binnen mijn netwerk tref ik voorbeelden (rolmodellen) van ondernemerschap bij de volgende personen:

☐   Vader (1)

☐   Moeder (2)

☐   Broer en/of zus (3)

☐   Ander familielid (4)

☐   Vriend (5)

☐   Leraar (6)

☐   Ander niet verwant (7)

☐   Geen (8)

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Network2 Should I decide to start a business, I would find support within my network from the following person(s):

- ☐ Father (1)
- ☐ Mother (2)
- ☐ Sibling (3)
- ☐ Other relative (4)
- ☐ Friend (5)
- ☐ Teacher (6)
- ☐ Other non-relative (7)
- ☐ None (8)

Network2 Mocht ik besluiten een onderneming te starten, dan zou ik binnen mijn netwerk bij de volgende personen steun kunnen vinden:

- ☐ Vader (1)
- ☐ Moeder (2)
- ☐ Broer en/of zus (3)
- ☐ Ander familielid (4)
- ☐ Vriend (5)
- ☐ Leraar (6)
- ☐ Ander niet verwant (7)
- ☐ Geen (8)

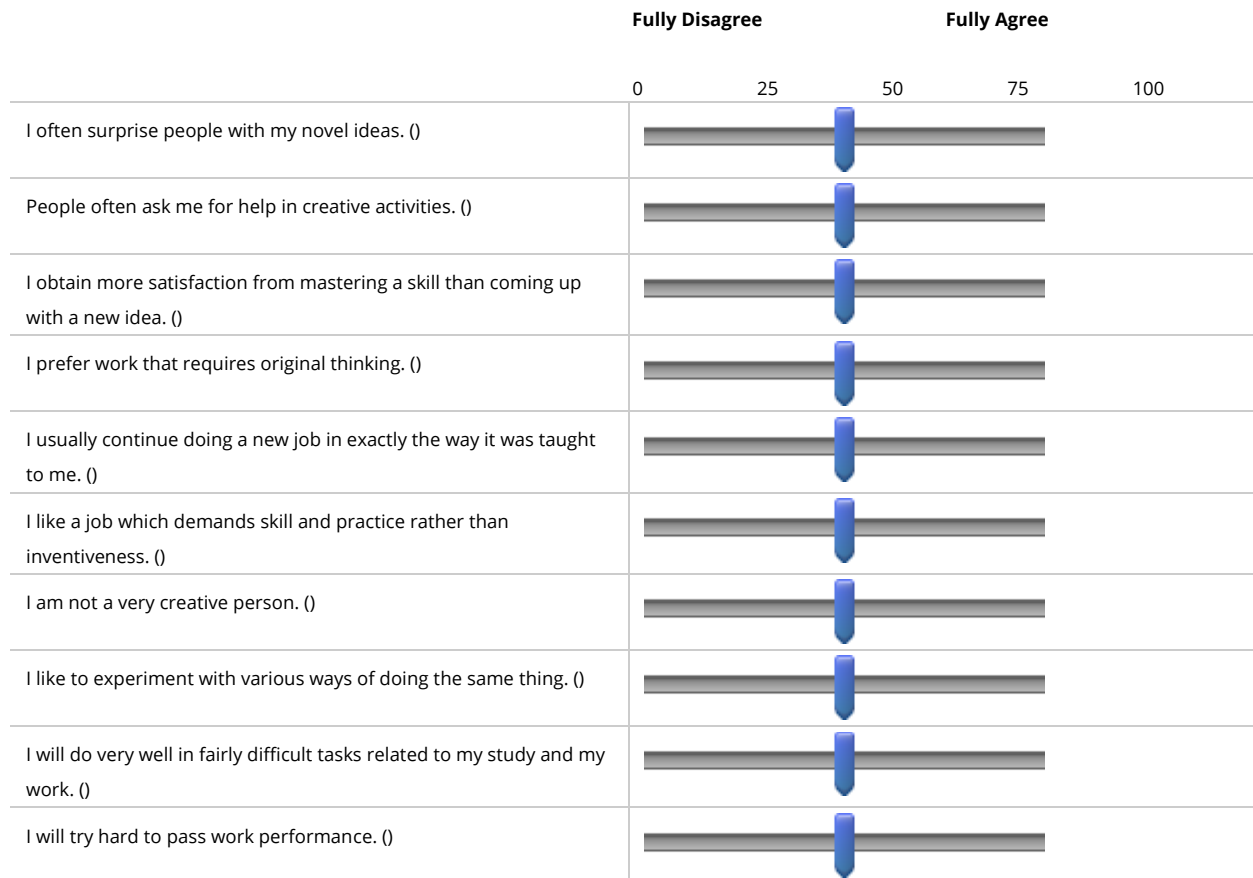End of Block: Entrepreneurship within a respondents' network

Start of Block: Personality Traits

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Pers

Career related personality traits

The statements below are presented in a random order and measure a diversity of career related personality traits. Your *innovativeness*, your *need for achievement*, your *alertness*, how important you think luck is for reaching goals and the extent to which you are *risk aversive*.

	Fully Disagree		**Fully Agree**	
	0 25 50 75 100			
I often surprise people with my novel ideas. ()				
People often ask me for help in creative activities. ()				
I obtain more satisfaction from mastering a skill than coming up with a new idea. ()				
I prefer work that requires original thinking. ()				
I usually continue doing a new job in exactly the way it was taught to me. ()				
I like a job which demands skill and practice rather than inventiveness. ()				
I am not a very creative person. ()				
I like to experiment with various ways of doing the same thing. ()				
I will do very well in fairly difficult tasks related to my study and my work. ()				
I will try hard to pass work performance. ()				

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Statement	
I will seek added responsibilities in jobs assigned to me. ()	
I will try to perform better than my friends. ()	
I read news, magazines, or trade publications regularly to start my own business. ()	
I do not think about work-related matters in my free time to start my own business. ()	
I think about work-related matters even during my holidays to start my own business. ()	
I think about new business ideas in my free time to start my own business. ()	
My success depends on whether I am lucky enough to be in the right place at the right time. ()	
To a great extent my life is controlled by accidental happenings. ()	
When I get what I want, it is usually because I am lucky. ()	
My life is determined by my own actions. ()	
When I get what I want, it is usually because I worked hard for it. ()	
It is not wise for me to plan too far ahead, because things turn out to be a matter of bad fortune. ()	
Whether or not I am successful in life depends mostly on my ability. ()	
I feel that what happens in my life is mostly determined by people in powerful positions. ()	
I feel in control of my life. ()	
Success in business is mostly a matter of luck. ()	
I do not feel comfortable about taking chances. ()	
I prefer situations that have foreseeable outcomes. ()	
Before I make a decision, I like to be absolutely sure how things will turn out. ()	
I avoid situations that have uncertain outcomes. ()	
Fear of failure is a barrier for me. ()	

Pers NB! Als je niet van plan bent een bedrijf te starten, kun je ook denken aan een ander doel dat je zou willen bereiken.

Volledig mee oneens   Volledig mee eens

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	0	25	50	75	100

Ik verras mensen vaak met mijn nieuwe ideeën. ()

Mensen vragen me vaak om hulp bij creatieve activiteiten. ()

Ik haal meer voldoening uit het beheersen van een vaardigheid dan uit het bedenken van een nieuw idee. ()

Ik geef de voorkeur aan werk dat origineel denkwerk vereist. ()

Ik blijf nieuw werk meestal precies zo doen zoals het me is aangeleerd. ()

Ik hou van een baan die meer vaardigheid en oefening vereist dan het verzinnen van nieuwe oplossingen. ()

Ik ben geen erg creatief persoon. ()

Ik experimenteer graag om op verschillende manieren hetzelfde te doen. ()

Ik zal redelijk moeilijke taken goed uit kunnen voeren als ze passen bij mijn studie en mijn werk. ()

Ik zal goed mijn best doen om de afspraken met mijn werkgever te behalen. ()

Ik zal proberen meer verantwoordelijkheden te krijgen in taken die aan mij zijn toegewezen. ()

Ik zal proberen beter te presteren dan mijn vrienden. ()

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Ik lees regelmatig nieuws, tijdschriften of vakpublicaties om mijn eigen zaak te beginnen. ()	
Ik denk in mijn vrije tijd niet aan werkgerelateerde zaken om mijn eigen zaak op te starten. ()	
Ik denk zelfs tijdens mijn vakantie aan werkgerelateerde zaken om mijn eigen zaak te beginnen. ()	
Ik denk in mijn vrije tijd na over nieuwe zakelijke ideeën om mijn eigen zaak te beginnen. ()	
Mijn succes hangt af van de vraag of ik het geluk heb op het juiste moment op de juiste plaats te zijn. ()	
Mijn leven wordt voor een groot deel bepaald door toevallige gebeurtenissen. ()	
Als ik krijg wat ik wil, is dat meestal omdat ik geluk heb. ()	
Mijn leven wordt bepaald door mijn eigen daden. ()	
Als ik krijg wat ik wil, is dat meestal omdat ik er hard voor gewerkt heb. ()	
Het is niet verstandig voor mij om te ver vooruit te plannen, omdat dingen een kwestie van pech blijken te zijn. ()	
Of ik al dan niet succes heb in het leven hangt vooral af van mijn kunnen. ()	
Ik heb het gevoel dat wat er in mijn leven gebeurt vooral bepaald wordt door mensen op machtige posities. ()	
Ik heb het gevoel dat ik controle heb over mijn leven. ()	
Succes in zaken is vooral een kwestie van geluk. ()	
Ik voel me niet op mijn gemak bij het nemen van risico's. ()	
Ik geef de voorkeur aan situaties met een voorspelbare uitkomst. ()	
Voordat ik een beslissing neem, wil ik er absoluut zeker van zijn hoe de dingen zullen aflopen. ()	
Ik vermijd situaties met onzekere uitkomsten. ()	
Faalangst is een barrière voor mij. ()	

End of Block: Personality Traits

Start of Block: Post-survey Preferences

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Pref **Post survey options**

Feel free to tick as many of the below boxes as you like.

