The roles of passion for inventing and the ability to recognize opportunities in business planning success

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ABSTRACT

Purpose – The foundation and essence of a successful start-up lies in its business plan and can be translated as the articulation of an entrepreneur's intentions. This outcome is influenced by many factors and lets curiosity arising in regards what lets a business plan stand out from its competitors. Prior research has analysed what impact the possession of entrepreneurial passion has on start-ups and how the ability to recognize new opportunities influences early-stage entrepreneurship. However the interplay of these two variables, and whether this interplay is beneficial for business planning success has not been illustrated in depth yet, hence it constitutes the purpose of this study.

Research Design/Methodology/Approach – Data has been obtained for the independent variables *passion* and *ability to recognize opportunities* via a survey administered to a sample of students of the University of Twente, who had to create a business idea over the period of 3 months. The data for the dependent variable *business plan success* has been obtained via a survey filled out by external judges who gave their opinion on the students' business ideas.

Findings – The conducted research clearly showed that there is no significant relationship between the three variables *passion, ability to recognise opportunities* and *business plan success*.

Value – The research shows that early-stage entrepreneurs who possess a high level of passion also possess a high ability and alertness to recognize new business opportunities.

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1.Introduction

The foundation of entrepreneurship is a business plan. In theory, a business plan is the most elaborated form of an entrepreneur's intention, containing the business model, explaining the market needs the entrepreneur strives to satisfy, elucidating the available and all still to acquire types of resources for the business, scheduled activities, cash flow estimations and other industry specific details (Ardichvili et al., 2000).

Entrepreneurship is the identification of solutions amongst problems, the recognition of possibilities amongst needs and opportunities amongst challenges (Byers, Dorf & Nelson, 2011). Literature points out that successful entrepreneurship is able to bring valuable societal impacts, like the enhancement of new job creation or nurturing the development of innovations (Byers, Dorf & Nelson, 2011).

Research continuously analyses the drivers which impact the degree of entrepreneurial success and related to that the success of initial business plans. The entrepreneurial intentions which are stated in the business plan and their success is influenced by several factors which may be of external nature e.g. the economical state (Evans and Leighton, 1989), or of internal nature representing the individual character traits of the entrepreneur (Ardichvili et al., 2000).

Prior research investigated the elements of personality traits of entrepreneurs and their relation to business success, the findings have shown that possessing certain sets of traits increase the probability of successful ventures, whereby other traits decrease this chance. Schumpeter (1934) listed creativity as one of the essential characteristics. Krueger and colleagues (1994) argued that possessing entrepreneurial optimism, or being a risk-taker are potential success traits. Besides those mentioned traits also alertness, experience, self-efficacy and passion belong to the most common examined characteristics by scholars. In regard to individual traits Elsbach and Kramer (2003) analyzed investors who assessed the creative potential of screenwriters. The investors judgements have been made based on presented pitches and the perceived passion of each pitcher. The results showed that screenwriters who were able to present their script with a convincing, passionate attitude have been judged as successful writers and worth to be invest in.

Similarly, Chen et al., (2009) conducted a research project on the influence of passion on the funding decision of venture capitalists. Their findings showed that passion is a positive mediator when the emotion is coupled with a cognitive activity which in Chen et al.'s case was the level of preparedness.

Being judged as a good writer and as being worthy to be invested in are examples of achieved goals and success due to the possession of passion. Conveying this onto the completion of a successful business plan, it can be assumed that passion could facilitate the goal of completing a plausible plan in a positive way, thus triggers the research focus of this paper.

Before the process of business plan creation can begin the entrepreneur has to recognize an opportunity in order to have a direction and venture aim. Literature agrees on the statement that recognizing opportunities comes naturally to some entrepreneurs, while for others it constitutes an issue. Shane and Venkataraman (2000) describe entrepreneurial opportunities as the formation of new means, ends or means-ends relationships, other definitions describe opportunity as circumstances with a chance for venture success or elements which address a current market need. Moreover, entrepreneurs aim to recognize and pursue opportunities which match their capabilities, interests and have a potential for long-term growth (Schilling, 2011). The empirical investigation of Ozgen and Baron (2005) showed that whether good opportunities emerge is positively influenced by the surrounding social sources of the given entrepreneur. Social sources have been described among others as industry/social networks, or as meetings with mentors. Further, Ozgen and Baron (2007) state that the recognition ability is determined by the environment of an entrepreneur, including e.g. people, pursued activities, books, or other kinds of media. The more complex the network of the entrepreneur is the better he or she will be able to find new opportunities, due to the amount of different perspectives an extensive network offers.

