Entrepreneurial passion: The difference between expert and novice entrepreneurs in the United States

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ABSTRACT,
Entrepreneurial passion is „at the heart of entrepreneurship". This quote from Melissa Cardon can be found in nearly every dissertation and scientific article about entrepreneurial passion. Entrepreneurial passion can be basically broken down into two dimensions, being "intense positive feelings" and "identity centrality", and three domains, namely "passion for founding", "passion for inventing", "passion for developing". Though there is already extensive research on the impacts of entrepreneurial passion, there is only few about its origins. This thesis examines whether entrepreneurial passion is influenced by an entrepreneur's experience. The concept of entrepreneurial experience, which is differentiated between expert and novice entrepreneurs, shows that decision-making processes differ among entrepreneurs. But does this concept also influence entrepreneurial passion? The results of this thesis show that there is a significant positive relationship between entrepreneurial experience and entrepreneurial passion. This is also observed for each domain of entrepreneurial passion and indicates that experienced entrepreneurs tend to score higher for entrepreneurial passion than novice entrepreneurs do. The study made use of data which was collected for a similar study about entrepreneurship. The data was collected in the United States of America and involved entrepreneurs from different nationalities and states.

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1. INTRODUCTION

“Your work is going to fill a large part of your life, and the only way to be truly satisfied is to do what you believe is great work. And the only way to do great work is to love what you do. If you haven't found it yet, keep looking. Don't settle. As with all matters of the heart, you'll know when you find it” – Steve Jobs (2005)

Following the above-mentioned quote from Steve Jobs, it can be said that entrepreneurs often face complex problems in situations they never faced before. Typically, these complicated problems and situations require novel, unique or creative solutions. However, entrepreneurial passion can help entrepreneurs in overcoming these difficult situations and problems (Chen et al., 2009; Vallerand et al., 2003). Cardon et al. (2013) argues in their research that passion is “at the heart of entrepreneurship” and that “individuals experiencing passion […] relish inventing new solutions to important needs and problems” (Cardon et al., 2013, p. 376). Moreover, the concept of entrepreneurial passion seems to be of importance for social interactions. Previous research found that entrepreneurs who are passionate about what they do are perceived by outsiders as being potentially more successful than those who are not passionate at all (Baum and Locke, 2004). Even successful entrepreneurs themselves think that success is a direct result of being passionate about their work (Isaacson, 2011). In line with that, Heather Russel, who is an entrepreneur in the software industry (Buiscuit), once said: “Was I passionate about real estate when I started? Absolutely not. However, we found an opening in the market and decided to build a solution for it. And then I had to develop a passion for all the things associated with that market” (Renjen, 2020). Therefore, it can be said that the degree of entrepreneurial passion is of essential importance for entrepreneurs and crucial for entrepreneurial success (Baum and Locke, 2004; Isaacson, 2011). But are there specific groups of entrepreneurs that can be characterized with a different degree of passion than others?
In previous research was found that the decision-making process among entrepreneurs differs and that this process is influenced by an entrepreneur’s degree of experience and expertise (Dew, Read et al., 2009). Expert entrepreneurs “frame decisions using an “effectual” logic […] while novices use a “predictive frame”” (Dew, Read et al., 2009, p. 287). Thus, it could be possible that entrepreneurial experience is not only influencing the decision-making process of an entrepreneur but also an entrepreneur’s degree of entrepreneurial passion.

1.1 Research gap

In previous research the topic of entrepreneurial passion is already discussed. Cardon et al. 2013 work “Measuring entrepreneurial passion: Conceptual Foundations and scale validation” created an instrument to capture and measure the dimensions and domains of entrepreneurial passion. One of their implications to do research on that topic was to understand and “facilitate future research on the unique and distinct roles of EP in entrepreneurship” (Cardon et al., 2013, p.388). As passion and success are directly related (Cardon, 2008), further research on that topic will give significant insights about the overall research field of entrepreneurship. To create a link between individuals and their degree of entrepreneurial passion, this thesis will investigate whether novice and expert entrepreneurs differ in their degree of passion. It has already been found that there are differences in entrepreneurial decision-making of expert and novice entrepreneurs. Novices follow a predictive frame while experts are using a more effectual logic (Dew, Read et al., 2009). Thus, it is necessary to further elaborate on that topic and create a better picture of this field of research because from what we know there is only limited empirical evidence whether novice and expert entrepreneurs differ in their degree of passion. Since there is already literature about both topics, the aim of this thesis is to understand that gap in the underlying literature and to analyze the relationship of novice and expert entrepreneurs towards entrepreneurial passion.

1.2 Research Question

Based on the previous sections it can be said, that there is missing and insufficient information that limits the ability to reach a conclusion about the following question: ***“How does entrepreneurial experience impact the degree of entrepreneurial passion among entrepreneurs?”*** In fact, this question is the research question of this paper and will be answered in the following parts of this thesis.