☐　　　I would like to have a chance to win an "avondje NAC" (Main stage seats during the football match, dinner, and drinks for you and your invitee). (1)

☐　　　I would like to be able to compare myself to other BUas Students. (2)

☐　　　I would like to be informed about the results of this study. (3)

☐　　　I would like add more information about the answers I have provided. (4)

Pref
Post enquête opties

Voel je vrij om zoveel van de onderstaande vakjes aan te kruisen als je wilt.

☐　　　Ik zou graag kans maken op een VIP-arrangement bij een avondje NAC (inclusief diner, etc.). (1)

☐　　　Ik zou mezelf graag willen kunnen vergelijken met andere BUas-studenten. (2)

☐　　　Ik zou graag op de hoogte worden gehouden van de resultaten van dit onderzoek. (3)

☐　　　Ik wil graag nog iets toevoegen aan de antwoorden die ik heb gegeven. (4)

Display This Question:

If Pref = I would like add more information about the answers I have provided.

Pref_o
Not mandatory
Here you can provide additional information about the answers you have provided.
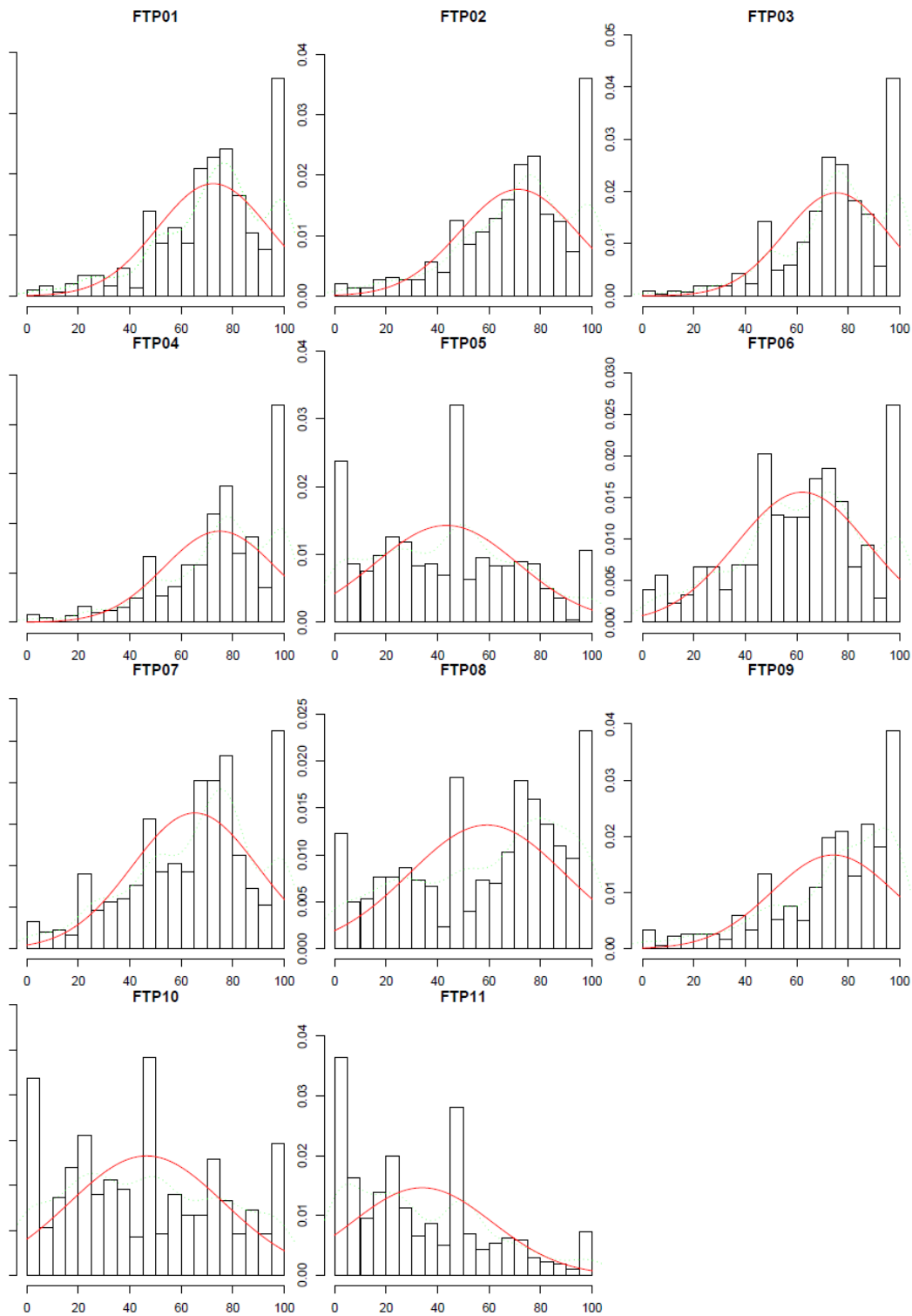
Pref_o
Niet verplicht
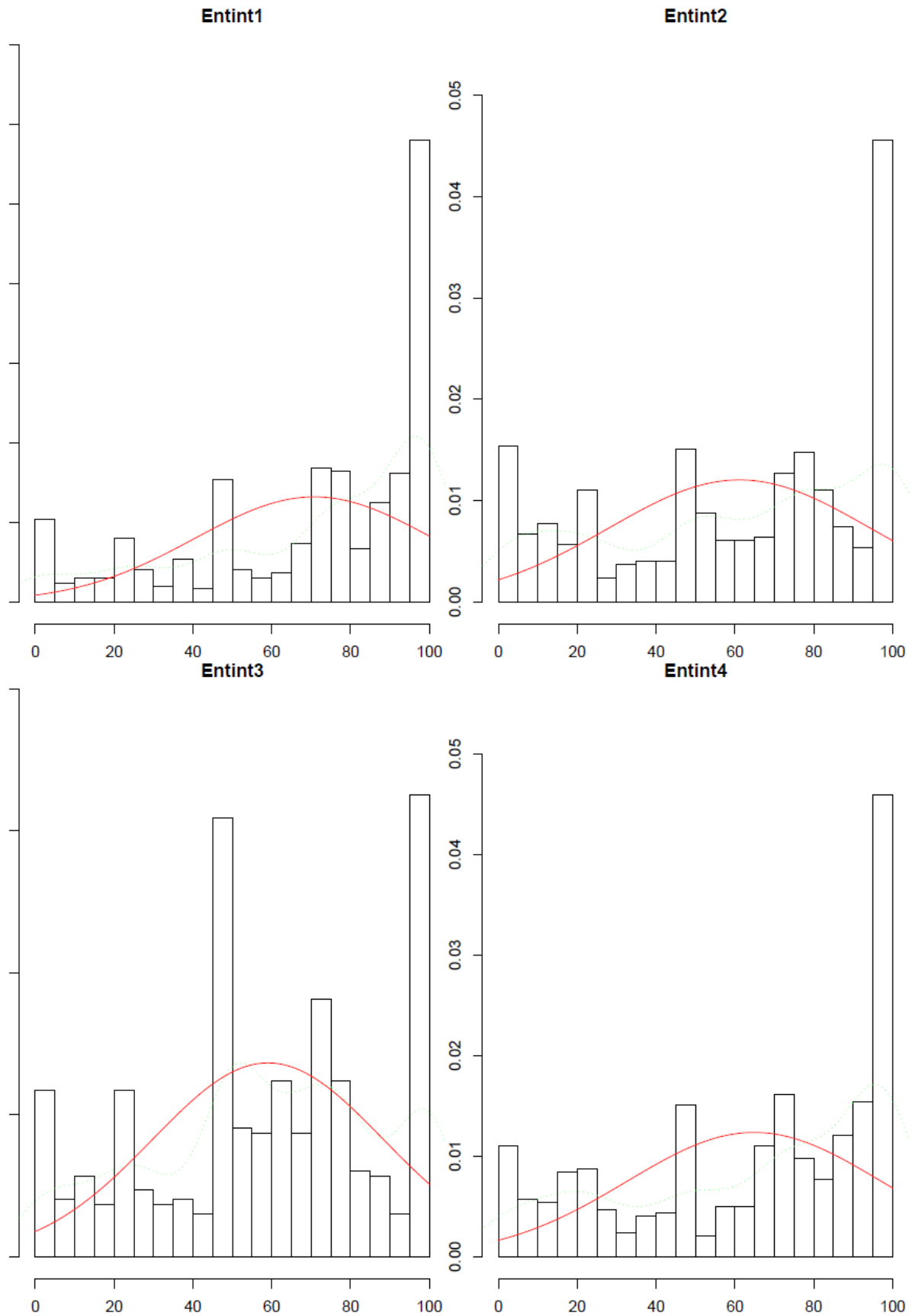Je kunt hieronder meer informatie geven over je gedachten en de antwoorden die je hebt gegeven.
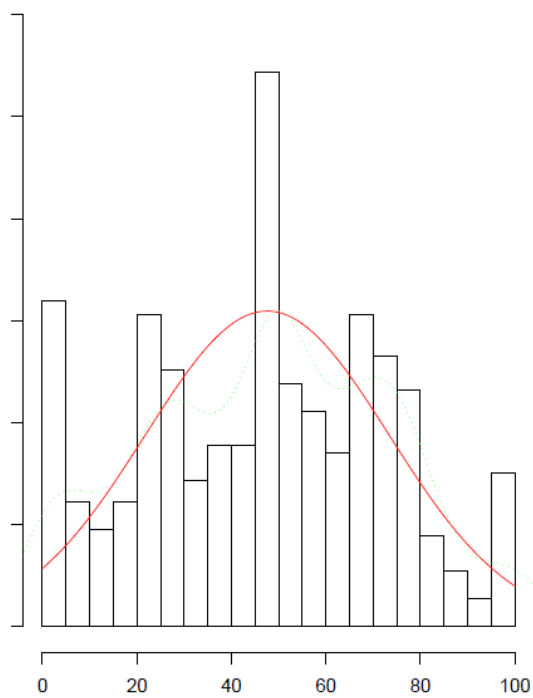
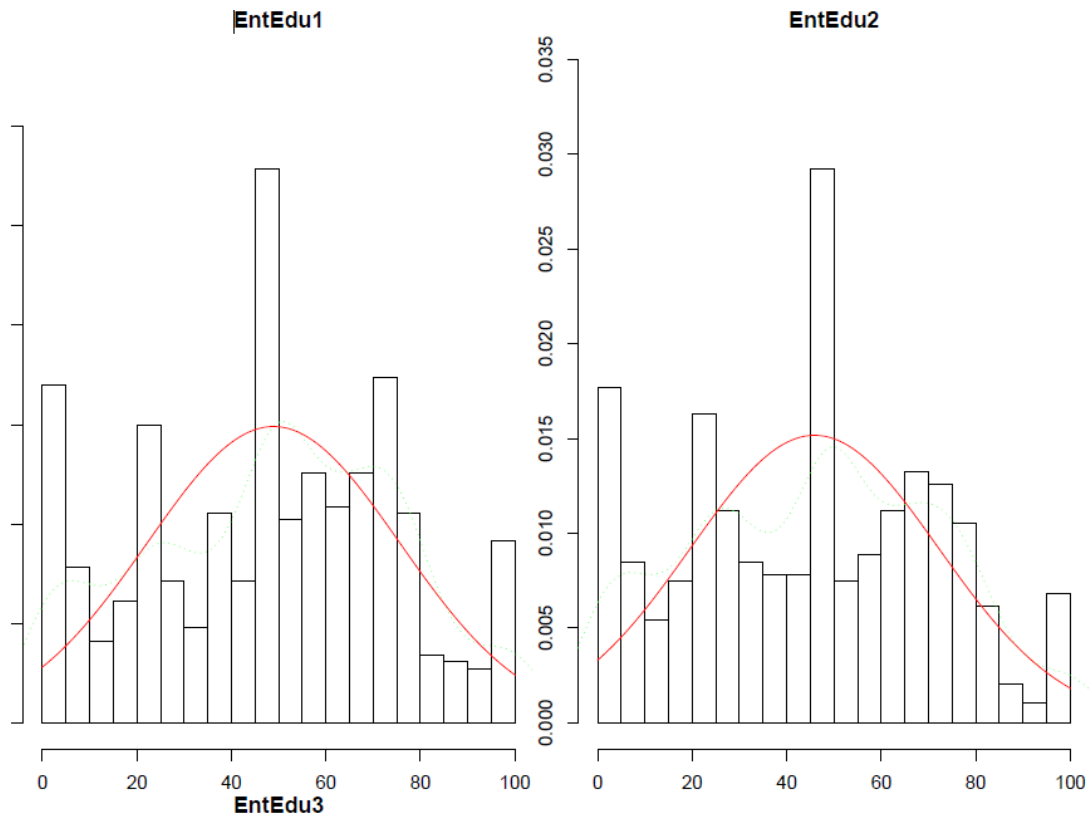**End of Block: Post-survey Preferences**