1.1 The Research Question

As stated above a business plan is the manifestation of an entrepreneur's intentions, acknowledging the majority of past research about how opportunities emerge and acknowledging that the ability to recognize them is influenced by several kinds of drivers, plus seeing the

opportunity as the starting point of new ventures, this paper identifies a plausible research gap and a further extension of the above mentioned research focus, namely by conveying the degree of the ability to recognize opportunities onto the level of business planning success together with the individual trait passion. The resulting central research question for this research paper is the following: *"What is the role of passion for inventing and the ability to recognize new opportunities for the success of business planning?"*

The relevance of studying this linkage is reinforced by the findings of Rauch (2007), who stated that whether an opportunity will be recognized and exploited i.e., whether a business plan will be based on the recognition of a valuable opportunity and will be exploited afterwards, depends on the cognitive dimension (here, the ability to recognize opportunities) of the entrepreneur and simultaneously on individual traits (here, passion).

2. Theoretical Background

2.1 Passion and business plan success

This research will base the understanding of passion on the work by Cardon and colleagues (2009), who define passion as a positive feeling which results from the engagement in activities with identity meaning to the entrepreneur. Reviewing research on passion in more detail it becomes apparent that many sources underline the valuable potency of this trait, and even name it as an essential asset in the entrepreneurial persona (Smilor, 1997).

The working environment and tasks of today's entrepreneurs require commitment and perseverance. In order to deliver those attributes of commitment and perseverance on an appropriate level research indicates that the possession of passion can facilitate them (Kuratko et al., 1997; Chen et al., 2009).

De Clercq et al. (2003) state, based on their empirical research on the role of passion for work in the formation of entrepreneurial intention, that there is a significant positive relationship between passion and the resolving of tasks in a highly-motivated manner. Passionate entrepreneurs put more effort into their work and experience joy to apply and continuously extend their knowledge, leading to successful outcomes.

Recent studies conducted by Cardon (2016) show a positive relationship between entrepreneurial passion and venture growth. Moreover, by conducting an empirical study with 129 entrepreneurs Cardon found that passion acts as an important mediator for self-efficacy. Self-efficacy is frequently characterized to be essential for the achievement of a successful outcome since this trait determines a person's persistence (Cardon, 2016). The formation of entrepreneurial intention is a phenomenon that occurs in the beginning stages of entrepreneurship and venture planning, likewise the creation of business plans. Passion can form a motivational construct if it is connected to a cognitive element, which will in turn lead to a reinforcement of the cognitive activity (Chen et al., 2009).

This lets the assumption arise that passion is positively related to the development of a promising business plan. Dolan further elaborated on this aspect and added that emotions are regulators of cognition, which is needed in order to create a business plan (Dolan, 2002). Referring to entrepreneurship Rauch (2007) postulated that traits such as passion can influence the success of entrepreneurial activities. Based on this, this research assumes that those results can also be transferred to the creation of successful business plans and thereby states the following hypothesis:

H1: Entrepreneurial passion is positively related to business planning success.

2.2 The ability to recognise opportunities and business planning success

The understanding of *ability to recognise opportunities* will be based on the definition developed by Kirzner (1997), that is the identification of a new market need or un-/under-employed resources or capabilities. Reviewing the literature on the ability to recognise new opportunities in more depth it shows that this skill is categorized as one of the most important abilities for the start and success of new businesses (Stevenson et al., 1985).

The ability to recognise opportunities has been phrased as a socio-cognitive framework by Koning and Muzyka (1999), where passion is enhancing and impacting entrepreneurial actions. The model emphasizes that opportunity recognition is made up of several actions first involving a social dimension, e.g. information gathering about the entrepreneurs' environment and the assessment of the entrepreneurs' available resources, leading then to the cognitive dimension

which is the recognition of an opportunity. The higher the entrepreneurs' ability to effectuate this framework, the better and in more congruence his or her venture actions will be according to Koning. The model had been conceptualized regarding general entrepreneurial activities. The business plan creation likewise can be classified as an entrepreneurial activity and thus, presumably Koning results are valid for the business plan too.