2.THEORETICAL FRAMEWORK

In this part of the thesis the key concepts of the research are defined. First, the concept of entrepreneurial passion and its dimensions and domains will be discussed. Secondly, entrepreneurial experience will be discussed, and the difference of expert and novice entrepreneurs explained. Lastly, the hypotheses for this research paper will be constructed.

2.1 Entrepreneurial passion

Current literature points out that there are different frameworks used for describing the concept of entrepreneurial passion. The dualistic model of passion defines passion as a “strong inclination toward an activity that people like, that they find important, and in which they invest time and energy“(Vallerand et al, 2003). This model distinguishes between “harmonious passion” and “obsessive passion” (Vallerand, 2003). However, this study is of qualitative nature and will make use of a different framework developed by Melissa Cardon. Therefore, entrepreneurial passion is defined as “consciously accessible, intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur” (Cardon et al., 2013, p. 375). This definition points out that there are different aspects that need to be considered within the concept of entrepreneurial passion. First, Cardon et al. (2013) points out that there are two different dimensions that must be considered when measuring entrepreneurial passion, namely being: intense positive feelings and identity centrality (Cardon et al., 2013). Each of those dimensions is focused on three specific entrepreneurial domains which will be explained in the following subsections (Cardon et al., 2013).

2.1.1 Passion for inventing new products or services

According to Cardon, the domain of passion for inventing new products or services is basically related to three different aspects being, “scanning the environment for new market opportunities, developing new products and services, and working with new prototypes” (Cardon et al., 2013, p.376). Accordingly, an entrepreneur that is passionate for inventing can typically be a scientist or product-oriented entrepreneur (Mol, Cardon, & Khapova, 2020). In the following paragraphs this domain will be called “passion for inventing”.

2.1.2 Passion for founding new organizations

Passion for founding new organizations is associated with "assembling the necessary financial, human, and social resources needed to create a new venture" (Cardon et al., 2013, p. 376). Thus, this type of passion will probably determine how effective an entrepreneur is in overcoming challenges, especially in the founding stage of an organization. In the following paragraphs this domain will be called "passion for inventing".

2.1.3 Passion for developing organizations beyond their initial survival and success

The last domain of entrepreneurial passion is concerned with passion for developing. Here, entrepreneurs are especially passionate about developing already existing businesses. Therefore, this domain is not about the passion of setting up a completely new venture rather than developing an already existing organization. In the following paragraphs this dimension will be called "passion for developing".

2.2 Entrepreneurial experience

For the purpose of this thesis the independent variable entrepreneurial experience refers to two concepts: novice entrepreneurs and expert entrepreneurs. Both will be used in the analysis as independent variables that together describe the concept of entrepreneurial experience and are defined as follows:

2.2.1 Novice entrepreneur

There are a lot of different definitions for novice entrepreneurs. Most widely used is the one of Westhead & Wright defining a novice entrepreneur as "Entrepreneurs who do not have any previous entrepreneurial experience" (Westhead & Wright, 1998). In order to better distinct a novice entrepreneur from an expert entrepreneur this research paper will use the following definition for a novice entrepreneur: "someone who has less than or equal to five years of [entrepreneurial] experience" (Dew et al., 2009).

2.2.2 Expert entrepreneur

According to Dew et al., an expert is "someone who has attained reliably superior performance in a particular domain" (Dew, Read et al.2009, p. 288). In previous research on expertise it has been found that elite (expert) performers on average had 10000 hours of experience in that specific domain which can be translated into five years of work experience (Ericsson, 1993). Thus, an expert entrepreneur is defined as someone who has more than five years of work experience as an entrepreneur.

2.3 Hypotheses

In the previous sections the theoretical framework and research question have been discussed and explained. Based on that different hypotheses have been constructed and will be tested in the following sections of this research paper. In this section the hypothesis will be elaborated.

2.3.1 Hypothesis

In recent literature it is stated that there is evidence that there are roles that different entrepreneurs may experience differently (Cardon et al., 2013). Therefore, to answer the underlying research question of this paper, one hypothesis for each domain of entrepreneurial passion must be developed. To understand whether there is a difference among expert and novice entrepreneurs and their level of entrepreneurial passion, the following hypothesis will be tested:

The first hypothesis is dealing with the domain "passion for inventing". As already pointed out in section 2.1.1 "passion for inventing" involves different activities and those can differ among entrepreneurs (Cardon et al., 2013, Katila and Ahuja, 2002). To understand whether those activities also differ among expert and novice entrepreneurs as the literature would suggest, the following hypothesis has been developed:

1. "It is hypothesized that; **expert and novice entrepreneurs are scoring equally for the entrepreneurial passion domain "passion for inventing"**