Appendix B – Histograms

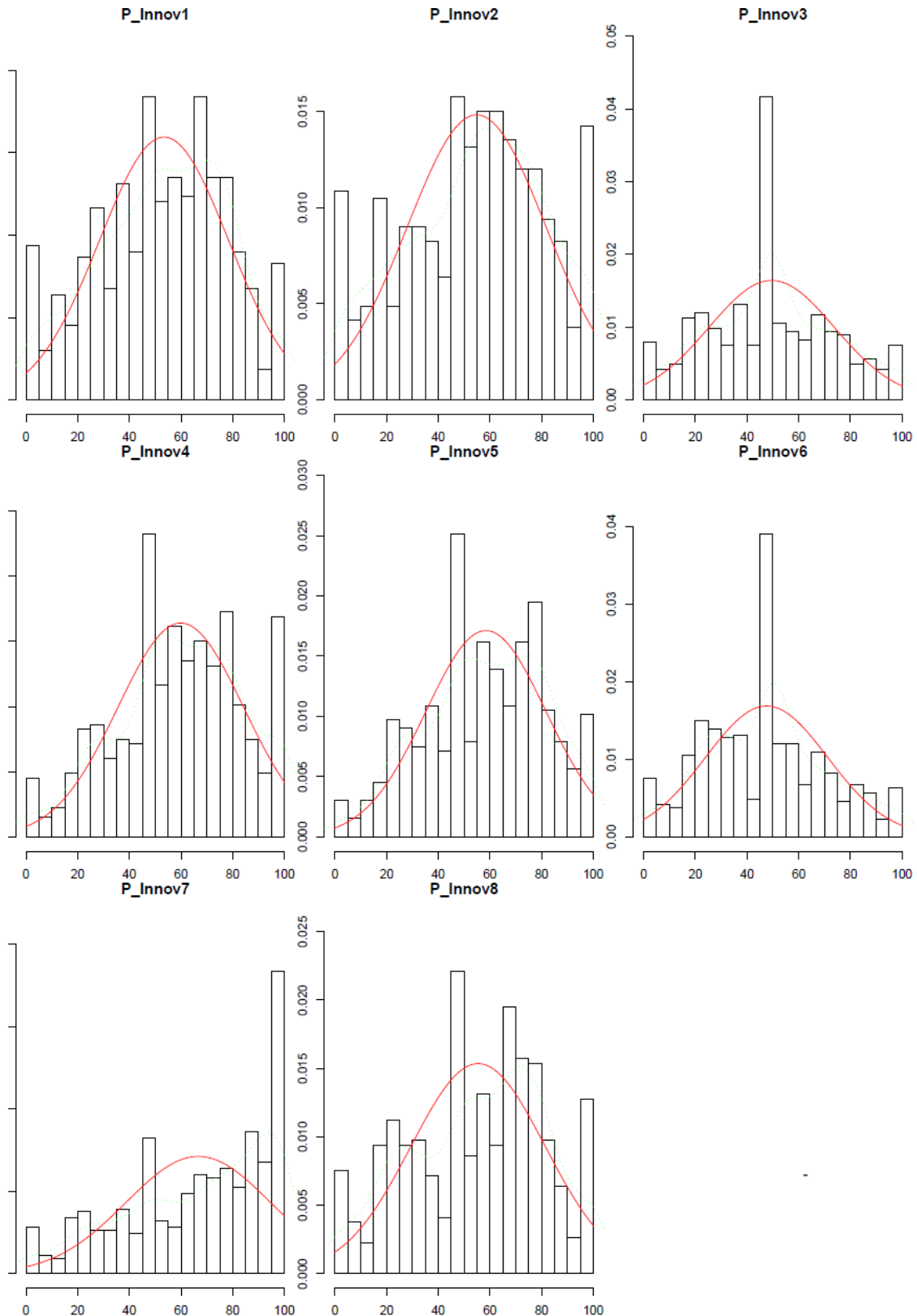*Future Time perspective + Covid related 11th question*
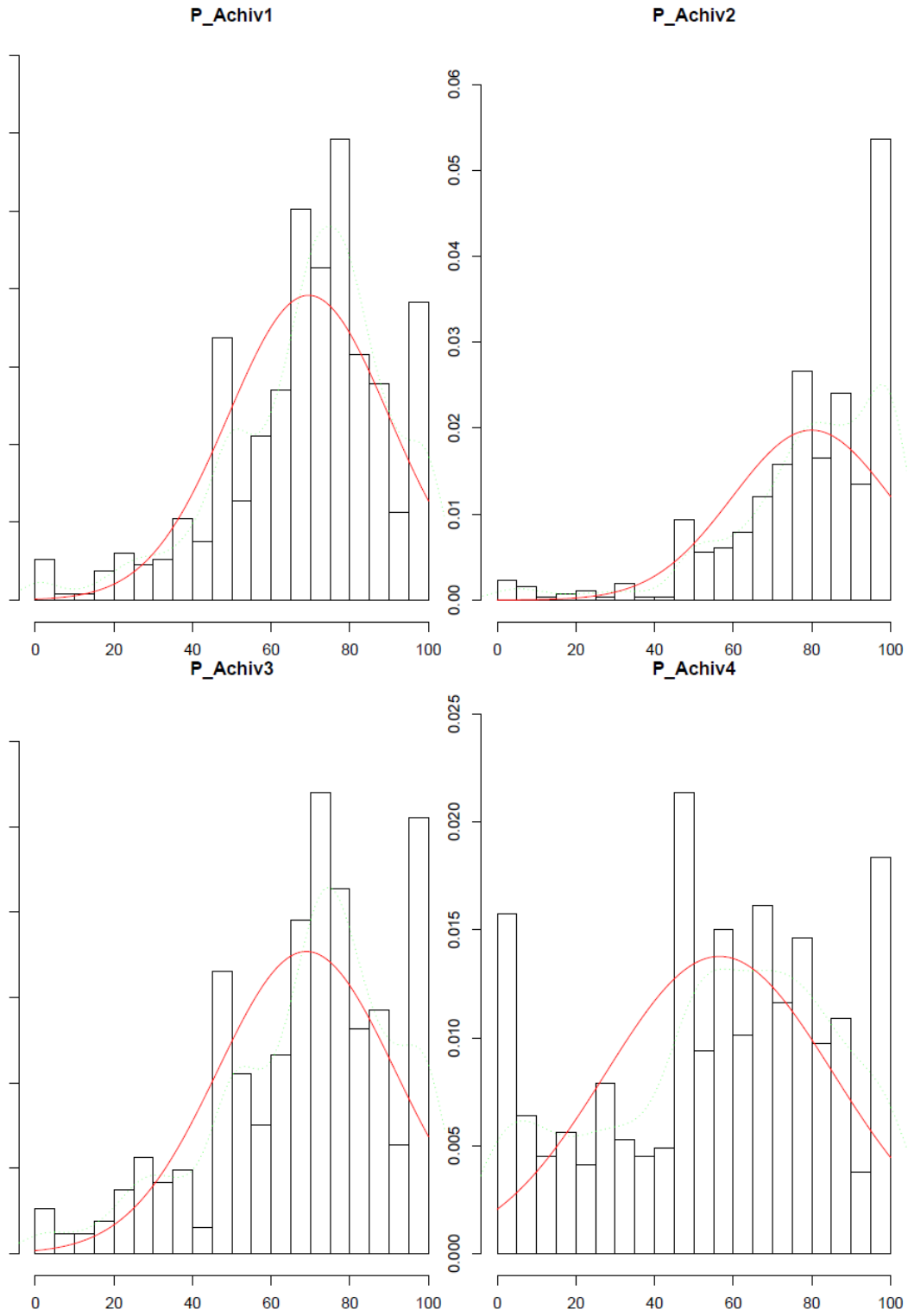
Appendix C – Output Initial EFA