Krueger (2000) pointed out that recognising an opportunity will lead to an intention-driven process. As stated in the beginning of this proposal the concept of a business plan illustrates the intentions an entrepreneur strives to pursue in his or her venture. Hence, the assumption can be made that the possession of a high degree of the ability to recognise opportunities will consequently have a positive impact on an entrepreneur's business plan since its creation can be interpreted as an intention-driven process.

Contemplating an opportunity, it can be seen, as initially stated in the introduction, as a solution for a given problem, a possibility for a need, or as something that bears ways to tackle challenges. Baron (2000) explains the opportunity recognition process as a cognitive pathway. According to his research opportunity recognition is the ability to create and use the cognitive framework one created due to individual experiences and thus to recognise patterns between unrelated events, trends, which forms the perception of an opportunity. During the process of the business plan creation an entrepreneur needs to find a linkage between his or her entrepreneurial planned action and problem or challenge. Based on this, one can assume that to be able to make a useful and thus successful business plan, an entrepreneur must be able to recognise opportunities, i.e. seeing patterns or trends in his or her environment which can shape his or her venture.

Combining Barons perspective with the one of Krueger we propose the following hypothesis:

H2: Having a high ability to recognise new opportunities is positively related to business planning success.

3. Methodology

The interest of this study is the detection of a possible relation between the passion for inventing, the ability to recognise new opportunities and business planning success. This will be explored through an empirical quantitative approach.

Specifically, this research is applied on technology students of the University of Twente (Enschede) in form of 3 surveys that were conducted during different stages of a business plan creation. The students were asked to estimate their perceived ability to recognize new opportunities and perceived passion for inventing on a Likert Scale.

The used scale for capturing the students' ability of recognising new opportunities is based on Ma et al. (2011) adopted from Ozgen and Baron (2007) and Singh et al. (1999); the scale for passion is adopted from Cardon et al. (2013) based on Cardon et al. (2009a) and (2009b), Callero (1985) Stryker and Serpe (1982, 1994). The Cardon's scale investigates passion in three categories, namely: passion for inventing which is the focus of this paper, passion for founding and passion for developing.

The resulting empirical outcome had been used to learn how students perceive starting up a company (whether it is easy to find novel opportunities or not), and together with that examined their entrepreneurial characteristics (are the students passionate, do they experience joy in this activity). After three months of creation the final business plan had been ranked by external judges, which results stand for the business planning success. At this point it had been possible to link all three variables and test whether there is an influential relationship on business plan success or not. Thus, the variables of the study are: Passion for inventing (IV), the ability to recognise opportunities (IV), and business planning success (DV).

Examples of the 13 items which aim to capture the variable passion are e.g. *''It is exciting to figure out new ways to solve unmet market needs that can be commercialized''*, or *''I am motivated to figure out how to make existing products/services better''*. The complete listing of the items can be found under Appendix 1.

The 3 items which measure the student's ability to recognise opportunities are the following:

1. While going about day-to-day activities, I see potential new ideas (e.g., on new products, new markets, and new ways of organizing firms) all around me.
2. I have a special alertness, or sensitivity toward

new opportunities (e.g., on new products, new markets, and new ways to organize firms).

3. Seeing potential new opportunities (e.g., on new products, new markets, and new ways of organizing firms) does not come very naturally to me.

The dependent variable business plan success has been determined by the voting of the two external judges. Each business idea has been judged in terms of the following 6 items:

1. The business opportunity has potential economic value.
2. The business opportunity is new.
3. The business opportunity is perceived as desirable.
4. I will consider this business an opportunity.
5. This business is worth considering.
6. This business is feasible given the situation.

Each variable had been measures on the same rating scale from 1-7, whereas 1 stands for *strongly disagree* and 7 for *strongly agree.*

3.1 Statistical Method

To extract the answers to the stated hypotheses from the data statistical methods will be applied. To assess the scale reliability Cronbach's Alpha will be reported for each scale. A correlation table will illustrate the appearing associations among the variables and will state in combination with a regression analysis and the interpretation of p-values, whether significant relationships have been found and whether the hypothesis have been confirmed by the data.