The second hypothesis is concerned about the domain "passion for founding". Researchers found that entrepreneurs are driven by different factors. One of those, and maybe the most important one is the desire to found new ventures. (Aldrich & Zimmer, 1986). In recent literature it has been shown that "passion for founding" changes over time (Collewaert, 2016). Thus, it is possible that experience could be one reason for that. In order to understand whether expert or novice entrepreneurs differ among their degree of "passion for founding" the following hypothesis has been constructed:

2. "It is hypothesized that; **expert and novice entrepreneurs are scoring equally for the entrepreneurial passion domain "passion for founding"**

The last hypothesis is looking at the domain "passion for developing". As already explained in section 2.1.3 this domain is about developing an already existing company. Literature shows that not only founders of their own companies can experience a high degree of "passion for developing" but also entrepreneurs who are joining a venture (Cardon et al., 2013). This implies that the origins of entrepreneurial "passion for developing" are not related to the venture itself but to the entrepreneur himself. To understand whether the experience of expert and novice entrepreneurs differs, the following hypotheses has been developed:

3. "It is hypothesized that; **expert and novice entrepreneurs are scoring equally for the entrepreneurial passion domain "passion for developing"**

For each of the constructed hypothesis above there is also an alternative hypothesis. It states that there is a significant difference between the scores of expert and novice entrepreneurs within the specific domain of entrepreneurial passion that is mentioned in each hypothesis.

3.METHODOLOGY

Collection of relevant data is vital for accurate findings. Therefore, this part of the thesis will look at the methodological approach, data collection and the methods of analysis. Since this research depends more on quantitative data and numbers, data collection would mainly involve primary research. As the current situation of Covid-19 makes it difficult to collect enough data within the given timeframe, it has been decided to make use of data that has already been collected before.

However, only recognized, and valid sources will be used to ensure accuracy of the data and information.

3.1 Methodological approach

As already mentioned in the previous paragraph, this thesis will make use of a quantitative research approach. This has the advantage of using measurable data that can formulate facts and uncover relationships between variables. It is common in this research field to make use of surveys as it is a reliable method to highlight relationships. Although some practical indications have been used, it is theoretical based, and no ethical or philosophical concerns must be considered.
For measuring the variable of entrepreneurial passion, the validated scale of Cardon et al., was used. The original scale was developed as a five-point Likert scale, but to guard against issues of range restriction a seven-point Likert scale (1= totally disagree, 7 = totally agree) has been used. The scale consists of thirteen questions from which each question is related to one of the domains of entrepreneurial passion. Therewith, five items are related to the domain of "passion for inventing" and accordingly four items to the domain of "passion for founding" as well as four items to the domain of "passion for developing". While ten items can be in total related to intense positive feelings, only three items are used for measuring identity centrality. Novice and expert entrepreneurs are identified by their number of years of experience as an entrepreneur.

3.2 Data collection

Due to the circumstances it has been decided to make use of data which was originally collected for a different study about entrepreneurship. The data was collected in the United States of America and involved 152 participants from different states and nationalities.

3.3 Methods of analysis

As quantitative research is based on numbers, the gathered data was properly prepared to catch errors before processing. Because this study focuses especially on high educated entrepreneurs, participants with a high school degree and/or lower have been removed from the dataset. After that, the statistical software SPSS (version 25) has been used to analyze the collected data. In the analysis part of this thesis different statistical approaches will be used to analyze the relationship of entrepreneurial passion and entrepreneurial experience. For all analysis within this paper the value 0,05 is used as the cutoff point for significance.
First, Cronbach's alpha will be analyzed to test for internal consistency. In addition to that an explanatory factor analysis will be performed to uncover the underlying structure of the variables. It is also made use of a correlation analysis to evaluate the relationship between the variables as this can significantly impact the outcomes of the following data analysis.
Before conducting a parametric test, it is important to check whether the assumptions are fulfilled or not. As will be shown in section 4.2 the data is clearly skewed to the left. Therefore, it can be said that the data is not normal distributed. In fact, the assumptions for a parametric test cannot be fulfilled and it must be made use of a non-parametric test to test the hypothesis. It has been decided to use the Mann Whitney U test as it is an appropriate test for the variables used. This test gives insights whether there is a statistically significant difference between expert and novice entrepreneurs and their score for the respective domain of entrepreneurial passion. To perform the test, it is important that the assumptions are fulfilled.

(1) The two investigated groups must be randomly drawn from the target population. The concept of random implies the absence of measurement and sampling errors. Note that an error of these last types can be involved but must remain small. (Nacher, 2008)
(2) Each measurement or observation must correspond to a different participant. In statistical terms, there is independence within groups and mutual independence between groups. (Nacher, 2008)
(3) The data measurement scale is of ordinal or continuous type. The observations values are then of ordinal, relative, or absolute scale type. (Nacher, 2008)
The underlying data is not violating any of these assumptions. Therefore, the Mann Whitney U test can be used as a statistical tool to test the hypotheses of this research paper. Besides looking at the assumptions for the Mann Whitney U test, a test for homogeneity of variance has been conducted. The output can be found in Appendix 5 and shows that the null hypothesis can be rejected. Therefore, the assumption for equal distributions between the two groups (expert and novice entrepreneur) is satisfied which implies that it is possible to interpret the P-value of the non-parametric Mann Whitney U tests.