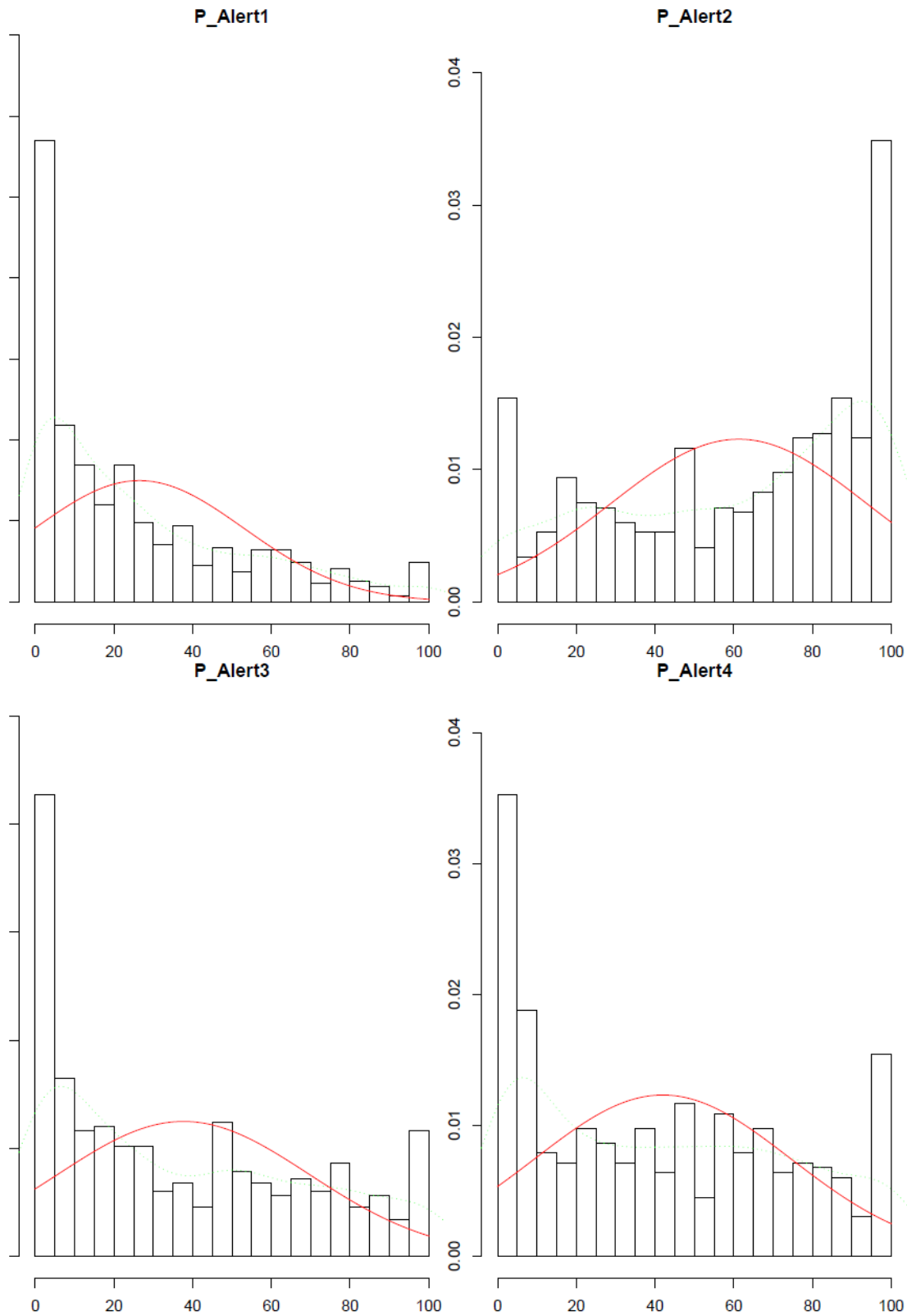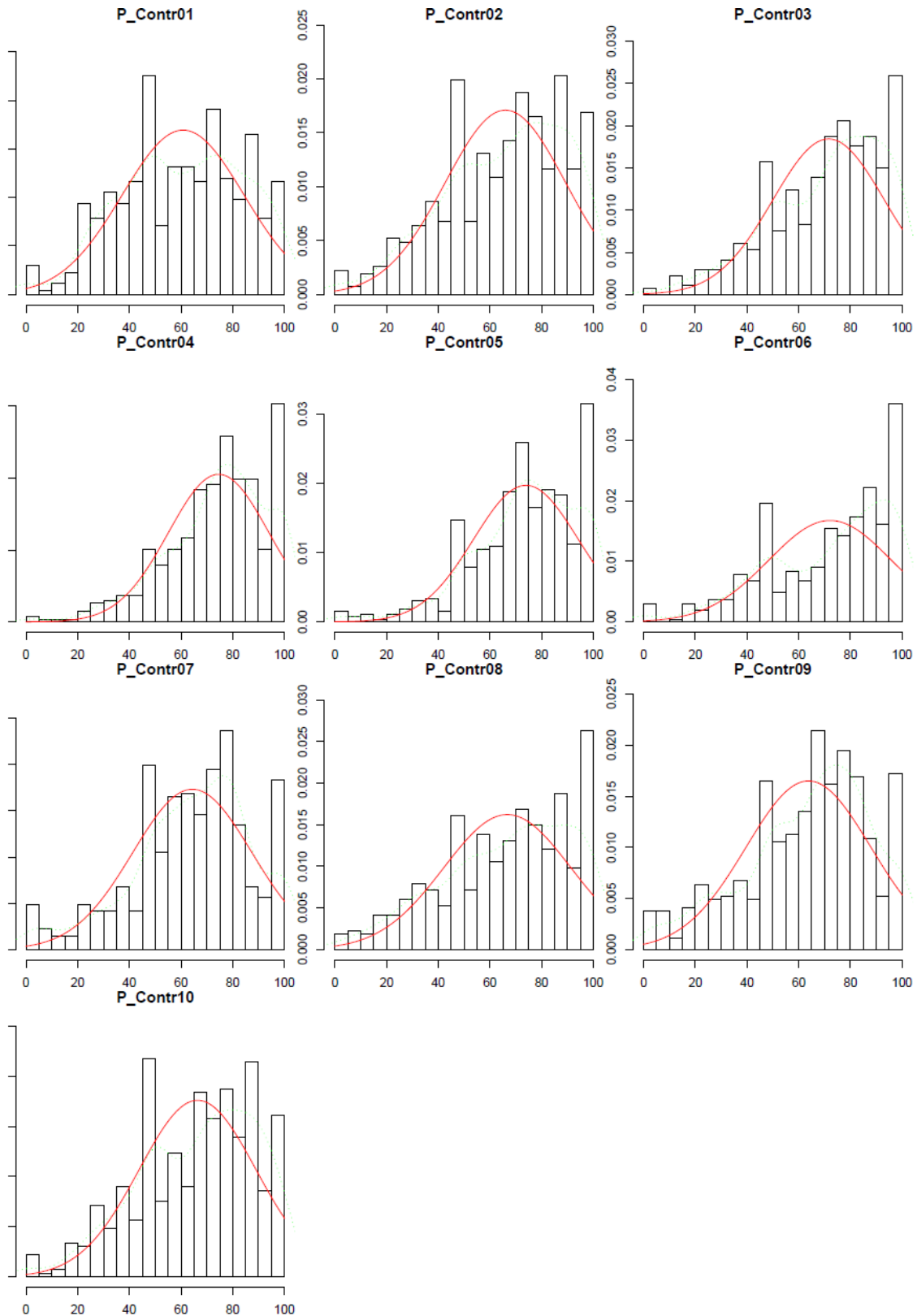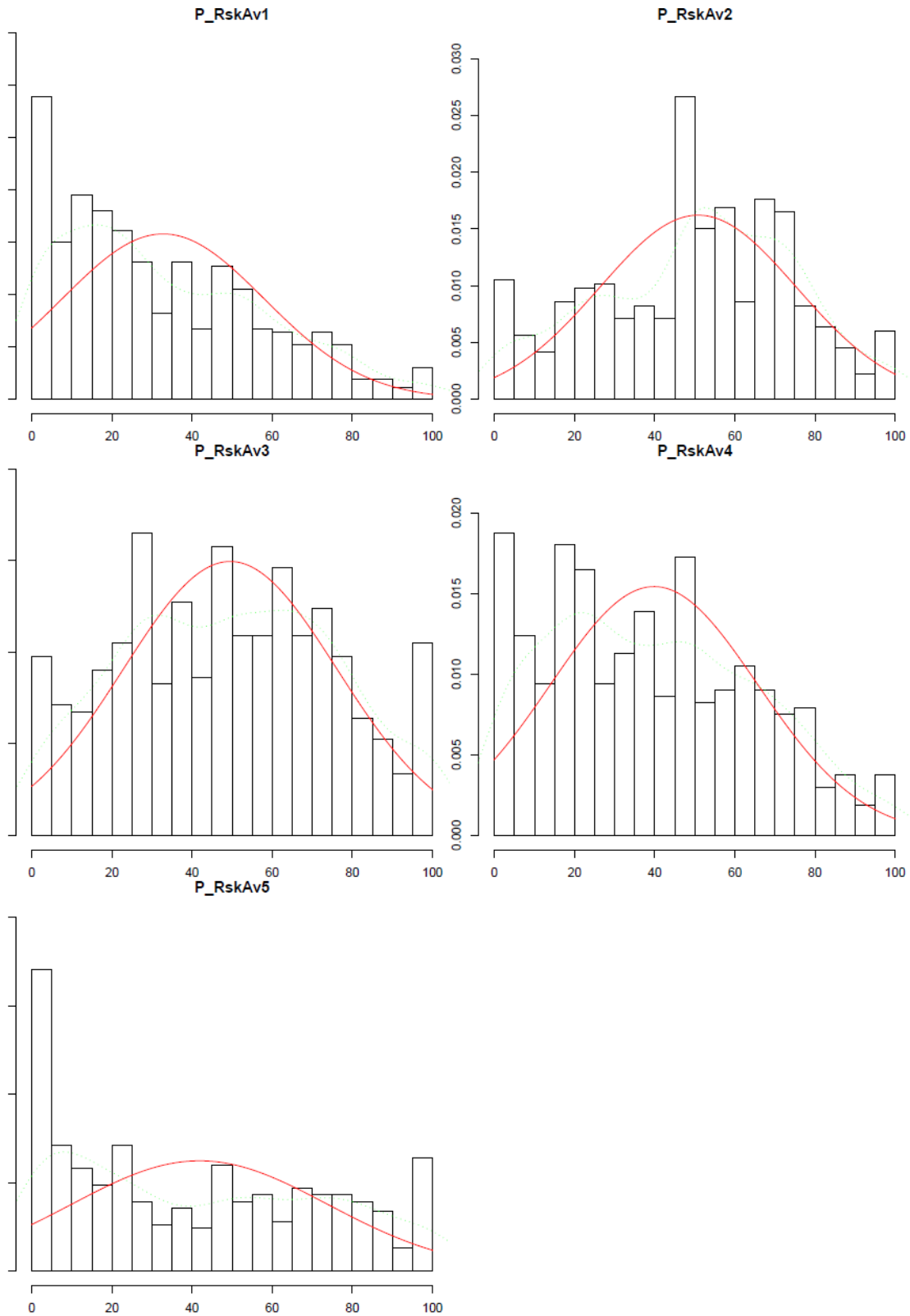*Factor Analysis using method = principal axis factoring with oblique rotation*

```
Standardized loadings (pattern matrix) based upon correlation matrix
          item   PA2   PA1   PA3   PA4   PA5   PA6   PA7   h2   u2 com
P_RskAv4   37   0.75 -0.02  0.02  0.02 -0.10 -0.08 -0.01 0.61 0.39 1.1
P_RskAv2   35   0.72 -0.07 -0.04  0.01 -0.04  0.07  0.07 0.57 0.43 1.1
P_RskAv3   36   0.71  0.00 -0.01  0.05 -0.01  0.03  0.02 0.51 0.49 1.0
P_RskAv1   34   0.54 -0.21 -0.08 -0.01 -0.02  0.00 -0.03 0.45 0.55 1.3
P_RskAv5   38   0.54  0.05 -0.02 -0.07  0.16 -0.06 -0.18 0.32 0.68 1.5
P_Innov5   14  -0.32  0.14  0.10 -0.14  0.17 -0.11 -0.12 0.25 0.75 3.4
Entint2     5   0.03  0.79 -0.03  0.03  0.05  0.03  0.09 0.72 0.28 1.0
Entint1     4  -0.10  0.75  0.04 -0.01 -0.02  0.03 -0.05 0.59 0.41 1.1
Entint3     6  -0.05  0.66 -0.07  0.08 -0.05  0.06  0.20 0.65 0.35 1.3
Entint4     7  -0.04  0.65  0.12  0.04 -0.03 -0.08  0.11 0.57 0.43 1.2
P_Contr03  26   0.07  0.15  0.69 -0.04  0.03  0.06 -0.10 0.53 0.47 1.2
P_Contr01  24  -0.03 -0.07  0.69 -0.02 -0.01 -0.01  0.01 0.47 0.53 1.0
P_Contr02  25  -0.01 -0.08  0.62  0.03 -0.07 -0.02  0.14 0.39 0.61 1.2
P_Contr10  27  -0.11  0.02  0.60  0.05 -0.04  0.08 -0.02 0.44 0.56 1.1
P_Contr06  32  -0.21  0.00  0.41 -0.03 -0.06  0.01  0.10 0.29 0.71 1.7
P_Contr08  33  -0.16  0.03  0.37  0.05 -0.06  0.01 -0.03 0.21 0.79 1.5
EntEdu3     3   0.00  0.03  0.00  0.89  0.00  0.01 -0.01 0.81 0.19 1.0
EntEdu2     2   0.00 -0.05 -0.02  0.85 -0.04 -0.02  0.00 0.70 0.30 1.0
EntEdu1     1   0.06  0.07  0.01  0.76  0.11 -0.01 -0.04 0.61 0.39 1.1
P_Innov2    9  -0.03 -0.02 -0.06  0.08  0.72  0.05  0.05 0.56 0.44 1.1
P_Innov1    8  -0.09 -0.01 -0.04  0.09  0.58  0.12  0.21 0.52 0.48 1.5
P_Innov4   10  -0.01  0.01 -0.08 -0.05  0.56  0.18  0.06 0.38 0.62 1.3