3.2 Scale Reliability

To analyse the internal consistency of the scales and to illustrate whether the sets of items are closely related to each other Cronbach's Alpha had been calculated for each scale.

The 13 items measuring passion show a high covariance with an alpha of .949, a similar statement can be made for the 3 items measuring the student's ability to recognise opportunities which present an alpha of .922.

Considering firstly the results of the judges separately, an alpha of .813 can be stated for judge number 1 (Judgement Mean1), for judge number 2 (Judgement Mean2) the value .962 can be presented. Putting the two scales of the judges jointly (Judgements Mean) into the calculation an

alpha of .887 results. All scales proof a high covariation amongst its items and thus a high scale reliability.

Table 1. Cronbach's Alpha

	Judge 1	Judge 2	Judge 1 and 2 as a Mean Value
Cronbach's Alpha	.813	.962	.887

Results

4.1. Correlation

The illustrated table 2 (Appendix 2) shows the correlation between each independent variable and the dependent variable. The variable has been split up in the measured passion categories: passion for inventing, founding and developing.

The results for the judges, the dependent variable, can be analysed from different perspectives: By taking the mean of both judges' results into one value (Judgements Mean), or by taking the two judges means separately each as one value (Judgement Mean1 and Judgement Mean2). Correlations are presented for all potential versions. All scales have a sample size of 55.

The analysis shows that the independent variable *ability to recognise opportunities* correlates positively and significantly with each passion variable. This lets the association arise that a student possessing one of the kinds of passion, will also have a high ability to recognise new opportunities.

However, the analysis also shows that the independent variables do not relate to business planning success in a significant way i.e. there is no correlation between the two independent variables and the dependent variable.

Examining the Pearson's correlation coefficients for the judges, a difference in the judge's voting can be shown: Judge 1 judged scaled business ideas of students who possessed a high level of passion and a high level of ability to recognise opportunities low, since a negative coefficient can be reported for each independent variable.

In contrast, judge 2 judged ideas of students with passion and with the ability to recognise opportunities higher compared to those ideas of students who did not possess those attributes, since the coefficient can be reported with a positive direction for each independent variable.

4.2 Regression

The regression analysis delivers the corresponding p-values for each set of independent variables to demonstrate whether a significant relationship can be stated between the independent and dependent variables. The p-values confirm what the correlation table has shown, namely that there is no significant relationship between the independent and dependent variables, hence the two hypotheses can be rejected.

Table 2. Regression Matrix Judgement Mean

	B	SEb	t	p
Passion for inventing	.114	.176	.651	.518
Passion for founding	-.157	.161	-.979	.332
Passion for developing	-.015	.176	-.083	.934
Ability to recognise opportunities	.385	.287	1.343	.185
	R2	**F**	**df1/df2**	**p**
	.054	.710	4/54	.589

Holding the p-value against a threshold of 0.05, we can state that there is no significant relationship between the independent variables and the dependent variable. Moreover, there is a low R2, which explains that the data does not fit the regression model very well, thus the data point are fairly spread around the regression line of the model, indicating no strength in the relationship. It also means that the model does not explain the variability of the response data.

Table 3. Regression Matrix Judgement 1

	B	SEb	t	p
Passion for inventing	.171	.196	.873	.387
Passion for founding	-.070	.181	-.387	.700
Passion for developing	-.291	.202	-1.437	.157
Ability to recognise opportunities	.235	.333	.706	.484
	R2	**F**	**df1/df2**	**P**
	.102	1.360	4/52	.262

Inspecting Judge 1 regarding the independent variables we can state the same as in the previous table, none of the p-values indicate a significance nor an even a trend.

Table 4. Regression Matrix Judgement 2

	B	SEb	t	p
Passion for inventing	.147	.240	.614	.542
Passion for founding	-.241	.234	-1.027	.310
Passion for developing	.262	.241	1.088	.283
Ability to recognise opportunities	.693	.386	1.792	.080
	R2	F	df1/df2	P
	.152	2.020	4/49	.108

In comparison business planning success according to judge 2 seems to be positively influenced by the ability to recognise opportunities. Hence, it does not declare a relationship of any form of significance.