To test for correlation, the non-parametric version of Pearson correlation, the Spearman correlation has been used.

Previously in this section was stated that a parametrical test cannot be performed but statistical literature for example states that "Parametric statistics can be used with Likert data, with small sample sizes, with unequal variances, and with non-normal distributions, with no fear of 'coming to the wrong conclusion" (Norman, 2010). Thus, a linear regression analysis will also be performed to analyze the relationship between entrepreneurial experience and entrepreneurial passion.

4.DATA ANALYSIS & RESULTS

In this part, the data analysis and results will be presented. First, the internal consistency of the variables and descriptive statistics will be displayed and explained. After that, the hypothesis will be tested by conducting a non-parametric test and finally the results will be discussed.

When various aspects of personality are measured it is necessary to test for internal consistency (Streiner, 2003). Therefore, the entrepreneurial passion scale has been tested for internal consistency using Cronbach's alpha. The results for each domain of entrepreneurial passion can be found in Appendix 1. As the scale only consists of positive worded items there was no need for reverse coding any of those items. The results show that for all five items of "passion for inventing", the α is 0.826 while the four items of "passion for founding" score α of 0.839 and the four items of "passion for developing" score α of 0.845. For clinical purposes 0.9 is "the minimally tolerable estimate" with an ideal of 0.95 (Nunally, 1967). As this is study only involves basic research a value higher than 0.8 is sufficient (Nunally, 1967). Thus, it can be said, that the internal consistency and reliability of the items for the entrepreneurial passion scale is given and further analysis can be performed.

The outcomes of the explanatory factor analysis for the variable entrepreneurial passion can found in Appendix 11. Thirteen questions related to entrepreneurial passion were factor

analyzed using principal axis factoring with varimax (orthogonal) rotating. The analysis yielded three factors explaining a total of 68,488% of the variance of the entire set of variables which is in accordance with the work of Cardon et al. (2013). The rotated component matrix shows different cross loadings among all three factors. However, the KMO (0,898) and Bartlett's Test of Sphericity (p<0,05) both indicate that the set of variables are adequately related for factor analysis.

4.1 Control variables

Although control variables are not of interest for the actual research, they can have a significant impact on the outcome of the analysis. To make sure that other variables are not influencing the dependent variable it is useful to also look at control variables (Schjoedt, 2014). The following control variables have been used in this study: gender, age, and educational level. Those variables were coded into metric variables to perform adequate analysis. The specific coding of each variable can be found in Appendix 12. To test if the control variables have a relationship with the dependent variable entrepreneurial passion, a correlation analysis has been performed. The results of the correlation analysis can be found in Appendix 2. The domain of "passion for founding" has no significant correlation with any of the control variables: age (r=0,053 , p=0,547) gender (r=-0.169 , p=0,056) or educational level (r=-0,167: , p=0,58). This can be also said for the domain of "passion for developing" as the p-values show not enough significance to determine a significant relationship: age (r=0,02 , p=0,823) gender (r=-0,027 , p=0,761) educational level (r=-0,074 , p=0,404). The only domain that seems to be influenced by a control variable is the domain "passion for inventing". Here, the control variables gender (r=-0,235, p=0,007) and educational level (r=-0,255, p=0,003) seem to have a significant relationship. As both relationships are negative this means for the control variable gender that male participants tend to score higher than female participants and that participants with a lower education level score higher on passion for inventing than participants with a higher educational level. Whereas the other control variable seems not to influence this specific domain: age (r=0,033, p=0,709). After looking at each domain we will look at the actual dependent variable entrepreneurial passion. The score for the control variable age (r=0,065, p=0,473) don't indicate a significant relationship with the dependent variable while the values for gender (r=-0,215, p=0,015) and educational level (r=-0,192, p=0,029) do. Thus, both control variables are influencing the construct and must be considered when interpreting the results.

4.2 Descriptive statistics

In Appendix 3 the descriptive statistics for the independent variable's novice- and expert entrepreneur are shown. The frequencies show that from 129 interviewed entrepreneurs 87 can be characterized as novice entrepreneurs which is a percentage of 67,4%. Thus, there are 42 or 32.6% of the participants that can be identified as expert entrepreneurs.

