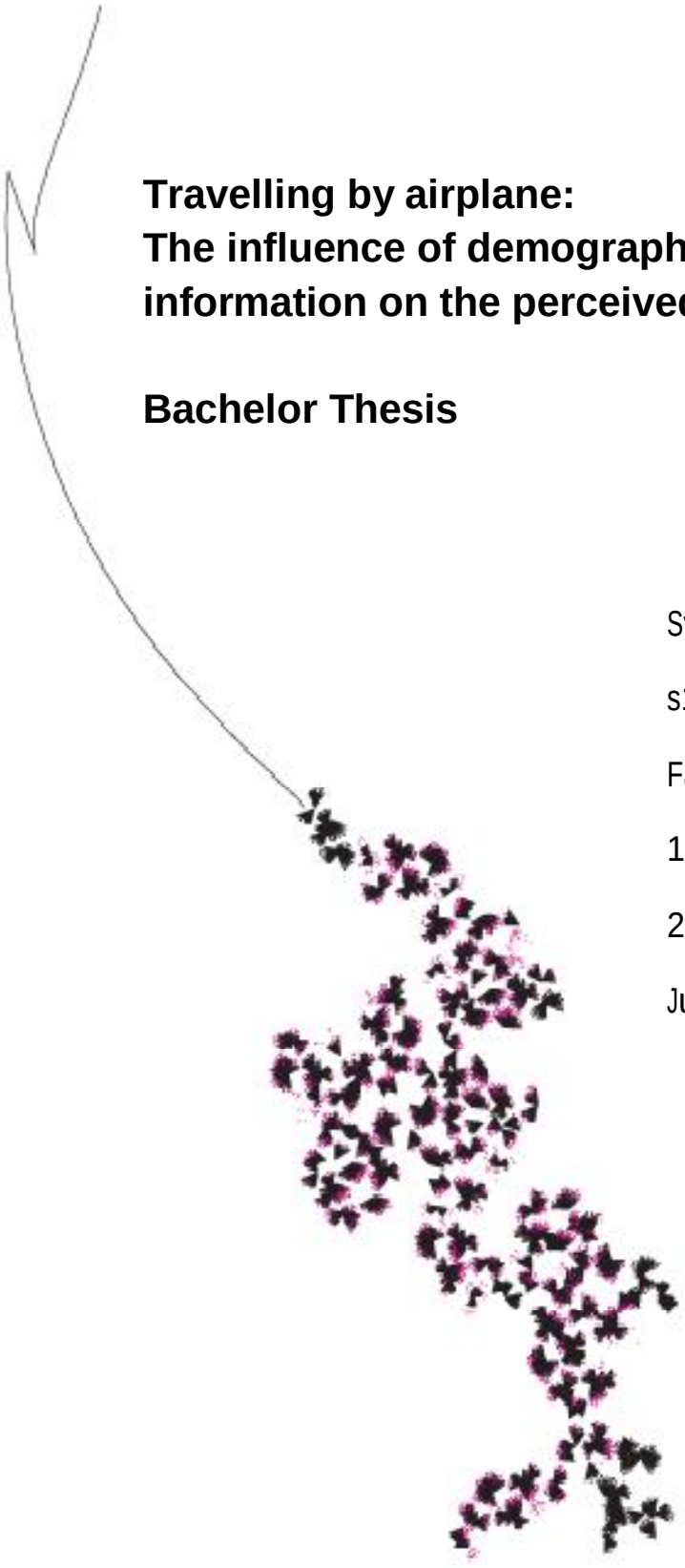
University of Twente

Travelling by airplane:
The influence of demographic variables and gathering information on the perceived risk of flying

Bachelor Thesis



Svenja Singenstroth

s1355228

Faculty: Psychology of Conflict, Risk and Safety

1st supervisor: Dr. Jan Gutteling

2nd supervisor: Dr. Peter de Vries

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Abstract

Fear of flying is a widespread problem (Depla et al., 2008). It leads to financial constraints for the airline companies and restricts individuals in their personal freedom (Gaissmeier &Gigerenzer, 2012; Oakes & Bor, 2010). In order to develop successful interventions for those who fear flying, it is a first step to identify factors that are related to the fear. This exploratory research takes this aspect into account: it is meant to collect information about possible factors that are connected to the perceived risk of flying by airplane. It is conducted to figure out to which degree demographic variables and the receipt of information are related to risk perception of flying. Furthermore, associated with the airplane crash on 24 March in France, it is analyzed if the perceived risk undergoes change within one month after the accident.

The research instrument is an online questionnaire which provides information about demographic variables and the perceived risk of flying. Data of 160 participants are statistically analyzed. The reliability is satisfying, so that based on the results conclusion can be formulated. The research shows that women perceive the risk of flying as higher than men do. Moreover, based on the number of times someone has been flying before, it can be predicted how high the risk is perceived: people who fly more often seem to be less fearful. There also seems to be a weak effect of age: younger people seem to estimate risk of flying as a little bit higher than older ones do. Related to risk perception, there cannot be found any significant effect of educational level or the receipt of information about the tracking system of the airplane. The days that have been passed by since the airplane accident in France also do not seem to influence the perceived risk of flying.

The large part of the results corresponds to earlier expectations, researches and literature. However, the research also led to some surprising results. When regarding the obtained results, it has to be taken into account that there might be some factors that possibly influence the reliability negatively. One of these factors might be the accident on 24 March in France. It is conceivable that the accident was still very present in the people's mind while filling in the questionnaire. This could have negative consequences on the reliability of the research.

Samenvatting

Vliegangst is een wijdverspreid probleem (Depla et al., 2008). Het vormt financiële problemen voor de luchtvaartmaatschappij en beperkt de persoonlijke vrijheid van individuen (Gaissmaier & Gigerenzer, 2012; Oakes & Bor, 2010). Om succesvolle interventies te ontwikkelen, die een mogelijke behandelingsoptie voor personen met vliegangst bieden, is het een eerste stap om factoren die met de angst samenhangen te identificeren. Daarop sluit dit verkennend onderzoek aan: het is bestemd om informatie over mogelijke factoren die met het waargenomen risico bij het vliegen met vliegtuigen samenhangen te verkrijgen. Het onderzoek wordt uitgevoerd om erachter te komen in hoeverre demografische variabelen en het ontvangen van informatie met het waargenomen risico samenhangen. Verder wordt als reactie op het vliegtuig ongeluk in Frankrijk op 24 maart, welke zich drie dagen voor het beginnen met dataverzameling van dit onderzoek voorgedaan heeft, toevoegend onderzocht of het waargenomen risico zich binnen een maand na een vliegtuig ongeluk veranderd.