P_Innov7   11   0.00  0.05  0.12  0.00  0.56 -0.15 -0.08 0.33 0.67 1.3
P_Innov8   13  -0.11  0.06 -0.08 -0.03  0.41  0.23  0.10 0.31 0.69 2.0
P_Innov3   12  -0.25  0.08  0.11 -0.01  0.37 -0.33  0.04 0.40 0.60 3.1
P_Achiv3   18  -0.08  0.09  0.00  0.05  0.12  0.59 -0.10 0.39 0.61 1.3
P_Contr04  28  -0.18 -0.09  0.17  0.05  0.01  0.49  0.10 0.36 0.64 1.7
P_Contr05  29   0.16  0.09  0.32  0.01  0.13  0.48  0.01 0.44 0.56 2.3
P_Achiv1   16   0.00  0.05  0.06  0.03  0.19  0.46  0.04 0.31 0.69 1.4
P_Achiv2   17   0.02  0.06  0.19  0.05 -0.01  0.45 -0.12 0.28 0.72 1.6
P_Innov6   15  -0.08 -0.10  0.16 -0.01  0.40 -0.42  0.02 0.34 0.66 2.5
P_Contr07  30   0.22  0.10  0.00 -0.04  0.10  0.40  0.02 0.23 0.77 1.9
P_Contr09  31  -0.24 -0.13  0.18  0.19 -0.10  0.37  0.22 0.37 0.63 4.2
P_Achiv4   19   0.22 -0.05  0.01 -0.09  0.11  0.35  0.25 0.26 0.74 3.0
P_Alert3   21   0.02  0.12  0.00 -0.08  0.10  0.03  0.70 0.63 0.37 1.1
P_Alert4   22   0.02  0.27  0.06  0.02  0.07 -0.06  0.66 0.75 0.25 1.4
P_Alert1   20  -0.03  0.01 -0.08  0.05  0.00 -0.01  0.63 0.42 0.58 1.0
P_Alert2   23  -0.06  0.23  0.16  0.01  0.02 -0.10  0.38 0.36 0.64 2.3


                      PA2  PA1  PA3  PA4  PA5  PA6  PA7
SS loadings           2.93 2.80 2.56 2.26 2.32 2.24 2.22
Proportion Var        0.08 0.07 0.07 0.06 0.06 0.06 0.06
Cumulative Var        0.08 0.15 0.22 0.28 0.34 0.40 0.46
Proportion Explained  0.17 0.16 0.15 0.13 0.13 0.13 0.13
Cumulative Proportion 0.17 0.33 0.48 0.61 0.74 0.87 1.00


 With factor correlations of
      PA2   PA1   PA3  PA4   PA5  PA6   PA7
PA2  1.00 -0.25 -0.34 0.00 -0.22 0.06 -0.16
PA1 -0.25  1.00  0.24 0.17  0.24 0.09  0.55
PA3 -0.34  0.24  1.00 0.05  0.05 0.17  0.07
PA4  0.00  0.17  0.05 1.00  0.07 0.18  0.14
PA5 -0.22  0.24  0.05 0.07  1.00 0.09  0.26
PA6  0.06  0.09  0.17 0.18  0.09 1.00  0.17
PA7 -0.16  0.55  0.07 0.14  0.26 0.17  1.00
```