		Entrepreneurial_Passion	Passion_INV	Passion_FND	Passion_DEV
N	Valid	129	129	129	129
	Missing	0	0	0	0
Mean		6,0054	6,2031	5,9438	5,8198
Median		6,2308	6,4000	6,2500	6,0000
Std. Deviation		,84840	,80544	1,06399	1,09552
Variance		,720	,649	1,132	1,200

Table 1

Table 1 shows descriptive statistics for the dependent variable entrepreneurial passion and its three domains. Among the three domains passion for inventing has the highest mean score of 6,203, followed by passion for founding with a mean score of 5,943 and passion for developing scoring a mean of 5,819. The median is within all three domains higher than the mean score which indicates that the distribution of the data might be skewed to the left. This is also the case when looking at the scores for the variable of entrepreneurial passion as the mean score is 6,005 and the median is 6,23. Although this is just a rule of thumb in Appendix 4 statistics for the skewness are displayed which confirm that the data is skewed to the left. Looking at the standard deviation, it can be said that it is relatively low among all three domains of entrepreneurial passion and the variable itself. In fact of that, the answers tend to be relatively close to the mean. While passion for development and passion for founding have a standard deviation higher than 1 (passion for development 1,095, passion for founding 1,063), passion for inventing only has a standard deviation of 0,805.

4.3 Hypothesis testing

In this section the formulated hypothesis will be tested. As already discussed in section 3.3 the non-parametric Mann Whitney U test will be used.

The first hypothesis that will be tested is referring to the domain of "passion for inventing":
H1: **expert and novice entrepreneurs are scoring equally for the entrepreneurial passion domain "passion for inventing".**
After running the Mann Whitney U test it can be said that there is a numerical difference of "passion for inventing" between novice and expert entrepreneurs which is statistically

significant. The output tables can be found in Appendix 6 and shows that novices have a mean rank of 59,49 and experts have a mean rank of 76,42. As the mean rank for experts is higher than for novices it can be said that experts entrepreneurs score higher for the domain "passion for inventing" than novice entrepreneurs. From the data of the test statistics which can be found in Table 2 (U=1347,5, p= 0,014) can be concluded that the results are statistically significant, and that the hypothesis can be rejected

Test Statistics[a]

	Passion_INV
Mann-Whitney U	1347,500
Wilcoxon W	5175,500
Z	-2,451
Asymp. Sig. (2-tailed)	,014

a. Grouping Variable: Experience

Table 2

The second hypothesis that will be tested is referring to the domain of "passion for founding":
H2: **expert and novice entrepreneurs are scoring equally for the entrepreneurial passion domain "passion for founding".**
To examine this hypothesis, a Mann-Whitney U test will be conducted on "passion for founding" by expert and novice entrepreneurs. The test results show that there was a significant difference (U= 1299, p= 0,007) between expert and novice entrepreneurs and their score for "passion for founding" (Table 3). The outcomes of the analysis can be found in Appendix 7. The median for experts was 77,57 while the median for novices was only 58,93. Thus, it can also be suggested that experts' participants score higher than novice participants.

Test Statistics[a]

	Passion_FND
Mann-Whitney U	1299,000
Wilcoxon W	5127,000
Z	-2,679
Asymp. Sig. (2-tailed)	,007

a. Grouping Variable: Experience

Table 3

The last hypothesis that will be tested is referring to the domain of "passion for developing".
H3: **expert and novice entrepreneurs are scoring equally for the entrepreneurial passion domain "passion for developing".**
In order to test the hypothesis, a Mann-Whitney U test is applied. The test statistics can be found in Appendix 8 and show that expert entrepreneurs score a mean rank of 76,69 while novice entrepreneurs only score a mean rank of 59,36. Despite that the test statistics which are displayed in Table 4 also indicate that there is a statistically significant difference between both groups (U=1336, p=0,013). Thus, it can be concluded that indeed expert and novice entrepreneurs score significantly different for "passion for developing" and experts are the ones scoring higher while novices are more likely to score lower.

Test Statistics[a]

	Passion_DEV
Mann-Whitney U	1336,000
Wilcoxon W	5164,000
Z	-2,486
Asymp. Sig. (2-tailed)	,013

a. Grouping Variable: Experience

Table 4

After testing each hypothesis, the following paragraph will now try to give an answer to the underlying research question of this paper (section 1.1.2). As all hypothesis were rejected, it can be concluded that there are significant differences between expert and novice entrepreneurs and their scores within each domain of entrepreneurial passion. To adequately answer the research question, a Mann-Whitney U is conducted between expert and novice entrepreneurs on entrepreneurial passion. As it could have been already expected based on the outcomes of the previous tests for each domain of entrepreneurial passion, there is a statistically significant difference between the scores of expert and novice entrepreneurs (U= 1262,5, p=0,004) as the test statistics show (Table 5). The tables of this analysis can be found in Appendix 9 and display that expert entrepreneurs score a mean rank of 78,44 and novice entrepreneurs only score a mean rank of 58,51. Thus, it can be said that entrepreneurial experience is positively influencing the degree of passion among entrepreneurs. This means that more experienced entrepreneurs are more likely to score higher for entrepreneurial passion than less experienced entrepreneurs.