Het onderzoeksinstrument is een vragenlijst die online ingevuld wordt, het levert informatie over demografische variabelen en het waargenomen risico van vliegen. Voor het verkrijgen van resultaten wordt data van 160 personen statistisch geanalyseerd. De betrouwbaarheid is tevredenstellend, zodat op basis van de resultaten conclusies geformuleerd kunnen worden. Uit het onderzoek blijkt dat vrouwen het risico van vliegen hoger waarnemen dan mannen. Verder kan op basis van het aantal keren dat iemand gevlogen is voorspeld worden hoe hoog het risico ingeschat wordt: mensen die vaker vliegen blijken het minder hoog te beoordelen. Er blijkt ook een zwakke effect van leeftijd te zijn: jongere mensen blijken het risico iets hoger waar te nemen dan oudere. Er kan geen significante effect van de genoten opleiding of het ontvangen van informatie over het controlesysteem van het vliegtuig op het waargenomen risico gevonden worden. De dagen die tijdens het vliegtuig ongeluk in Frankrijk verlopen zijn blijken eveneens geen invloed op het waargenomen risico van vliegen te hebben.

Het merendeel van de resultaten stemt met eerdere verwachtingen, onderzoeken en literatuur overeen. Echter zijn er ook verrassende uitkomsten. Bij alle verkregen resultaten moet ermee rekening gehouden worden, dat er factoren zijn die de betrouwbaarheid mogelijk op een negatieve manier beïnvloeden. Een van deze factoren zou het ongeluk op 24 Maart in Frankrijk zijn. Het is mogelijk dat het ongeluk tijdens de afname van de vragenlijst nog heel present in het bewustzijn van de respondenten was en dus nadelige gevolgen op de betrouwbaarheid van het onderzoek heeft.

Content

1. Introduction

1.1 Flying and the fear of it

The airplane as a means of transportation is irreplaceable for today's society. The first motorized airplane took off in 1903, today it is for many people the way to travel due to vacation or business (Oakes & Bor, 2010). Airplanes offer the possibility to travel long distances within a short period of time. Although travelling long distances via airplane is much faster, safer and often even cheaper than travelling with other means of transportations, many people prefer riding car or taking the train (Oakes & Bor, 2010). The reason for this often is an unpleasant feeling or fear of flying caused by a high estimation of risk (Depla et al., 2008). Demographic variables and the achievement of information seem to play a big role concerning the perception of risk (Fredrikson et al., 1996; Bor & Gerwin, 2003). This research is meant to provide a deeper insight into the relation and connections of these variables.

According to Depla et al. (2008) 2.5 % of the human population has fear of flying by airplane at some point in their life. The airline company Boeing estimates that even up to 30 % of the population feels uncomfortable about flying (Dean & Whitaker, 1982). Kunst and Zwirs (2014) state that fear is associated with a higher risk perception. Accordingly it can be expected that people who fear flying estimate the risk that they are exposed to during a flight as high. In extreme cases it even assumes the proportions of a phobia of flying. The DSM-IV describes such phobias as 'a specific phobia characterised by a marked, persistent, excessive fear that is precipitated by the experience of immediate prospect of air travel' (American Psychiatric Association, 1994).

1.2 Reactions and coping behaviour

If people with flying phobia are exposed to the feared situation they show stress reactions that become noticeable through physical reactions: their heartbeat and blood pressure increases, they tend to hyperventilate, can suffer from stomach trouble and tremble. Their fear can even lead to panic attacks (Ekebert et al., 1990). Furthermore people in such a situation often feel ashamed by their fear and reactions and sometimes cannot sleep for days when they know that they are going to travel by plane (Oakes & Bor, 2010).

Fear of flying can also lead to a change in people's behaviour: they develop a way of coping with their fear. Some fearful passengers prefer a specific seat which gives them a

feeling of greater safety, an example therefor is a seat near the doors, so that the flyer could escape very quickly in the case of emergency (Oakes & Bor, 2010). Some passengers also seem to be very critical and ask a lot of questions about possible factors that could influence the flight, such as weather, technical problems or the qualifications and experience of the pilot (Foreman, Bor & van Gerwen, 2006). There are also passengers who behave in a combative and aggressive way towards the aircrew and other passengers when exposed to the feared situation (Bor & van Gerwen, 2003). In order to cope with this stressful situation and their anxiety, fearful passengers sometimes try to numb their feelings and awareness through self-medication or alcohol (Foreman, Bor & van Gerwen, 2006).

1.3 Explanatory approaches

There are a number of explanations why so many people have displeasing feelings concerning airplanes. One of those is the declaration of fear of flying as an ontogenetic fear. This explanation is based on the fact that our ancestors were not exposed to planes. Consequently airplanes are something new and unknown in the history of evolution (Mühlberger et al., 2006).

Another possible explanation for fear of flying is that the fear in some cases is an expression of the wish not to fly (Williams, 1982). In this case flying by airplane is related to unpleasant consequences. To avoid these consequences a feeling of fear is developed. This phenomenon can be explained by conditioning: humans avoid situations with which they associate uncomfortable consequences or emotions (Glotzbach et al., 2012).

1.4 Factors of influence

Demographic variables

In the case of those who are concerned, the fear of flying breaks out on average at the age of 15 and disappears around the age of 39 (Depla et al., 2008). Accordingly, the fear seems to be related to adolescence and middle age. However, there are also results found, which do not support these findings but instead lead to the conclusion that older people are more fearful of flying: A research carried out by Fredrikson et al. (1996) delivers the result that just 1.8 % of younger people, but 3.3 % of older people suffer from an excessive fear of flying. The two groups were discriminated by the age of 41, the younger people in this research had an average age of 29, the older ones were on average 53.3 years old. Based on this research one can come to the conclusion that people older than 41 seem to estimate the risk of flying as higher than the younger respondents, which leads to greater anxiety in this group. Regarding

the mentioned inconsistency between different studies, the relation between age and fear of flying is not yet clear.

The research of Fredrikson et al. also leads to the finding that there is a difference between men and women regarding the fear of flying: 3.2 % of women are said to be extremely fearful, whereas just 1.8 % of men seem to be. This observation is also made in other contexts, women generally seem to perceive risks as higher than men do (Gustafson, 1998).