4.3 Post-Hoc Analysis – Separate dependent items

The results of the initial statistical analysis had shown no significant relationship amongst the variables. To further examine the statistical results, a post-hoc analysis has been conducted to check for the differences which are present between the groups of variables.

The first test relates the items 1-4 of the judges 1 and 2, against each independent variable. The items 1-4 have been chosen, because they reflect the judges' opinions about the students' ability to recognise opportunities, which is also one of the independent variables in the study.

Starting with item 1 *''The opportunity has an economical value''* the following table can be presented:

Tables 5. Regression Matrix Judge Item 1

	R2	B	SEb	t	p
Passion for inventing	.039	.709	.198	1.325	.192

	R2	B	SEb	t	p
Passion for founding	.008	.180	.087	.576	.568

	R2	B	SEb	t	p
Passion for developing	.013	.266	.112	.742	.462

	R2	B	SEb	t	p
Ability to recognise opportunities	.014	.369	.120	.794	.431

Regressing each independent variable against dependent item 1, also does not show a significant relationship.

The following results can be presented for regressing the independent variables on dependent item 2 *''The opportunity is new''*:

Tables 6. Regression Matrix Judge item 2

	R2	B	SEb	t	p
Passion for inventing	.031	.548	.176	1.174	.247

	R2	B	SEb	t	p
Passion for founding	.007	-.153	-.085	-.562	.577

	R2	B	SEb	t	p
Passion for developing	.024	-.316	-.154	-1.02	.313

	R2	B	SEb	t	p
Ability to recognise opportunities	.01	-.261	-.098	-.646	.522

Regressing the independent variables on dependent item 2 shows us again no significant relationships, or trends.

Results for item 3 *''The opportunity is desirable''* are:

Tables 7. Regression Matrix Judge item 3

	R2	B	SEb	t	p
Passion for inventing	.055	.477	.234	1.577	.122

	R2	B	SEb	t	p
Passion for founding	.011	.124	.106	.697	.490

	R2	B	SEb	t	p
Passion for developing	.007	.112	.083	.545	.588

	R2	B	SEb	t	p
Ability to recognise opportunities	.023	.267	0.153	1.014	.316

Again, no significance between the variables can be reported.

The last dependent item is *''Considering the business idea as an opportunity''*, and the results are:

Tables 8. Regression Matrix Judge item 4

	R2	B	SEb	t	p
Passion for inventing	.003	.192	.056	.367	.716

	R2	B	SEb	t	p
Passion for founding	.011	-.213	-.107	-.706	.484

	R2	B	SEb	t	p
Passion for developing	.005	-.16	-.07	-.461	.64

	R2	B	SEb	t	p
Ability to recognise opportunities	.014	.344	0.117	.769	.446

Also, the last item does not show a significant outcome.

The outcomes are however not surprisingly since the initial analysis could also not prove a significance between the variables.

4.4 Post-hoc analysis – Team view regression

So far, the analysis used individual results of the students for the regression analysis, however each individual student had been assigned to a team made up of 5 students each.

The following results show outcomes for regressing the teams against the dependent items 1-6. Once for Judge 1, once for judge 2 and one for the mean values of both judges:

Table 9. Matrix Judgement Mean

	B	SEb	t	p
Passion for inventing	.144	.182	.790	.433
Passion for founding	-.119	.163	-.729	.469
Passion for developing	8.475E-5	.178	.000	1.00
Ability to recognise opportunities	.032	.116	.277	.783
	R2	F	df1/df2	p
	.021	.270	4/54	.896

Table 10. Matrix Judge 1

	B	SEb	t	p
Passion for inventing	.234	.199	1.175	.246
Passion for founding	-.013	.181	-.072	.943
Passion for developing	-.266	.2	-1.326	.191
Ability to recognise opportunities	-.117	.132	-.889	.378
	R2	F	df1/df2	p
	.107	1.44	4/52	.235

Table 11. Matrix Judge 2.