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Appendix D – A closer look at the Entrepreneurial traits-scales

Table 13 Entrepreneurial Personality-traits item comparison

Item #	Question
Innovativeness	
P_Innov1	I often surprise people with my novel ideas.
P_Innov2	People often ask me for help in creative activities.
P_Innov3	I obtain more satisfaction from mastering a skill than coming up with a new idea. [-]
P_Innov4	I prefer work that requires original thinking.
P_Innov5	I usually continue doing a new job in exactly the way it was taught to me. [-]
P_Innov6	I like a job which demands skill and practice rather than inventiveness. [-]
P_Innov7	I am not a very creative person. [-]
P_Innov8	I like to experiment with various ways of doing the same thing.
Need for Achievement	
P_Achiv1	I will do very well in fairly difficult tasks related to my study and my work.
P_Achiv2	I will try hard to pass work performance.
P_Achiv3	I will seek added responsibilities in jobs assigned to me.
P_Achiv4	I will try to perform better than my friends.
Entrepreneurial Alertness	
P_Alert1	I read news, magazines, or trade publications regularly to start my own business.
P_Alert2	I do not think about work-related matters in my free time to start my own business. [-]
P_Alert3	I think about work-related matters even during my holidays to start my own business.
P_Alert4	I think about new business ideas in my free time to start my own business.
Locus of Control	
P_Contr01	My success depends on whether I am lucky enough to be in the right place at the right time. [-]
P_Contr02	To a great extent my life is controlled by accidental happenings. [-]
P_Contr03	When I get what I want, it is usually because I am lucky. [-]
P_Contr04	My life is determined by my own actions.
P_Contr05	When I get what I want, it is usually because I worked hard for it.
P_Contr06	It is not wise for me to plan too far ahead, because things turn out to be a matter of bad fortune. [-]
P_Contr07	Whether or not I am successful in life depends mostly on my ability.
P_Contr08	I feel that what happens in my life is mostly determined by people in powerful positions. [-]
P_Contr09	I feel in control of my life.
P_Contr10	Success in business is mostly a matter of luck. [-]
Risk Aversion	
P_RskAv1	I do not feel comfortable about taking chances.
P_RskAv2	I prefer situations that have foreseeable outcomes.
P_RskAv3	Before I make a decision, I like to be absolutely sure how things will turn out.
P_RskAv4	I avoid situations that have uncertain outcomes.
P_RskAv5	Fear of failure is a barrier for me.

Note. Greyed out text implies that the item has been removed from the original scale.

Appendix E – Answers to open question about the domain students intend to work in.

Table 14 Answers to the open 'other' question related to the question about the domain students intend to work in after their studies

education

Development / Sustainable transitions

Services (consultancy)Marketing

Marketing

Retail / e-commerce

Wine & Spirits

Leisure & Events and also in E-commerce. Want to keep both

Media and retail

Real estate

Hospitality family business in the holiday industry

Business, MNE, interior/architecture

Hospitality

Either tourism or leisure & events

Content producer (media)

Cultural/Educational sector

Project management and green environments

Media meets graphic design / (and very much out of the blue; real estate)

Automotive

I am still finding out what suits me best

Fashion

Do not know yet, leisure and events is an options but there are more possibilities

Most likely clothing brand and maybe something media-related as well

Defence: Army

Theme park management

No specific plan

Sport

Tech

No idea yet

Beauty branch

International Development

Tourism, Personal development, wellness etc.

Logistics & Marketing

Real Estate

Education

Marketing & Communication in general

Combination of hotel, tourism, leisure and events

Hospitality

Marketing (geen specifieke voorkeur voor sector)

Culture/Museums

Management or HR

Real estate

Barbecue boxes

not sure where I'll end up yet

Not sure yet

Don't know yet

Lifestyle

International development / politics

ICT

Restaurant

Marketing

Esports

Events and hospitality

Hospitality

I don't know yet

Marketing

Mental health-traveling

No idea yet.

Real estate

Commercial / Sales

Marketing and public relations

Theme parks

Business economics / accountancy

Social sector, diversity, migration.

Can be L&E or F&B.

Retail

Probably tourism, but I am also open to other branches

Not sure yet

Appendix F – Answers to open question about Perceived Educational Support.

Table 15 Classification of answers through Sentiment clustering algorithm provided by MonkeyLearn including confidence (1 = very confident, 0 = very doubtful).

Feedback	*Conf.*
Negative	
Electives on entrepreneurship, legal systems, etc. would be a great place to start. I believe such courses have not been offered to me.	0.360
More finance related topics, investing and international communication classes should be in the programs.	0.384
More mentoring and advertisement about different entrepreneur programs at the university.	0.400
I think so far the tasks we have are so different from each other that it brings motivation and opens up ideas for different businesses. However, since this is not a business school I don't know anything about starting a company.	0.408
Help with paperwork to set up as a freelancer/entrepreneur - as an international this is the thing that's holding me back the most. Offer more financial support or extra courses clubs that help prepare ideation phase and connect with likeminded people.	0.464
PR, marketing	0.476
I'm not planning on starting a business until after I graduate. For starting a small hotel or a B&B, I need start-up capital. I do want to become a freelancer in the events sector alongside my studies, but unfortunately that is only possible after corona time.	0.489
Offer a specific resource/assistance for those entrepreneurs from outside the EU (there's also a whole mess of regulations to deal with in regards to this... which is my current reason for not acting. Too overwhelming)	0.503
I don't experience this myself, but I'm not looking for it either. Whatever is offered, I would impose it on students as compulsory material.	0.514
Help them get across the vision of a manager. This vision shares many of the same lessons, but an entrepreneur does not look at much this info comes less to the bot	0.541
During the graduation process, the possibility of carrying out one's own research (e.g. market research and a business plan) should also be considered. In my opinion, graduation can only be done at medium-sized or large companies. Start-up companies often do not have enough strategic goals for approval by the internship coordinator. While I think you can learn a lot with small companies because you can easily see the challenges within all facets of a company.	0.545
I personally think it is a good idea. I am disappointed that it is only now coming to light.	0.556
I do not know to what extent the BUas already supports this. I didn't pay any attention to it myself during my studies, so I didn't look for the support possibilities either.	0.557
uhm actually giving classes and actually talk about his	0.572
I am not planning on starting a business myself. But if I had wanted to, I think that very little is made known about how and what. Not even during a course or something. Maybe that is something for the future, that it becomes clear to students where they can find this information and support.	0.578
In the hotel department of BUas, BUas does not focus on the entrepreneurial side of the industry at all. The possibility of should be there if students want to follow this path.	0.592
Look more, be more open to new ideas and show this to the students. Show that the BUas wants to support new businesses by doing announcements about them or something that just makes it known for students.	0.596
Help earlier, stimulate teachers. I have the feeling that many teachers look away from this subject and don't want to burn their hands on it.	0.623
Seems like a good idea. Just don't lose sight of the students who aren't trying to open up their own business. I think there shouldn't be ?social pressure?. You're just as good if you want to work in as an employee :)!	0.638
Have no ambition	0.652
Look at the opportunities that arise, every business is different. the saying a start-up can only make a profit after 5 years is not true for every start-up.	0.740
I am not (yet) very concerned about whether I want to start my own business, so I do not pay much attention to whether BUAS helps me or can help me.	0.754
It is not up to me. I have no knowledge of this. In my opinion, entrepreneurship is somewhat indicated as an option when graduating from FM, but not more than that. In my opinion, there is a huge gap between this study and entrepreneurship. Starting your own business immediately after graduating from FM is nice, but based on what we learn, I don't think that's a promising option. That is more up to the student himself, who has an idea or knows how to tackle it.	0.790
More real assignments for real companies instead of fictitious assignments that do nothing.	0.792