Psychological risk factors

Besides sources of information about the role of demographic variables, there is also literature available which describes factors that seem to influence the fear. Many of these factors are of a cognitive nature. The way of processing certain stimuli seems to determine the risk perception and how the individual reacts towards it, thus in how far someone becomes fearful. In this context other factors such as character traits and the social and psychological context also seem to play a role, as they determine how stimuli are processed by the individual (Armfield, 2006). Some personality structures are assumed to promote the chance of developing special fears, an example therefore is neuroticism (Wilhelm & Roth, 1997). Feared people also seem to have another image of flights than those who are not afraid: they estimate the risk as higher and have associations with flying that have to do with death and danger (Wilhelm & Roth, 1997).

There is some evidence that the extent to which people are used to flying might influence the perceived risk: it is reasonable that people who fly more often are accustomed to the situation and feel safer (Slovic, 1991). However, familiarity with flying might also be connected to a lower fear in another sense: people who do not fear flying might consequently fly more often as they are not restrained by their fear.

An interesting factor that is also proven to influence the perception of risk is the attendance of other humans (Yamaguchi, 1998). Yamaguchi refers to this phenomenon as the 'diffusion effect'. He examined people's estimation of risk when they are alone compared to the presence of a peer. He created scenarios in which there was no logical reason why being in a group could produce benefits. The statistical analyses showed that indeed people feel safer and being exposed to a smaller risk when they are in a group. However it must also be taken into consideration that the research was carried out with Japanese respondents. It is uncertain whether the presence of other humans has the same effect on the perceived risk of Europeans.

Media

Another factor that plays a major role in perceiving the risk of flying and thus determines in how far someone gets fearful, is the information someone receives. This information can be obtained through humans such as experts or through the media. Media creates an image of airplanes and flying. This image impacts the estimation of risk of the individual (Slovic & Peters, 2006). If media provides a lot of information about plane crashes, this might make the passenger feel being exposed to a greater risk when flying. This might have to do with the phenomenon of availability heuristic: 'a strategy for judging how frequently something happens- or how common it is- based on how easily examples of it come to mind' (Gleitman, Gross & Reisberg, 1981). As flight accidents are present in the media, people might probably quickly remember examples and consequently believe that flight accidents happen quite often, although this is not the truth but just the result of the availability heuristic.

This is a possible explanation for the fact that after the terrorist attack of September 11 2001, where four airlines were transferred to the control of terrorists and flown into buildings (Gaissmaier & Gigerenzer, 2012) Americans fear of travelling by airplane dramatically increased. A reason therefore might be that Americans were exposed to horrible images and facts of the attacks which were provided by the media. The terrorist attacks were almost ubiquitous and became vivid in the people's minds (Myers, 2001). According to Myers people tend to fear situations of which they have concrete images in their memory, situations in which they can vividly replicate a dramatic or even the worst case that could happen.

Another example for a terrible accident involving an airplane is the one of the flight MH370 in March 2014. The airplane of the Malaysian airlines and 239 passengers with it disappeared during its flight over the ocean and could not be found up to now. As a consequence the amount of passengers travelling with Malaysian airlines decreased rapidly (Chandran, 2015). Malaysian airlines now has introduced a new tracking system. The positions of the airplanes are now reported in intervals of 15 minutes, instead of in intervals of 30 to 40 minutes as it was the case before. The airline hopes to improve the safety of their flights and to win back the confidence of the passengers by improving the tracking system.

Information-gathering

Research has shown that obtaining factual information about the flight and factors that have to do with the situation of flying seem to calm anxious passengers down (Bor & Gerwen, 2003). Thus, information about the tracking system of airlines might also influence the risk perception of passengers. In the context of new technologies, thus also in the case of airplanes, it also matters how much the individual trusts the one who provides the information

(Costa-Fond & Gil, 2012). Greater trust in the source of the received information leads to a lower perception of risk. The importance of trust is also underlined in the trust, confidence and cooperation model (Earle and Siegrist, 2008). According to this model trust strongly influences how people generate knowledge and estimate risks. The way people process information also seems to be determined by the social environment that surrounds people and the experiences they make. Accordingly, these factors also influence in how far someone fears specific stimuli such as flying (Costa-Fond & Gil, 2012).

1.5 Consequences for individuals and airline companies

The logical consequence of fear of flying is that many people do not fly and that air travel is reduced, which harms the airline companies. A study delivered the result that fear is on third position of the reasons that bar people from travelling by plane (Dean & Whitaker, 1982). The same study also shows that 17 % of the adults in America respond to be anxious about flying. However it must also be considered that the research is quite old, since then many things have changed concerning flying: it became cheaper and thus accessible to a broader population. Nevertheless the number of people feeling uncomfortable about flying still seems to be quite high: 10- 35 % seem to avoid flying or feel stressed when being exposed to the situation of flying (Oakes & Bor, 2010).

The fear of flying affects individuals as well as the economic situation of airlines. Especially after dramatic airplane accidents or terror attacks in which airplanes are included such as September 11, the companies had to suffer from financial losses (Gaissmaier & Gigerenzer, 2012).

Furthermore, the anxiety also leads to personal limitations of those concerned (Oakes & Bor, 2010). First of all it is reasonable that they are restricted in their freedom to travel. They might not get the possibility to visit countries far away because travelling by ship or car takes a long time or is too expensive. In addition, this might also lead to interpersonal problems: they might not have the possibility to see family members or friends who emigrated to a country far away and consequently their relationship with these people might suffer. Another point in which people who do not feel comfortable flying suffer prejudices is travelling for leisure. This in turn can produce adverse effects on career options of the one who fears flying because if he or she avoids flying he might not be able to cooperate with international business partners or to take part in important business meetings.

Thus, many individuals are restricted because of their anxiety. If they could overcome their fear this could improve their quality of life. To create interventions that can help the

concerned people coping with their fear it is necessary to identify the factors that influence fear of flying (Oakes & Bor, 2010). This is the first step towards improving the situation of the economy of airline companies and especially towards improving the situation of those who fear flying or feel uncomfortable about it.

Obtaining information about possible factors could be the precondition to create helpful interventions for them. That is why this paper is supposed to clarify some of the possible factors that might affect the perceived risk concerning flying by airplane. There is a research conducted which is dedicated to identify which influence gender, age and educational level have on the perceived risk of flying. Furthermore, the research is supposed to answer the research question ‘To which degree does gathering information about the flight influence the perceived risk?’. In particular, it is researched if receiving information about the tracking system correlates with the perception of risk.