	B	SEb	t	p
Passion for inventing	.126	.248	.507	.615
Passion for founding	-.211	.236	-.894	.376
Passion for developing	.288	.244	1.179	.245
Ability to recognise opportunities	.221	.160	1.386	.173
	R2	**F**	**df1/df2**	**p**
	.129	1.664	4/49	.175

The outcomes from the team perspective are similar to the individual perspective regressed against the judge's statements. Hence, here the post-hoc analysis reinforces the results from the initial analysis.

4.5 Post-hoc analysis – Team view on items 1-4
Also with the team perspective the team outcomes of the dependent variables will be regressed on the dependent items 1-4, since they directly involve the ability to recognise opportunities in their statements.

Table 12. Regression Matrix Judge item1

	R2	B	SEb	t	p
Passion for inventing	.039	.709	.535	1.32	.192

	R2	B	SEb	t	p
Passion for founding	.008	.180	.313	.576	.568

	R2	B	SEb	t	p
Passion for developing	.013	.266	.359	.742	.462

	R2	B	SEb	t	p
Ability to recognise opportunities	.014	.369	.464	.794	.431

No significance can be reported from the team view analysis against item 1.

Table 13. Regression Matrix Judge item2

	R2	B	SEb	t	p
Passion for inventing	.176	.548	.466	1.174	.247

	R2	B	SEb	t	p
Passion for founding	.007	-.153	.272	-.562	.577

	R2	B	SEb	t	p
Passion for developing	.024	-.316	.310	-1.02	.313

	R2	B	SEb	t	p
Ability to recognise opportunities	.01	-.261	.404	-.646	.522

No significance can be reported from the team view analysis against item 2.

Table 14. Regression Matrix Judge item3

	R2	B	SEb	t	p
Passion for	.055	.477	.303	1.577	.122

inventing					

recognise opportunities				9	6

	R2	B	SEb	t	p
Passion for founding	.106	.124	.178	.697	.490

	R2	B	SEb	t	p
Passion for developing	.007	.112	.205	.545	.588

	R2	B	SEb	t	p
Ability to recognise opportunities	.023	.267	.264	1.014	.316

A slight positive trend can be observed in the relation of passion for inventing and item 3, having p = .112

Table 15. Regression Matrix item4

	R2	B	SEb	t	p
Passion for inventing	.003	.192	.525	.367	.716

	R2	B	SEb	t	p
Passion for founding	.011	-.213	.301	-.706	.484

	R2	B	SEb	t	p
Passion for developing	.005	-.160	.347	-.461	.647

	R2	B	SEb	t	p
Ability to	.014	.344	.448	.76	.44

In this part of the analysis neither significance, nor a trend can be reported between the variables.

The post-hoc analysis divided up the initial analysis further into more analysis, to test the data set in more depth and detail. However, no new findings can be reported and having conducted a range of possible tests all initial hypotheses need to be rejected by this study.

5.1 Discussion

The aim of the study was to analyse the hypothesis whether passion and the ability to recognise opportunities are significantly influencing the success of business plans. The hypothesis have been tested based on individual student responses and on team responses. However, none of these response perspectives showed a relationship between the two independent variables passion and the ability to recognise opportunities and the dependent variable business plan success.

The result represents a contradiction to the introduced literature which strikes a correlation between passion and entrepreneurial success and the ability to recognise opportunities and entrepreneurial success. This means that predictions about business success based solely on a person's character and abilities should be made with caution. Other sources indicate that the possession of passion is not deciding on early-stage success but that also other personal traits play a role e.g. passion and self-efficacy (Dalborg et al. 2014).

A possible explanation for the results in this study might be that the independent variables indeed influence venture success, as previous research states, yet it seems that those variables are solely indirect determinants of early-stage entrepreneurial success. It is apparent that business plan success depends on a composition of a lot more factors.

Relating the findings on teams this means that the possession of passion and the ability to recognise opportunities on a high level, can reinforce, but also mitigate the success of an idea. Some students might be too shy to openly express their passion for the idea and thus, mitigate the effect on the whole group. The same might be true for

students who express their passion during group meeting, but due to other students having a far lower degree of passion the overall success will be lowered.