Test Statistics[a]

	Entrepreneurial Passion
Mann-Whitney U	1262,500
Wilcoxon W	5090,500
Z	-2,843
Asymp. Sig. (2-tailed)	,004

a. Grouping Variable: Experience

Table 5

In the following, a linear regression analysis has been conducted. The outcomes of this analysis can be found in Appendix 10. As expected, the outcomes of this analysis also show that expert entrepreneurs score significantly higher for entrepreneurial passion than novice entrepreneurs. The regression equation of the analysis is equal to $5{,}869 + 0{,}418*(x)$ and ($F(1,127) = 7{,}224$ $p<0{,}05$ with R^2 being 0,054.

5.DISCUSSION

The findings of this research contribute to the current literature of entrepreneurial passion and give insights about its origins. The data used in this paper is based on a survey send to highly educated entrepreneurs in the United States of America. It provides information on how high educated expert and novice entrepreneurs differ in their degree of entrepreneurial passion and its associated domains.

The outcomes of the analysis show that there is indeed a difference between the scores of entrepreneurial passion for expert and novice entrepreneurs. This is not surprising as previous literature has already shown that expert and novice entrepreneurs for example, differ in their decision-making processes (Dew, Read et al., 2009). Additionally, it has been found that expert entrepreneurs are those who are scoring significantly higher for passion than novice entrepreneurs. In line with literature this could have been suggested either as expertise often overlaps and explains success (Sarasvathy, 2009). Translated into practice these outcomes indicate that expert entrepreneurs tend to score higher for entrepreneurial passion than novices do. Even though this can also be said for each domain of entrepreneurial passion it has to be kept in mind that there are some concerns of correlation with the control variables (section 4.1). In particular the domain of "passion for inventing" is influenced by both, the control variable educational level and the control variable gender.

In accordance with the above-mentioned outcomes it can be said that all stated hypothesis within this paper were rejected. Based on the literature this is not surprising and confirms recent findings that there are roles that different entrepreneurs may experience differently (Cardon et al., 2013).

In general, the reliability of the data is given as the internal consistency of the constructs are given. All calculated Cronbach's alpha values are higher than 0.8 which indicates the reliability of the items. Looking at the KMO it can be said that the value of 0.89 is high enough to indicate the usefulness of a factor analysis. The outcomes of the factor analysis indicate that the data used within this study mainly involves three factors with an eigenvalue that is greater than one. This could have been expected based on the work of Cardon et al (2013). Nevertheless, there are cross loadings identified among each domain of entrepreneurial passion. Especially the domain "passion for developing" suffers from cross loadings regarding the following items: EP 10, EP 13. This can have different reasons, but it is most likely because the constructs analyzed are conceptually very similar. Literature confirms that as the domains are all "consistently found at the heart of the entrepreneurial process" (Cardon et al., 2013).

6.CONCLUSION

This research paper was looking into the relationship of entrepreneurial passion and entrepreneurial experience. After describing the theoretical framework and the methodological approach different statistical tests have been used to answer the research question: ***"How does entrepreneurial experience impact the degree of entrepreneurial passion among entrepreneurs?"***

The outcomes of the analysis show that there is a significantly positive relationship between entrepreneurial experience and entrepreneurial passion. Thus, it can be said that expert entrepreneurs tend to score higher for entrepreneurial passion than novice entrepreneurs. To conclude, this research paper shows that entrepreneurial experience does impact the degree of entrepreneurial passion positively among entrepreneurs.

7.LIMITATIONS

Although this study provides important insights into the relationship between entrepreneurial passion and entrepreneurial experience there are some limitations that must be considered.

Participating entrepreneurs were categorized into experts and novices based on their number of years of experience as an entrepreneur. To what extent this measure can be used remains open and therefore this study may lack some generalizability. I employed this simplification because of different reasons. First, due to the limitations of the data collection during the Covid-19 pandemic, I had to work with already existing data. Thus, it was not possible to add or include any new variables to the dataset which restricted my possibilities in constructing the theoretical framework, especially for the independent variable entrepreneurial experience and its related constructs novice and expert entrepreneur.

As the sample only consists of entrepreneurs from the United States of America the outcomes may or may not generalize to entrepreneurs from other countries. Therefore, this study may lack some external validity and the amount to which the results can be generalized to a more universal population can be questioned. By conducting the same study in different countries all around the world future research could reduce the lack of generalizability and may be able to draw a conclusion about the whole population.