2. Setting

2.1 Participants

Participants were recruited via e-mail and social networks. Those who were attained were further asked to ask friends and acquaintances to fill in the form. Everyone could participate in the research, provided that he or she understands English and is older than eighteen years so that the content of the form can be understood and the individual can make the decision whether to take part in the research on his own.

The participants taking part in the research were between 18 and 80 years old, with an average age of 27.55 (SD: 11.23). The spreading of age which is visualized in Figure 1 shows that the majority of the participants taking part in the research are in their early twenties.

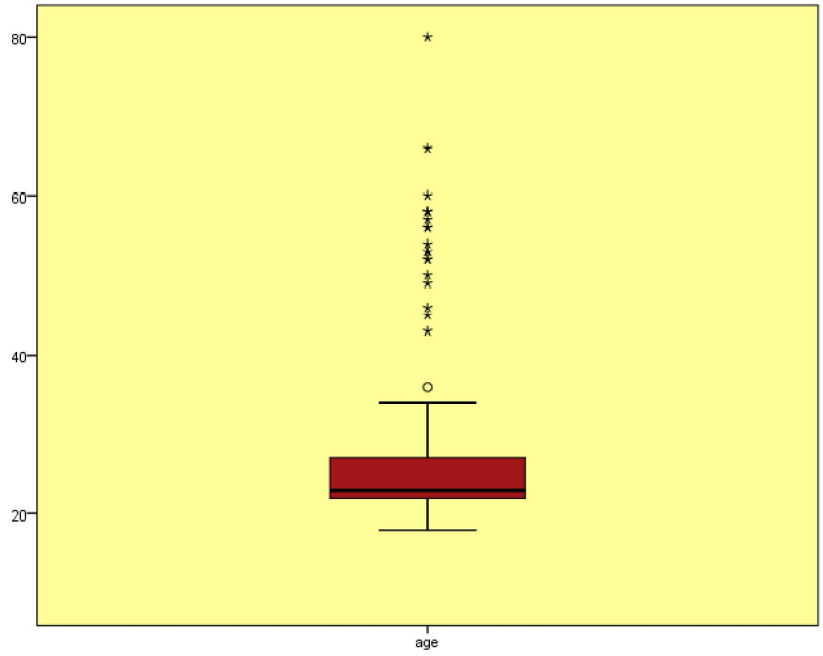

Figure 1: Box plot diagram of age.

The participants have already been flying between 0 and 100 times. On average they flew 17.71 times (SD:19.49). In total, 162 participants completed the questionnaire, data of two of them were not used for the analyses as they stated that they have been flying 500 and 600 times before. It seems to be probable that this is a typing error or that these two participants did not fill in the questionnaire seriously. It is also reasonable that they work as a pilot or flight attendant which would influence the results of the research. For these reasons their data is not used for the research. 54.4 % of the participants concerned in the research were

assigned to condition 1 (obtaining no information) and the remaining 45.6 % to condition 2 (obtaining information). With a majority of 63.1 %, noticeable more women than men are represented in the research. Figure 2 shows the distribution of educational level on the participants. Except of the fact that just a few people who obtained a Master or comparable degree took part, the remaining participants seem to be distributed quite equally among the educational degrees.

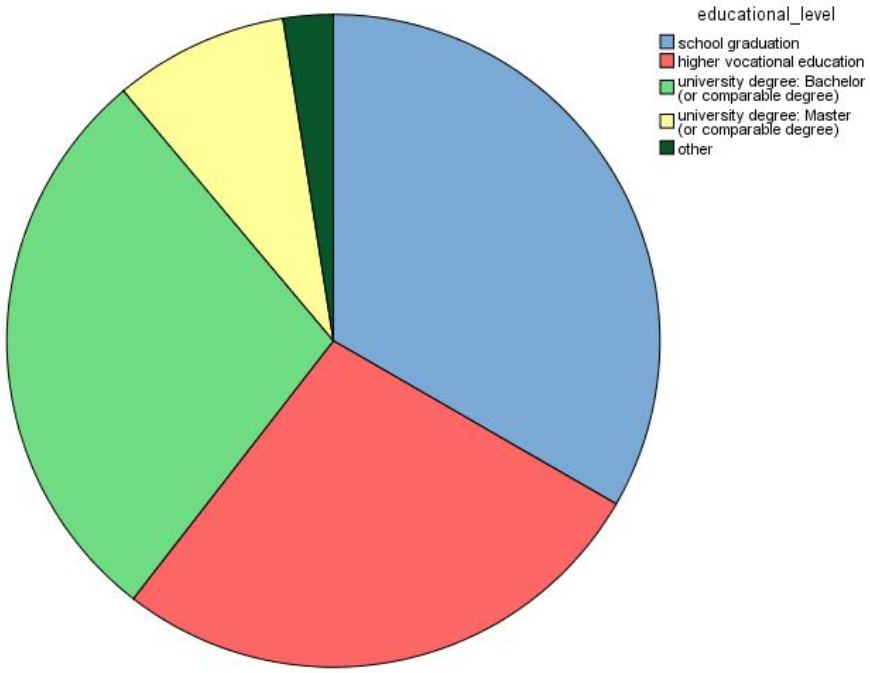

Figure 2: Distribution of educational level.

2.2 Material

The research is conducted via an online questionnaire (see Appendix). All items of the questionnaire are formulated by the student who conducted this research. At the beginning of the questionnaire demographic variables are requested: these variables include age, gender and educational level.

Subsequently one of two scenarios is described in the questionnaire. Both scenarios describe a situation and the participants are asked to put themselves into the situation. They are asked to imagine sitting in an airplane shortly before it takes off. The difference between the two scenarios is that in one scenario the participant receives information about the fact that the tracking system has been improved so that the airplane is controlled more often than it

was before. In the other scenario he receives no information about the tracking system. The participants are assigned randomly to one of these scenarios.

After the description of each scenario 14 questions measuring the construct 'perceived risk' are presented. The reliability coefficient Cronbach's alpha for the items of this construct is equal to 0.829. The participants are asked to answer the items on a 5-point Likert Scale. The participant has to state how highly he would perceive the risk in particular situations of flying. Furthermore, he is asked to indicate how strongly he agrees or disagrees with certain statements concerning perception, feelings and estimations associated with flying.

2.3 Procedure

The questionnaire was put online from 27 March to 21 April. A short text which describes the topic of the research is supposed to motivate participants to take part in the research. Furthermore the participants are asked to accept the informed consent. By doing this they agree with the research conditions. They confirm to take part voluntarily in the research and to answer the questions seriously.