Comparing the results of this study to past literature this could also be an indicator that the maturity of the students play an important role. Past research assigned adults in their study, mostly individuals who are already experienced in the business world, this study took a different approach and assigned students to the study. Meaning that passion might be expressed, felt and worked with in a different way inside students and adults. The ability to recognise opportunities might show the same difference between age classes. Adults might be more able to turn the identified opportunity in more accurate actions leading to business plan success than students.

5.2 Possible influential factors

In spite of the extensive amount of elaborations on one side about the positive impact of passion on entrepreneurial success and on the other side about the likewise positive effect of the ability to recognise opportunities the conducted study could not proof that these variables have a positive impact on business planning success.

The reasons that lead to this research result can be discussed on the student and judge level. Firstly, the variables will be discussed separately, afterwards the interplay of the variables will be argued and also how the research might have led to its results.

Brown and Hill (2011) showed that students are prone to effects of social desirability. Studies showed that college students who were asked to report on their self-perceived educational gains, or shall give their opinion on college related topics, tend to assess themselves more positively and skew their opinion to an extend that it fits into the expectations of their environment i.e., answers are influenced by social desirability (Brown & Hill, 2011). In addition, the time point of the survey might have played a significant role on the students perception.

The survey of this paper's study asked students who attended a course which focused on entrepreneurship, and had been assigned to develop a business idea over a 10 week period. The survey questions asked to estimate the student's passion, since the students were directly involved in the topic at that time, levels of enthusiasm might have been higher as they would have been at a moment in their study where they would have attended a different kind of study course.

Effects of social desirability might have occurred in a few sets of answers. An assumption is that some students did not want to show that they might not be a good fit for the attended entrepreneurial module. Hence, they gave answers which indicated a comparable high level of passion.

In addition, students knew that the survey would be evaluated by their course tutors, indicating a lower level of passion could be interpreted as a lower level of general interest in the course topics. Social desirability might have led to the effect that students did not want to represent a class who has no interest in the taught topics and discourage the effort the tutors put into the teaching.

The same arguments can be conveyed onto the variable ability to recognise opportunities. Brown and Hill (2011) especially underline that self-reporting of gains is highly influenced by social desirability amongst students. The ability to recognise opportunities constitutes a skill, which is seen in general as beneficial in the eyes of society. Thus, students might have perceived their ability higher.

Arguing from this perspective results in the assumption that the independent variables have been in influenced and represent a skewed result and can therefore not be seen as representative. The student sample size is big enough for conducting a regression and correlation analysis, yet not big enough to eliminate possible influencing answers.

This implication about the student dimension will have in turn also an impact on the interplay with the judges results. The dimension of the judges in itself also shows some concerning result influencing aspects, which will be discussed in the next subchapter.

5.3 The dependent variable and possible influential factors

The study asked two examiners to judge the business ideas of the participating students. It is visible that both judges perceived the ideas in a very different light. Comparing the evaluations there are often cases of high contrast in answers between the two judges, meaning ideas which had been seen as an opportunity have been rejected by the other judge. This brings up the assumption that both judges who have a profession in consulting have a different system of judging. It is possible that both, when judging an idea, put their focus on

different elements of an idea, resulting in opinions which are not evaluating the same aspect. This makes the results highly subjective and analysing those answers, which are in fact evaluating different angles of an idea but are interpreted as having the same perspective, with the independent variables, reduces the chance of revealing significant relationships amongst the variables.

5.4 Limitations and Implications for future research

The study faced a range of different limitations, which however can be improved for future studies, which is also recommended to conduct since the interplay between the variables of this paper are not in detail researched yet.

Firstly, the size of the student sample should be increased in order to outperform possible respondent bias. Also, not all surveys have been filled out completely by the students, some left out questions or, solely filled out one survey. Missing answers decrease then in turn the effect of the judgement and the efforts of revealing relationships between the variables. The possibility to skip questions has been enabled by the IT-set up of the online survey. Future researchers could avoid this by using online survey tools which insists students to answer a question in order to get a pass to the next question. This procedure will also only recognise surveys which had been filled out completely, the answers of students who have exited the online survey during the process will not be recorded.