8.RECOMMENDATIONS AND FUTURE RESEARCH

As mentioned in the introduction of this paper, passion is "at the heart of entrepreneurship" (Cardon et al., 2013). Although there is already extensive research on the impacts of entrepreneurial passion, there is only few about the origins (Cardon et al., 2009). To better understand this field of research, future research should not only focus on the outcomes of entrepreneurial passion but also on its origins. By doing so it could be possible in the future to predict an entrepreneur's passion and consequently statements about certain behavioral patterns could be made.

Additionally, future research could test the generalizability of this research by using different measures for entrepreneurial experience (e.g. number of firms founded) and use a different form of data collection (using primary data).

9.RELEVANCE

In the Introduction and Research gap part of this paper, the scientific relevance has already been explained. Despite that, the social relevance of the research topic must be discussed. Research from the year 2013 shows that "entrepreneurship is not only necessary for a healthy economy but also critical for sustaining prosperity and creating new jobs" (Henry, Hill, Leitch, 2013). Thus, the role of entrepreneurship and its related topics, can be crucial for societal development and success. Therefore, it is important to look in each dimension of entrepreneurship and understand its relationship to one another. Next to the economic importance, entrepreneurship is also of importance for societal reasons. As the introduction of completely new goods and services can result in a reduction of dependence on obsolete systems and products, entrepreneurs can break away societal traditions and create new ones. This can for example result in different outcomes like an improvement of live quality, improved morale, and more economic freedom (Bédard, 2016). In fact, it can be said that entrepreneurs have the ability to create social change. Moreover, entrepreneurs can also contribute significantly to community development. For example, are entrepreneurs known for their desire to provide financial support to local charities and invest in local community projects. Besides Bill Gates and his famous "Bill & Melinda Gates Foundation" there several other entrepreneurs that try to help with societal development (e.g. Elon Musk, Mark Zuckerberg). Even small

business owners and family businesses “contribute to the economies and social fabric of their communities, often forming the stable business core” (Margaret A. Fitzgerald & Glenn Muske, 2016). As entrepreneurial passion is at the heart of entrepreneurship, the scientific and social relevance for both topics are given.

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11.Appendix

Appendix 1 – Cronbach's alpha (internal consistency)

Reliability Statistics, Passion for inventing

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,826	,831	5

Reliability Statistics, Passion for founding

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,825	,839	4

Reliability Statistics, Passion for developing

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,841	,845	4

Appendix 2 – Correlation analysis

Correlations

			Gender_1	Age	CV3EducationLevel	Passion_INV	Passion_FND	Passion_DEV	Entrepreneurial_Passion
Spearman's rho	Gender_1	Correlation Coefficient	1,000	-,090	-,006	-,235**	-,169	-,124	-,215*
		Sig. (2-tailed)	.	,313	,944	,007	,056	,160	,015
		N	129	129	129	129	129	129	129
	Age	Correlation Coefficient	-,090	1,000	,375**	,033	,053	-,027	,020
		Sig. (2-tailed)	,313	.	,000	,709	,547	,761	,820
		N	129	129	129	129	129	129	129
	CV3EducationLevel	Correlation Coefficient	-,006	,375**	1,000	-,255**	-,167	-,074	-,192*
		Sig. (2-tailed)	,944	,000	.	,003	,058	,404	,029
		N	129	129	129	129	129	129	129
	Passion_INV	Correlation Coefficient	-,235**	,033	-,255**	1,000	,556**	,578**	,817**
		Sig. (2-tailed)	,007	,709	,003	.	,000	,000	,000
		N	129	129	129	129	129	129	129
	Passion_FND	Correlation Coefficient	-,169	,053	-,167	,556**	1,000	,711**	,872**
		Sig. (2-tailed)	,056	,547	,058	,000	.	,000	,000
		N	129	129	129	129	129	129	129
	Passion_DEV	Correlation Coefficient	-,124	-,027	-,074	,578**	,711**	1,000	,883**
		Sig. (2-tailed)	,160	,761	,404	,000	,000	.	,000
		N	129	129	129	129	129	129	129
	Entrepreneurial_Passion	Correlation Coefficient	-,215*	,020	-,192*	,817**	,872**	,883**	1,000
		Sig. (2-tailed)	,015	,820	,029	,000	,000	,000	.
		N	129	129	129	129	129	129	129

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 3 – Descriptive statistics expert and novice entrepreneurs

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Novice	87	67,4	67,4	67,4
	Expert	42	32,6	32,6	100,0
	Total	129	100,0	100,0	

Appendix 4 – Skewness

Statistics

		Entrepreneurial_Passion	Passion_INV	Passion_FND	Passion_DEV
N	Valid	129	129	129	129
	Missing	0	0	0	0
Skewness		-1,039	-,827	-1,356	-1,028
Std. Error of Skewness		,213	,213	,213	,213