3. Analysis plan

3.1 Factor analysis

In order to get to know whether the items which are supposed to measure the perceived risk seem to measure different components, it is tested whether they form different subscales. First of all the Bartlett's Test of Sphericity must deliver significant results. If this precondition is fulfilled a factor analysis can be performed. Based on the results of the factor analysis it can be concluded whether the items can be assigned to different components and if this is the case, to how many components. The rotated component matrix indicates which item suits best to which subscale by presenting the correlations of the corresponding item with the two components.

3.2 Reliability

The reliability of a test offers information about the degree to which the test is free of measurement errors. In order to draw conclusions from the results of a test, it is necessary for it to be reliable. A measure that provides information about reliability is Cronbach's alpha. Cronbach's alpha indicates the estimated lower bound value of the reliability. The coefficient specifies in how far the items of a test measure the same construct. In this research, all items that measure the construct 'perceived risk' (thus 14 questions) are included in the calculation of Cronbach's alpha. Additionally, reliability coefficients for the items of each subscale are calculated. Cronbach's alpha can range from zero to one. The higher the value, the more reliable is the test. At least, the coefficient of the items should be higher than 0.7 in order to be regarded as satisfying (Bland & Altman, 1997). If this is the case, the test can be used for further statistical analysis.

3.3 Means and standard deviations

Part of the statistical analysis is also to calculate the means and standard deviations of various items. These values can be used to get an overview over the participants who took part in the research. Moreover it is calculated how many participants answered the control questions over the content of the scenario right or wrong. This serves to get an idea over how serious the questionnaire was answered and how attentive the participants were while filling it in.

3.4 Mann-Whitney-U-Test

It is asked to analyze the effect gender has on the perceived risk of flying. As the variable 'gender' just consists of two values, it can never be distributed normally. Accordingly, a non-parametric test, such as the Mann-Whitney-U-Test, has to be conducted.

If the p-value that is offered by the Mann-Whitney-U-Test is lower than a significance level of 0.05, one can conclude that there is a significant effect of gender on the perceived risk. If it is higher than 0.05 this assumption cannot be made. Furthermore, if there seems to be a significant effect one can consider the mean ranks in order to figure out which gender on average seems to estimate the risk of flying as higher.

To test whether there exists a difference regarding the perception of the risk of flying between the two conditions (whether obtaining information about the control system or not), the Mann-Whitney-U-Test is also applied. The further procedure is similar to the analysis of the effect of gender.

3. 5 Correlations

By obtaining information about correlation coefficients it can be determined whether specific variables are connected to each other. It is calculated in how far the age, the times someone has been flying before and the days that have passed by since the airplane accident took place are correlated with the perceived risk of flying. Moreover, it is analyzed how these variables correlate among themselves and with subscales in case that factor analysis leads to the conclusion that these exist.

Before calculating the correlation coefficient, it must be determined whether the variables are distributed normally or not. This can be done by operating a Shapiro-Wilk test. If the test figures out that the data is distributed normally, Pearson's correlation coefficient has to be calculated. Otherwise, if the variables are not distributed normally, Spearman's correlation coefficient is the right choice.

The correlation coefficients can range from minus one to plus one. A value of minus one would be a perfect negative correlation. This implies that the higher one of the variable is, the lower is the other one. A value of plus one is an indication for a perfect positive correlation: the higher one variable is, the higher is the other one. If the correlation coefficient would be zero, the variables would not be connected to each other at all. The closer the coefficient gets to minus one, respectively plus one, the stronger is the correlation.

3.6 Univariate analysis of variance

As the variable 'educational level' is not an ordinal one, but a nominal one, the calculation of a correlation coefficient cannot be used to obtain information about a possible connection between this variable and the perceived risk of flying. Accordingly, another more appropriate analysis has to be applied: the univariate analysis of variance. Based on the results of this analysis, it can be concluded whether there exists a significant variation regarding the educational level someone has achieved so far in the estimation of the risk of flying.

3.7 Regression

By calculating the regressions of variables it can be found out whether one of the variables predicts the other. If this is the case, this also implies that there is a connection between these two variables. Accordingly, if this analysis provides significant results, it is expected that the corresponding correlation coefficients also provide significant results. However, vice versa this is not the case: there can be significant correlations between variables and non-significant regressions for the same variables at the same time.

There are three regressions calculated: for the age, the flying frequency and the days that have passed by since the accidents. For each of these analyses the perceived risk of flying adopts the position of the dependent variable. Accordingly, it is analyzed whether one or more of the three variables predict the perceived risk. Depending on the results of the regression analyses, there might also be sequential regression analysis carried out.

4. Results

4.1 Factor analysis

Bartlett's test of sphericity provides a significant p-value of 0.000. Thus, the precondition for performing a factor analysis is met. A factor analysis for the 14 items measuring the construct 'perceived risk' is carried out. The correlations between the items and the components are displayed in Table 1.

Table 1: Factor analysis.

Item	Component			
	1	2	3	4
1	0.178	0.453	0.633	0.191
2	0.568	0.009	0.097	0.409
3	0.603	0.204	0.307	-0.031
4	0.683	0.135	0.269	0.144
5	0.214	0.153	0.753	-0.114
6	0.195	0.016	0.754	0.082
7	0.793	0.051	0.088	0.183
8	0.721	0.130	0.159	0.250
9	0.465	0.560	-0.081	-0.316
10	0.333	-0.073	0.089	0.722
11	0.149	0.719	0.080	-0.135
12	0.138	0.781	0.100	0.262
13	-0.054	0.745	0.313	0.199
14	0.139	0.183	-0.038	0.721

The marking indicates to which of the two components each item would be assigned. In this context, the strength of the correlation is decisive. As can be seen, five items are assigned to the first component, four to the second one, three to the third one and two to the fourth one. As the items are relatively equally spread over the four factors, it seems to be reasonable to treat the factors as four subscales and to take them into account in the following analyses.

4.2 Reliability

The precondition to formulate results based on the data which is obtained in the exploratory research is to exhibit a high reliability. In this case, a value of 0.829 is stated for the correlation coefficient Cronbach's alpha for all items measuring the construct 'perceived risk'. This value is quite satisfying and one can regard the questionnaire as sufficiently reliable. Moreover, statistical calculations concerning the reliability coefficient α show that the reliability would not increase if any of the items in the questionnaire would be left out. In none of the cases α would be higher than 0.829, which is the value for the reliability including

all items of the questionnaire. Accordingly, none of the items seems to influence the reliability in a negative way. Furthermore, the values for Cronbach's alpha of the subscales are shown in Table 2.