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I am doing the WO study and here they give very little practical information (/little opportunity to get information) on how to start and manage your own business.	0.795
maybe it is handy if BUas lets you know more that this is an option	0.813
Good idea would be to create a place where BUas students can ask for help regarding law	0.830
My experience (in the international games programme) is that teachers encourage us students to get an internship at an already established company rather than pushing us to create our own businesses. That's fine with me, though	0.888
When I wanted to start my business, I was told by #REDACTED# that I was too ambitious and not realistic. He did not support my wish for entrepreneuring at all. Also, #REDACTED# was not supportive at all. I believe that the teachers of BUas should encourage entrepreneurship and offer help where needed. Also it would be nice to create an entrepreneurial environment where students can help each other out	0.908
Yes, the initiative is present but the support and guidance is hard to seek out and there is no clear path or contact for help and guidance or at least it was not very clear to me. I always felt very alone and confused as to what's next which is normal and I don't expect anyone to hold my hand but as a first year student at 18 or 19 better and clearer channels of guidance and steps to take would have helped more earlier on	0.909
It seems like BUas is very busy with wanting to help student start their own businesses when I receive these kinds of surveys, but when I study there I don't see this certain enthusiasm. I have recently started my own business, but I am not reached out/don't see where to go to get the entrepreneurial skills that are apparently taught.	0.911
Haven't noticed much of this in the last two years. In general, I find the personal guidance at the BUas very poor. You don't even have a kind of mentor in all the years who helps you with these kinds of issues.	0.923
They offer a course for starting up a business, unfortunately it doesn't mention what you need to show and hear at your "application" and they are pretty negative here	0.932
You shouldn't do just that. For me it felt like it was mainly only entrepreneur stuff, especially in year 3 (ITM), which really wasn't/ isn't any of my preferences for my future	0.933
TL;DR: FOCUS ON INNOVATION RATHER THAN BUSINESS. THIS LEADS TO PASSION WHICH IS THE CORE OF ENTREPRENEURSHIP #REDACTED# entrepreneurship course is not great. It is focussed mainly on the business side, BMC, pain-gain, financial plan, etc. Because this is something unrelated to the rest of our course the course is highly limited, e.g. 90% of the students make up 90% of the final assignments, learning little in the process. Turn the course around, instead of teaching business with a splice of innovation create a course focussed on innovation and development with a slice of business. Students will be more keen to internalize what they learn and adapt it to what they already know, becoming passionate with that. And passion is the core of entrepreneurship. Wanting change, shaping it, realizing it.	0.934
Focus on the people who really want it. During the Entrepreneurship course, you are expected to show some of your creativity in a group. I hate the idea of developing and doing something new, so forcing me to be creative is a waste of energy and only leads to irritation, both for me and for the teachers who are trying to help you. But even worse is the fact that group members who do want to work on it seriously are thwarted by unmotivated students. Make sure this is available for the serious ones.	0.960
entrepreneurship was a super nice course plus the teacher (REDACTED) really stimulated you. Unfortunately, that was only 1 subject in my entire school career :(	0.983
i don't even know how to spell entrepreneur but if i was to look into starting own business i wouldn't know anything about it. while it's true I've never tried to dig into that, i don't even remember hearing about BUas offering that much help	0.984
Neutral	
I have yet to see any such programs at BUas. Maybe I have just missed them. I am in my First year. So maybe more awareness of these programs?	0.446
Showing more interest in students instead of very sad 50 min a week and for the rest just figure it out.	0.453
Include them in the curriculum and do not let them depend on extracurricular activities because that is not always an option.	0.469
I have already started my business in 2018. I would have liked to know more about how to do acquisition properly, what the right rates are and how exactly to roll out a strategy.	0.470
I don't think BUAS has supported much in this, I have learned relevant subjects but I am not sure how to incorporate it into starting a business.	0.486
Pay attention to the process that has to be gone through before, during and after you want to apply for a company at the KVK.	0.519
I have the intention but I am not sure. Something with video content in combination with tourism trips or something, but I haven't a clear idea or concept at the moment.	0.527
ISD (Academy SLM) had a course about entrepreneurship which was really great, however might be useful to add some kind of finance course to it.	0.529
at the moment I'm in my own concept creation working on a business plan, so far nothing needed.	0.563

look behind the scenes at former students / starters and see how they go about it	0.567
Possibly more opportunities to attend lectures, workshops etc. about such business related topics. (preferably also in English, as I already see many great places to learn but mostly in Dutch)	0.579
I myself work in the hospitality industry and would like to become a wedding planner in combination with the hospitality industry.	0.588
Give classes about how to start a business and keep it steady	0.589
Keep the choice of what to study in year 2, 3 and 4 (this only applies to tourism management I believe)	0.592
More optional entrepreneurship courses, apart from the minor that is already being offered	0.597
Extending the minor to the bachelor so more student will be lured by it and might consider a to start for their own	0.601
Support/inform students in starting a business. For example, how do you deal with finances, how do you remain innovative and unique and/or which steps do you need to take to become a recognised enterprise (e.g. register-ing with the Chamber of Commerce).	0.601
Explain entrepreneurship briefly in years 1 & 2. Now this often starts only in year 3. Within year 3, you are very busy because of many and especially large assignments and searching and arranging the internships and credits for this.	0.608
I have no clue who I can contact with questions about this, maybe create more awareness	0.611
no ideas yet unfortunately...	0.614
there is still little focus on starting your own business. maybe BUas can suggest assignments in that for the cred-its. that way a student can start his future, plus you can get your school.	0.627
I would like to get more knowledge in this area	0.631
Maybe BUAS can invite more guest speakers to motivate student about entrepreneurship where the guest tells about their life journey and how to achieve their position / their business state.	0.637
Bring in more guest speakers who have taken the step to become entrepreneurs themselves within the Built En-vironment field.	0.641
My dream is to start my own engineering consultancy one day which will work mainly on climate resiliency and climate equity projects. However, I would like to complete my master's and having worked for some years to gain experience first.	0.646
Make it more widely known that this possibility exists.	0.657
Separate entrepreneurship classes for those interested.	0.674
Get inspiration on how (big) companies used to start (small).	0.688
Have more relevant courses related to the real world, such as a financial class that teaches you more about VAT and book keeping	0.693
Maybe more guest lectures by entrepreneurs in various sectors.	0.697
Use less "strict" selection	0.698
My idea is to maybe start a business later in life. First I want to work 'normally', to build up capital and gain expe-rience. The company in question will focus on indoor plants for private individuals. Like a landscaping company, but indoors. A friend has a landscaping company and is possibly already interested in an indoor version at his company, which I can take on. But who knows what the market will be like by then and what my ambitions are...	0.710
I think, that BUas could start from some informal discussions/lectures, where students, who want to start a busi-ness or have already started, would have an opportunity to share their ideas with BUas staff (they could change every week or month, depending on students ideas and popularity of this discussion/lecture) and they would hear out their ideas, maybe help them with discussions, for example, how they could make their ideas better or more implement, maybe talk about basics of business creation. Maybe it would be possible to invite guests for discussions or lectures, for example, invite someone, who is good at Logistics, who has a successful company, then BUas staff who has experience in Logistics and then students would present their ideas and guest together with BUas staff could help students with discussions, is it worth to start this business or there should be some improvements, or it is too risky. I think that students, who are interested in starting a business, would come to these lectures.	0.720
I haven't had the idea yet that I could talk to someone about this, and I also don't know what the possibilities are at BUas to do this.	0.722
That is true	0.722
Learn what it's like to start your own business	0.735
Something like Shark tank - where students can pitch their business ideas to different teachers who are expert in the field.	0.746
Providing a graduation project to start a company also with a student outside BUAS	0.763