As stated previously the judging style of the two consultants has been very distinctive. Future research can take three approaches to improve this condition. Firstly, the sample of two judges is in general small, assigning more judges to the case would be beneficial for the results. Also, especially in regard to the different character of the judges the evaluation form should be made more precise. The statements which had been given to the judges to evaluate the business ideas can be interpreted very widely and since the judges personally take different approaches in their judgements the business ideas have been assessed differently. "The opportunity is new'' is an good example to underline this issue. Both judges are indeed professional consultants, but have made different experiences, have worked and lived in different environments, are of different age, thus one can see something as new and familiar, whereas the other judge might judge the idea is novel. Also, the level of experience might have influenced the perception of business ideas elements. Judge number 1 has less than 10 years of experience in consulting, whereas judge number 2 looks back at more than 20 years of experience. In regard to their career duration, the experiences with successful business ideas might differ significantly, meaning that one judge experienced certain idea traits as especially success determining, whereas the other judge perceived those traits as meaningless or even success diminishing during his career. Future research should consider therefore the possibility of subjective interpretations of questions and given the statement example, define what is concretely meant with ''new''. When questions are clarified as detailed as possible the better the interpretation by the participant will be, and the more aligned the results will be since all are based on the same construct.

A third possibility would be to carefully select the judges, e.g., with the help of interviews conducted before the survey to see whether the judges have a similar understanding of judging and business ideas in general.

6.1 Conclusions

The study has shown that according to the study's sample it cannot be proven that positive relationships exists between a high level of passion for inventing, a high possession of the ability to recognise new ideas and business planning success. However, this can be explained by the existing limitations of the conducted study. What the study showed however is that there is a high positive association of passion with the ability to recognise opportunities. This outcome is especially valuable for the recruitment processes in start-ups. Open-minded, creative mind-sets are especially important for start-ups since they have to establish themselves in competitive environments, by detecting solutions, or new product niches in a fast manner. Human resource managers can investigate during interviews how passionate a candidate is about business matters. Hiring a passionate employee should be a promising employee for the start-up, who has the ability to bring up new value adding insights into the organization in a more efficient way compared to an employee with a lower passionate level.

6.2 Practical Implications

Potential entrepreneurs should be able to self-reflect their persona and be critical whether they possess the ability to recognise new business

opportunities. In addition to that the potential entrepreneur should reflect on the quality of the recognised opportunity and verify whether the business idea can ward off competitors and add value to the given market.

Aspiring entrepreneurs should also reflect if they are indeed interested and passionate in their planned venture, in order to ensure a long-term commitment to the business plan (Breugst et al., 2011).

7. Acknowledgements

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Appendix

Appendix 1. List of items – Variable passion

1. It is exciting to figure out new ways to solve unmet market needs that can be commercialized

2. Searching for new ideas for products/services to offer is enjoyable to me.

3. I am motivated to figure out how to make existing products/services better.

4. Scanning the environment for new opportunities really excites me.

5. Inventing new solutions to problems is an important part of who I am.

6. Establishing a new company would excite me.

7. Owning my own company would energize me.

8. Nurturing a new business through its emerging success would be enjoyable.

9. Being the founder of a business would be an important part of who I am.

10. I would really like finding the right people to market my product/service to.

11. Assembling the right people to work for my future business would be exciting.

12. Pushing my employees and myself to make my future company better would motivate me.

13. Nurturing and growing companies will be an important part of who I am

Appendix 2

Table 1. Correlation Matrix (N=55)

	MEAN	SD	1	2	3	4	5	6	7	8
1. Passion_IPF	5.05	1.22								
2. Passion_IC	4.62	1.42	.880**							
3. Passion for Inventing	5.07	1.12	.877**	.793**						
4. Passion for Founding	4.91	1.59	.918**	.897**	.706**					
5. Passion for Developing	4.86	1.42	.921**	.859**	.705**	.832**				
6. Ability to rec. Opport.	4.19	1.43	.564**	.559**	.539**	.546**	.490**			
7. Judgements Mean	4.08	0.96	-.023	.033	.055	-.052	-.022	.031		
8. Judgement Mean 1	4.28	1.09	-.239	-.145	-.101	-.226	-.272*	-.214	.777**	
9. Judgement Mean 2	3.85	1.32	.253	.272	.254	.200	.273	.295	.839**	.299*