Table 2: Cronbach's alpha of the subscales.

Subscale	Cronbach's Alpha	Number of items
1	0.789	5
2	0.722	4
3	0.692	3
4	0.547	2

Except for the coefficient for the fourth subscale, the values are approximately 0.7 and thus not very high, but satisfying. Considering the fact that correlation between these two variables is equal to 0.405 and significant ($p = 0.000$), no high informative value has to be attributed to this low value of reliability. However, as can be noticed in Table 1, Item 1 and Item 9 seem to load for two components. Therefore it is calculated how Cronbach's alpha for the subscales would change, if these items would be left out. For subscale 2, the reliability coefficient would be equal to 0.729, thus a little bit higher than with the item. Cronbach's alpha for subscale 3 would be equal to 0.556 if item 1 would be deleted, hence lower. As the reliability coefficients do not change much or not at all, it is decided that further calculations include all items.

Another indicator for the reliability of the items measuring the construct 'perceived risk' is in how far the questions about the content of the scenario's are answered correctly. Based on information about the answers on these questions it can be suggested whether the participants seem to have read the scenarios and the questions attentively. How many participants answered the questions wrong respectively right is displayed in Figure 3.

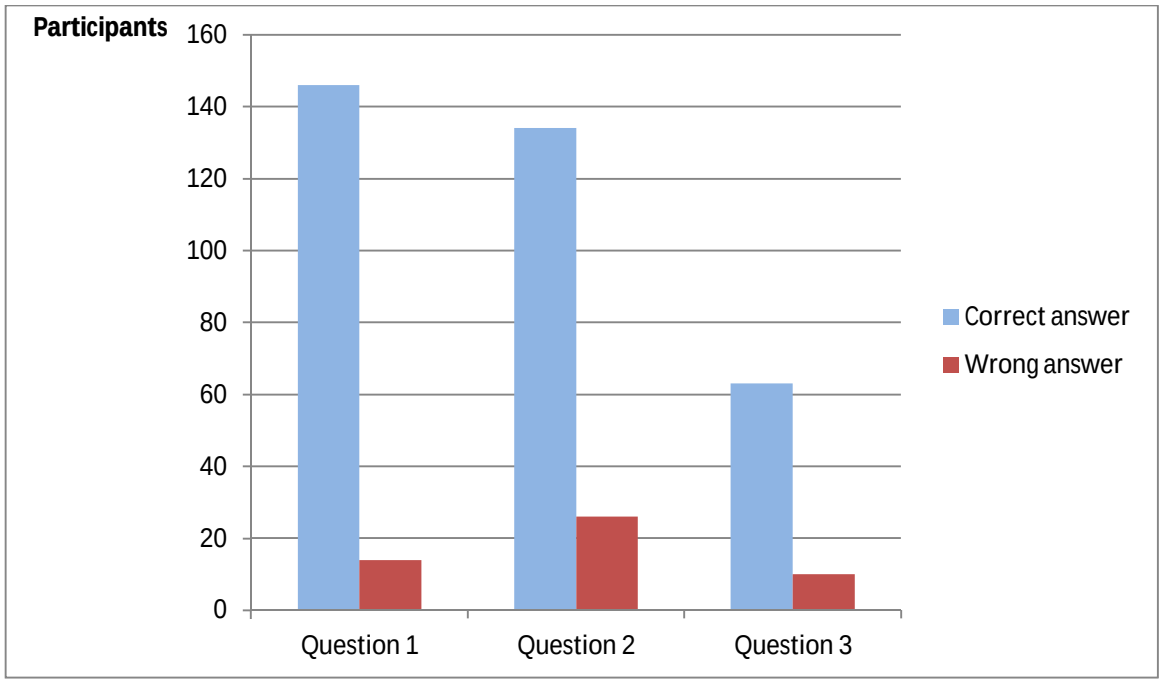

Figure 3: Given answers on control questions.

The graph shows that the great majority gave correct answers. Thus one can conclude that actually most participants seem to have taken the research seriously and answered the questions in a responsible way. The graph indicates that question three is answered by less people than the first and the second question. This can be ascribed to the fact that the third question is only asked in the questionnaires containing the condition in which information about the tracking system is presented.

4.3 Mann-Whitney-U-test

The Mann-Whitney-U-test is meant to construe whether gender has an effect on the perceived risk of flying. The test provides a p-value of 0.003 which is significant. Consequently, gender in any way impacts the perception of the risk of flying. By considering the mean ranks provided by the test one can draw the conclusion that on average women seem to estimate the risk as higher than men do. Their mean rank is equal to 88.89, whereas the mean rank of men is only 66.14.

The same test is conducted for comparing the two conditions (whether or whether not receiving information about control system). Though the participants are not distributed equally on the two conditions, the difference is not overly big: 54.4 % were faced with the first condition compared to 45.6 % with the second one. The Mann-Whitney-U-test provides a p-value of 0.662: there seems to be no effect of obtaining information about the control system on risk perception. Actually, the mean ranks support this conclusion as people who

obtain information just score a little bit higher on the construct 'perceived risk': their mean rank is equal to 82.25, the mean rank of people obtaining no information is equal to 79.03. As this difference is quite small it cannot be concluded that in general people who obtain information about the control system seem to estimate the risk of flying as higher.

4.4 Correlations

By calculating correlations one gets an image of the relation between the perceived risk of flying and the variables age, flying frequency and the days that have been passed by since the flight accident in France. The Shapiro-Wilk test leads to non-significant results for all of these variables: one can conclude that they are not distributed normally. Accordingly Spearman's correlation coefficient provides information about a possible connection between the variables. The values of the correlation coefficients and the p-value are indicated in Table 3.

Table 3: Correlation coefficients and p-values of variables.

		Perceived risk of flying	Age	Flying frequency	Days passed by since accident
	Mean	2.015	27.550	17.710	11.060
	Standard Deviation	0.531	11.230	19.497	5.526
Age	Correlation coefficient	-0.133	1.000	0.294	0.258
	Sig.	0.093		0.000*	0.001*
Flying frequency	Correlation coefficient	-0.229	0.294	1.000	0.233
	Sig.	0.004*	0.000*		0.003*
Days passed by since accident	Correlation coefficient	-0.025	0.258	0.233	1.000
	Sig.	0.755	0.001*	0.003*	

scale used for measuring perceived risk of flying: 1=very low, 2= low, 3= neutral, 4=high, 5= very high

Neither a significant correlation of the days that have been passed by since the accident with the perceived risk of flying can be proven, nor does the perceived risk of flying correlate significantly with the age of the participants. Actually, the correlation coefficient shows a significant negative correlation between the flying frequency and the degree to which the participant perceives flying as risky. This indicates that the more someone has flown before, the lower he seems to estimate the risk of flying. However, based on Spearman's correlation coefficient no statement about cause- and- effect relations of the variables can be made. Additionally, interrelated correlation coefficients of the variables age, flying frequency and

days passed by since the accident are shown in Table 3. Table 4 presents the correlations of the variables with the subscales.