I would like to start my own eco-lodge somewhere in the future, in a Spanish-speaking country.	0.784
Publish a checklist, identify a coach/sparring partner	0.786
Maybe a guest lecture or event where an entrepreneur can talk about his experiences and answer questions :)	0.789
As a Game Design Student, I would like to see that there will be a workshop or a lecture for Game Development students who are thinking of going into Indie development after they graduate.	0.792
Organising entrepreneurial meetings	0.816
Maybe it is an idea to let students know that BUas can offer this option at all?	0.820
How to build your own website.	0.826
Maybe have extracurriculars about starting a business and having a optional class/meetings with teachers where you can go if you have questions about starting a business	0.828
Maybe more information about how to start a business	0.859
Organise an event or market to show the different possibilities	0.867
give basic knowledge of entrepreneurship as a subject	0.872
Maybe offer an extra weekly class where you can get information and ask questions about starting a business	0.887
I would like to find out what my options are for becoming an entrepreneur while studying. In what way can I combine entrepreneurship with my studies?	0.906
Describe ways to get funding	0.925
Positive	
Give more information about this in the first years of education. Indicate how BUAS wants to and can help	0.378
Trainings/master classes for those interested. so not compulsory.	0.452
It's a good thing, a lot of people want to start something new, but I also think this is done right with a lot of time and attention. with the current way set up for us game developers, I'm not sure how well this can be executed.	0.464
I would have liked more explanation about what the steps are after you have worked out a good business plan.	0.469
It would help students if BUas would focus more on starting their own business and how students can go about it.	0.472
If I wanted to start my own business, I would like to get the expertise of the lecturers. What the pitfalls are, and what the opportunities are in the market.	0.472
Focus more on teaching about possible pitfalls in entrepreneurship.	0.500
I am aware of the possibility to follow the entrepreneurship during your graduation phase. However, I think BUas should carefully consider how to support a student who has the intention to start a business. Yes due to covid starting a business is a great possibility but at the other hand, the statistics of chance of succeeding should also be mentioned, and also that it involves many risks that I think many students are not aware of.	0.501
More business technical and special subjects	0.519
It's a lot to ask, but a choice in certain clients to focus on a sector would be very bold.	0.526
Starting a business requires much more effort than I thought it would. I have already tried twice and haven't succeeded yet. I did make a progress and now I know more about preparation phase but would be nice to have a full structure like an overview how to become an entertainer. What is essential and what are the first steps to consider in media. (I would learn it in my free elective if we had this type of a course with a homework that students do and can already implement in their own business preparation so the teachers can help in this phase.	0.543
At the HAS in Den Bosch, I think they have 'entrepreneur classes' with students who have their own company or who have plans for their own company. This is one class per year group, for example. That school is quite small so maybe it is different there too. This might be a solution for students who are already sure that they want to start their own business.	0.549
I think in the course I am following, leisure studies, this is not really that clear. But maybe this is the case because of its level of education.	0.560
Adding it to a specialisation or as a minor, it could also be an elective or as a theme parks and attractions course in tourism, for example.	0.581
Do's & Don'ts workshop/lectures on what to do and what not to do for a company.	0.585
Provide a non-mandatory course about entrepreneurship for students who are willingly to learn about being an entrepreneur.	0.587
Focus more on real projects instead of reports and records	0.588
More lessons on entrepreneurship and daily life	0.599
Lessons/hearing about entrepreneurship and zapping in the events sector. Let's face it, there are a lot of freelancers active in the events sector. This can already be started during the study and experience can be gained.	0.601

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Give students more freedom, for example with their minor. Not everyone wants to stay in the economy.	0.611
Lessons on what is involved in starting your own business.	0.614
I think the beginning is the hardest. When I look at myself, that threshold seems incredibly high. Therefore, I think that getting the initial phase clear is especially important.	0.618
I'm studying logistics management, which could help me to achieve transportation company. Enterprise would focus on international transportation of specific goods. Products vary from auto parts to other usable details for different types of mechanisms. Company's objectives include satisfaction of customers through different levels of economics within EU. International studies gives insights of poor and wealthy countries, which helps to understand and create effective global relation.	0.632
Besides guest lectures, invite more alumni or entrepreneurs who have their own business and tell about their experiences (might apply less in Facility)	0.642
Entrepreneurship has many risks. Lessons on how to avoid these risks as a starter would be good	0.658
Make a special course for people that want to do this	0.660
I don't think this really applies to the Games course all that well, since we are being prepared for the industry, and not to form our own companies, which is good in my opinion.	0.672
Many people have creative and amazing ideas for a future business, but a lot of them don't know how to start without money; how to gain money so they make it; how to start with a 1000; with a 50 000. This might help all of us :)	0.685
In my opinion guest lectures or overall lectures about how to start a business, how to finance it , how to be a leader and others, will be very informative.	0.687
Think of where you see yourself in the future. Try to set goals for yourself, believe in yourself and just get started. If you start thinking 'right now' about what you want to achieve in the near future, then you probably are ahead of some other students because you are aware of having the opportunity to gain knowledge and some other students are just not thinking about it.	0.694
Emphasis at facility is on dreaming and creating. More emphasis on feasibility (financial for example) and a realistic picture would help.	0.706
Extra possibilities to follow an entrepreneurship course in the third or fourth year without having to choose between other subjects.	0.711
Provide more lectures from early on about this topic. If students will get this information early, I think that it is more likely for them to think about entrepreneurship.	0.732
Provide us with a relevant network of contacts worldwide.	0.743
In my opinion, the current strategy, in which the choice is left to the student regarding the third-year choice, is the right one. Knowing that not all my fellow students were big fans of 'finance', there is no need to focus more on it.	0.756
Perhaps it is an idea to create a course earlier than in the graduation phase (the 2nd or 3rd year) that goes through the steps of entrepreneurship and makes it attractive. These are explained throughout the years but it would be nice to bring it all together in a course so you can orientate earlier on whether you want to start a business or not.	0.760
Explain what you need to do before you start a business. There is a lot of teaching about how to do it once you have a business, but I really have no idea how to start a business	0.776
I think the lean methodology is a successful process to consider when starting your own business	0.776
Provide an additional course or programme to follow/participate in. In my opinion, this should be a course with all different BUas students, experienced lecturers who have an entrepreneurial background, guest lectures, no exams but rather deadlines/assignments which guide you as a unexperienced entrepreneur (business model Canvas, financial feasibility, etc.) and critical evaluations or coaching sessions.	0.779
Inspiring guest lectures from different types of entrepreneurs. Owners of large companies with many employees, self-employed people, self-made millionaires, investors, founders of companies in logistics with innovative ideas. Different workshops and lectures about running and setting up a business, only for those who are interested, outside regular classes.	0.825
For the subject entrepreneurship (3rd year log), you have to work on a company in a group. If someone already has a personal ambition, give them the space to work this out individually. Otherwise, others will "run away with the idea". For other subjects related to business, it is wise not to use an imposed theme in the group assignments but a theme that can be chosen by the student. For example, in the case of marketing, a better, more in-depth and more passionate performance can be achieved than with a imposed theme that the student has no feeling with. In addition, teachers should not adopt the "you either have it or you don't" attitude. Give people room to grow and find out where their improvement potential lies.	0.837
Games lacks general courses and people interested in setting something up have to pursue teachers themselves. A more proactive stance could help a lot here. I'd also like to see more actionable lectures. Talking about how great it is / what a teacher did in the past / what another company is doing right now is not the same as directly applicable advice such as tax deductions. There are going to be basic things you need to know and they're not	0.838

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explained to you whilst that's the place you can win the most time. Advanced lectures/workshops can always be given in later years / as follow ups / on request. Thank you for listening! I appreciate the effort BUas puts in, even if things don't always work out. :)	
We can do a minor on entrepreneurship, we can write a business plan where I have the chance to start my own business design. There are plenty of teachers who can help you with your own business we have tios.	0.869
after coming to the Netherlands I started cooking a lot. I discovered a passion for cooking and started dreaming of opening my own restaurant. since I do music as a hobby, my wish is to have live music in it. I have a plan and a business partner with whom I can make my wish come true.	0.872
Shifting the perspective in current courses a bit more towards that of the entrepreneur instead of the manager could be a small and feasible change. I would also like to learn more about the steps that starting entrepreneurs should take to actually start a business and especially to learn more about the different possibilities of gathering investments, as this is probably the biggest stumbling block for many students.	0.890
The education is inspiring and motivating to start a business. However, the practical side and challenges are not discussed. Would be nice to get information about starting a media business, and also to hear from alumni who did that.	0.891
Clearer communication of the options in the innovation square, excellence track entrepreneurship etc. would help. It would also be good to have at least one block of entrepreneurship/entrepreneurship in each programme as an introduction to this.	0.930
Encourage students more to start a business and show them what the possibilities are. Show that it is much easier than most think. More lectures and attention to entrepreneurship during the lessons.	0.933
The Free Elective course is something where students can choose a path they want to develop themselves in. I think this is something that really stimulates starting a business, cause now you ?have the time? for it, and is also give you some credits	0.944
A workshop with information and what to think about when starting your own business can be helpful for interested students. It is also always interesting to listen to guest lectures by people who have started a business themselves.	0.954
Yes nice! Course in drawing up a business plan, the ins and outs of starting up a business. Perhaps an expert with experience. Don't highlight the success, but also create the courage to dare to make mistakes. In my opinion, making mistakes is an extension of entrepreneurship and can bring you a lot if you are not afraid of it. A workshop based on fear of failure for example, or organising a think tank where students who want to become entrepreneurs can brainstorm together about their concept (in confidence), this is a moment to network and perhaps find partners.	0.959
In addition to stimulating, giving students room to develop their business. That by being more flexible with regard to participation in lessons, etc.	0.960
The BUas could set up a kind of course that students can follow and also receive points for profiling. I don't really know what's involved, for example, and I think it's good to know if you're ever thinking about starting your own business. I also think this is a very good course for profiling space, it is really useful.	0.979
How to deal with money, taxes and mindset. These are points that can make a huge difference. In addition, there are many tips in "Rich Dad, Poor Dad" that actually - in my opinion - need to be discussed and taught.	0.989
When a good concept is thought up during a school assignment, teachers can stimulate students to elaborate on this concept, for instance by supervising students for a few hours per week with the knowledge expertise of the teacher in question. There are plenty of teachers from different disciplines at Breda University, so there is a good supervisor for every concept. Of course, there can be more than one supervisor. In this way, enthusiastic (enterprising) students are 'rewarded'. Moreover, this makes school assignments even more tangible.	0.993
Learning how we can and may make mistakes and how we can learn from them. In addition, giving students more insight into what they are individually good at and less good at. This gives students a better image of themselves, which increases their self-confidence and indirectly also ensures better cooperation, because students then know what they can and cannot do in a group.	0.993

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About the researcher

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