Appendix 5 – Homogenity of variances for entrepreneurial passion and its domains

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Entrepreneurial_Passion	Based on Mean	2,857	1	127	,093
	Based on Median	3,238	1	127	,074
	Based on Median and with adjusted df	3,238	1	126,703	,074
	Based on trimmed mean	3,334	1	127	,070

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Passion_INV	Based on Mean	,189	1	127	,665
	Based on Median	,734	1	127	,393
	Based on Median and with adjusted df	,734	1	106,445	,393
	Based on trimmed mean	,402	1	127	,527

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Passion_FND	Based on Mean	4,205	1	127	,042
	Based on Median	3,810	1	127	,053
	Based on Median and with adjusted df	3,810	1	116,922	,053
	Based on trimmed mean	4,012	1	127	,047

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Passion_DEV	Based on Mean	1,219	1	127	,272
	Based on Median	1,183	1	127	,279
	Based on Median and with adjusted df	1,183	1	126,505	,279
	Based on trimmed mean	1,192	1	127	,277

Appendix 6 – Mann Whitney U test "passion for inventing"

Ranks

	Experience	N	Mean Rank	Sum of Ranks
Passion_INV	0	87	59,49	5175,50
	1	42	76,42	3209,50
	Total	129		

Test Statistics[a]

	Passion_INV
Mann-Whitney U	1347,500
Wilcoxon W	5175,500
Z	-2,451
Asymp. Sig. (2-tailed)	,014

a. Grouping Variable: Experience

Appendix 7 – Mann Whitney U test "passion for founding"

Ranks

	Experience	N	Mean Rank	Sum of Ranks
Passion_FND	0	87	58,93	5127,00
	1	42	77,57	3258,00
	Total	129		

Test Statistics[a]

	Passion_FND
Mann-Whitney U	1299,000
Wilcoxon W	5127,000
Z	-2,679
Asymp. Sig. (2-tailed)	,007

a. Grouping Variable: Experience

Appendix 8 – Mann Whitney U test "passion for developing"

Ranks

	Experience	N	Mean Rank	Sum of Ranks
Passion_DEV	0	87	59,36	5164,00
	1	42	76,69	3221,00
	Total	129		

Test Statistics[a]

	Passion_DEV
Mann-Whitney U	1336,000
Wilcoxon W	5164,000
Z	-2,486
Asymp. Sig. (2-tailed)	,013

a. Grouping Variable: Experience

Appendix 9 – Mann Whitney U test entrepreneurial passion

Ranks

	Experience	N	Mean Rank	Sum of Ranks
Entrepreneurial_Passion	0	87	58,51	5090,50
	1	42	78,44	3294,50
	Total	129		

Test Statistics[a]

	Entrepreneurial_Passion
Mann-Whitney U	1262,500
Wilcoxon W	5090,500
Z	-2,843
Asymp. Sig. (2-tailed)	,004

a. Grouping Variable: Experience

Appendix 10 – Linear regression analysis

Model Summary

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate
1	,232[a]	,054	,046	,82850

a. Predictors: (Constant), Experience

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,959	1	4,959	7,224	,008[b]
	Residual	87,174	127	,686		
	Total	92,132	128			

a. Dependent Variable: Entrepreneurial_Passion

b. Predictors: (Constant), Experience

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	5,869	,089		66,076	,000
	Experience	,418	,156	,232	2,688	,008

a. Dependent Variable: Entrepreneurial_Passion

Appendix 11 – Explanatory factor analysis

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6,379	49,070	49,070	6,379	49,070	49,070	3,658	28,142	28,142
2	1,431	11,008	60,078	1,431	11,008	60,078	3,030	23,305	51,446
3	1,093	8,410	68,488	1,093	8,410	68,488	2,215	17,042	68,488
4	,707	5,436	73,924						
5	,610	4,693	78,617						
6	,566	4,352	82,969						
7	,427	3,285	86,255						
8	,410	3,155	89,410						
9	,387	2,977	92,387						
10	,282	2,172	94,559						
11	,254	1,957	96,515						
12	,239	1,837	98,352						
13	,214	1,648	100,000						

Extraction Method: Principal Component Analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,898
Bartlett's Test of Sphericity	Approx. Chi-Square	909,952
	df	78
	Sig.	,000

Rotated Component Matrix[a]

	Component		
	1	2	3
EP1inv	,461	,671	
EP2inv		,815	
EP3inv		,515	,579
EP4inv		,817	
EP5inv		,664	,345
EP6fnd	,648	,490	
EP7fnd	,763		
EP8fnd	,775		,338
EP9fnd	,784		
EP10dev	,714		,408
EP11dev			,797
EP12dev	,411		,755
EP13dev	,616	,356	,394

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Appendix 12 – Coding control variables

Gender: 0=Male, 1=Female

Age: already metric

Educational level: 1 = High School, 2 = Community College, 3 = Bachelor's degree, 4 = Master's degree, 5 = Doctorate or professional degree