Table 4: Correlation coefficients and p-values of subscales and variables.

		Subscale 1	Subscale 2	Subscale 3	Subscale 4
Age	Correlation coefficient	-0.081	-0.128	-0.117	-0.065
	Sig.	0.310	0.105	0.142	0.411
Flying frequency	Correlation coefficient	.0.202	-0.295	-0.030	-0.088
	Sig.	0.011	0.000	0.704	0.271
Days passed by since accident	Correlation Coefficient	-0.002	-0.101	-0.041	0.154
	Sig.	0.976	0.202	0.603	0.052

As can be seen in the table, the flying frequency correlates significantly with the first and the second subscale.

4.5 Univariate analysis of variance

The Univariate analysis of variance provides information about a possible connection between the educational level someone has achieved so far and the perceived risk of flying. As a result of this analysis one gets a p-value of 0.101. As this value is not significant, it can be concluded that there does not seem to exist any relationship between someone's educational level and the perceived risk of flying.

4.6 Regression

In Table 5 the results of the regression analysis can be found.

Table 5: Regression of mentioned variables with perceived risk of flying.

Variable	t	Sig.
Age	-2.372	0.019
Flying frequency	-2.691	0.008
Days passed by since accident	0.137	0.891
Flying frequency; Age	-1.886	0.061
Age; flying frequency	-1.410	0.160

For the days that have passed by since the accident and the flying frequency, the values correspond with the conclusions drawn from the correlation analysis: there does not seem to

be any relationship between the days that have passed by and the perceived risk of flying at all, but it proved a significant regression as well as a significant correlation of flying frequency and the perceived risk. Indeed, this cannot be said about the age. The regression shows that there is a connection between age and the perceived risk ($p = 0.019$), although the results of the correlation analyses ($p = 0.093$) did not lead to this result. Based on these results, it can be assumed that these two variables are connected to each other, but that this connection is not very strong. Although the correlation between age and the perceived risk of flying is not significant, it can still offer information about the relation between the variables. By taking a look at the correlation coefficient which is equal to -0.133, it can be seen that the older someone is, the lower he seems to perceive the risk of flying.

Actually, the regression analysis states that the perceived risk of flying can be predicted by the times someone has flown and the age. It seems to be possible that age is connected to the times someone has flown before, as people who are older might have travelled more often. The results of the correlation analysis (Table3) indeed show that this is the case. In order to exclude that the variable age exerts an effect on relationship between the times someone has flown and the perceived risk, a sequential regression analysis is conducted. The results shown in Table 5 demonstrate that even if the regression between the times someone has flown before and the perceived risk of flying is controlled for the confounder age, the regression still remains non- significant. Table 5 also shows that the flying frequency does not affect the relationship between age and the perceived risk of flying in any way.

5. Discussion

5.1 Results of the research

The exploratory research conducted led to some interesting results concerning the perceived risk of flying. As the questionnaire used is proven to be sufficiently reliable and the participants predominantly seem to have taken it seriously and read the questions attentively, conclusions based on these results can be formulated.

The analysis showed that there is a significant effect of gender on the perceived risk of flying. Women seem to regard flying as more risky than men do. Moreover, the times someone has flown before is connected to the perceived risk of flying: the more someone has travelled by airplane, the lower he seems to estimate the risk of flying or, which might also be the case: the lower someone seems to estimate the risk of flying, the more he travels by airplane. Actually, the risk perception of flying even can be predicted based on the times someone has been flying before. There also seems to be an effect of age on the perceived risk of flying, although this effect is not very strong. However, neither evidence for an effect of educational level someone has achieved so far on the perception of the risk of flying could be provided, nor seems the fact if someone receives information about the tracking system of the airplane to influence the risk perception. Moreover, the statistical analysis showed that the time passed by does not have any influence on the risk perception.

5.2 Airplane crash in France

During the process of research it became interesting whether the perceived risk of flying undergoes change over the time that passes by. This is related to a civil aviation accident that occurred three days before the data collection for this research started. As mentioned above, such change is not apparent.

The civil aviation accident happened on March 24 in the French Alps. The plane of a German airline which took off in Barcelona and was supposed to land in Düsseldorf, crashed. All passengers, the air crew, the pilot and the co-pilot lost their lives: 150 people died (Behrend et al., 2015). The research and the questionnaire were developed before this accident happened and three days later, on March 27, the questionnaire of the research was spread. Because of this timely proximity, it is conceivable that the accident impacts the results of the research. The tragic aviation was to a high degree reported and discussed in every kind of media: television, radio, newspaper, social networks and websites in the internet.

Especially the German media was accused of a very speculative and sensation-seeking reporting. Accordingly, the flight accident was very present in the people's heads.

This topical event led to the assumption that it might be possible that the participants perceive the risk of flying as higher immediately after the accident than some days or weeks later. Former tragic events just as 9/11 showed that people's fear of flying increased as a reaction on that kind of terrible incidents (Myers, 2011). However, the results of the correlation- and regression analyses showed that this is not the case. A possible explanation for this might be that the period of data collection within this research was not long enough. The questionnaire was spread until April 21. The media hype surrounding the aviation accident of March 24 lasted very long, as the reason for the accident had to be clarified. For a long while, new information were gathered and made public. For example, on March 26, it became public that the co-pilot intentionally caused the airplane crash (Behrend et al., 2015). More facts concerning the enlightenment of the actual causes of the accident were published bit by bit.

5.3 Expectations and surprises

Statistical calculations provided within this research showed that the items can be assigned to four subscales. Indeed, with regard to content, there does not seem to be any obvious cluster or connection of the items belonging to the same subscale. What well attracts attention is that flying frequency significantly correlates with one of the subscales which includes items regarding avoidance- and seeking behavior. This is not very surprising, as it is quite reasonable that people who do not enjoy flying and avoid it in fact do not fly as often as people who like it and respond not to avoid the situation of flying.

Furthermore, based on the data collected within this research you come to the conclusion that flying frequency is significantly correlated with the perceived risk of flying and even can predict it. This statement is supported by literature of Slovic and Peters (2006) who claim that people who are used to flying are less frightened.

Another result of the exploratory research is that the fact whether the participants receive information about the improvement of the tracking system or not, does not have any influence on their risk perception. Actually, this conclusion is surprising as it does not match the prior expectations. Based on the research of Bor and Gerwen (2003) which led to the conclusion that obtaining information that has to do with the flight reduces fear of flying, it can be assumed that the group obtaining information about the tracking system scores lower on risk perception.

The conclusion that states that gender has an effect on risk perception conforms with the results of the research of Fredrikson et al. (1996). Both research did not just figure out that there is a distinction in risk perception concerning gender, but they also stated that women on average seem to perceive the risk of flying as higher than men do. Although with 63.1 %, more women than men took part in the research, the amount of both parties is quite large so that a reliable statement concerning differences with respect to risk perception between genders can be made.

Another result is not in accordance with the research of Fredrikson et al. It concerns the relation between age and the perceived risk of flying. In both, their research and the research conducted here, an effect of age can be found, although it is just a small one. However, according to the research of Fredrikson et al., older people seem to perceive the risk of flying as higher than younger ones do. This is contradictory to the result found in this research: based on this data it can be concluded that the older the participants are, the lower they perceive the risk of flying.

No effect of educational level on risk perception could be found. Although there was no prior information available, this research topic was regarded as interesting because it seems to be plausible that education plays a role concerning risk perception. It seemed to be reasonable that better educated people know that flying is a quite safe way of travelling (Oakes & Bor, 2010) and accordingly can judge the risk of flying more rationally, hence lower. The research leads to the conclusion that this is not the case.

5.4 Strong aspects and limitations

Actually, all conclusions that are made based on the research must be examined critically, as some weak aspects of the research might influence the way the participants respond.

In order to evaluate a research, it can be referred to the reactions and feedback of the participants. Although the participation in the research is anonymous, the participants are free to contact the researcher. The interest of the participants seems to be quite big, as many requests concerning the results of the research were received. Moreover, they gave a lot of positive feedback regarding the questionnaire, just one negative aspect which is discussed later, was raised.

An important aspect for the reliability and thus the usability of a research is the representativeness of the participants taking part in it. An information source that can be used to receive a primary impression about how representative a research is, is the amount of participants that took part. In this case, 162 people completed the questionnaire and data of

160 participants was used for the analyses. This is a very satisfying amount and one can conclude that the precondition for a representative exploratory research is given. However, this does not indicate that a research with a high amount of participants per se is to a high degree representative.

Other factors might influence the representativeness. One of those factors is age. This factor might also play a role in this research. By taking a look at the range of age of the participants which is 18 to 80 years, one comes to the conclusion that every age group of adults seems to be represented in the research. Actually, the box plot diagram (Figure 1) shows that the majority of the participants seems to be in their early twenties. Accordingly, it would be more representative if more data of older people would have been collected and evaluated within the research. The high amounts of young participants could be explained by the fact that the questionnaire is spread by a student. Consequently, it is probable that a large amount of students or friends of similar age filled in the questionnaire as this target group usually forms the social network of students.

An aspect that possibly could have had an impact on the way the participants filled in the questionnaire and thus on the reliability is the language. The questionnaire was just available in English, but it was mainly spread among Dutch and German people. Accordingly, as English is probably not the first language of most of the participants, it is possible that they had problems understanding parts of the questionnaire. However, it can be assumed that these problems did not influence the understanding of the questionnaire and the reliability very strongly. As already mentioned, it is probable that most of the participants were students and as they have all learned English in school or maybe even study in English, they presumably can understand the language very well. Moreover, the introduction of the questionnaire informed about the fact, that the participant has to be able to understand English in order to take part in the research. Besides, it was also convenient to formulate the questionnaire in English, as this creates the same conditions for almost every participant: English is not the mother tongue neither of Dutch people, nor of Germans. Furthermore, by stating it in English, the target group for the research was much bigger and many people fulfilled the preconditions to take part in it, as most people can understand English.

Furthermore, the formulation of single questions might not be clear enough. One of the participants gave the hint that the question concerning the times someone has been flying might be interpreted differently by the participants. It is not clearly stated whether outward and return flight are supposed to count as one flight or as two. In case of a repetition of this research, the formulation of this question should be revised.

5.5 Evaluative conclusion

In summary, it can thus be stated that unlike to what was expected previously, there does neither seem to be any difference between the days that have passed by since the accident in France and risk perception of flying, nor between the latter and obtaining information about the tracking system. Moreover, contradicting to consisting research, here it is concluded that the older people are, the lower they seem to estimate the risk of flying. In accordance with prior expectations, the flying frequency seems to be related to the perceived risk of flying and an effect of gender can be proven.

In spite of some limitations concerning the questionnaire used for this research and the characteristics of the participants, the research can well be regarded as quite representative and sufficient reliable, so that it is possible and appropriate to draw conclusions based on the results and to take them seriously.

5.6 Implications

The research does not just offer interesting facts concerning the perceived risk of flying, it also might arrange help for constructing therapy plans for people who fear flying. As fear of flying can have extensive impacts on individuals as well as on whole companies, a successful therapy method would help a lot and open up a wealth of possibilities for those affected.

Based on the research results it is stated that the educational level does not impact risk perception of flying. Possibly, this could imply that risk perception cannot be reduced by enlightenment or education. According to this, providing information probably would not be the optimal way of treating fear of flying. On the other hand, it is also reasonable that all participants have reached a certain degree of education which is already quite high, so that regarding knowledge about flying there might not be big educational differences. In any case, this aspect should be regarded and maybe even be studied further when developing therapy approaches.

Furthermore, this research helps defining a possible target group of such an approach: therefore it might matter that women perceive flying as more risky than men do. In this context it could also be important that younger people seem to score higher on risk perception of flying. However, as this conclusion is contradicting to another research, it should be proven once again in a new independent research. The same can be said about the obtaining of information: the researches led to inconsistent results, it thus would be reasonable to study this in a following research.

Additionally, it would be interesting to further study how people would score some month later on risk perception in order to compare these scores with the ones obtained in this research. Based on this data a more appropriate and reliable analysis concerning the research question whether people perceive the risk of flying after aviation accidents as higher than normally, could be performed.

Up to this point, it cannot be said how useful this research really can be for constructing therapy approaches. What well can be said is that it forms a first step towards collecting and organizing information about this topic which is a necessary precondition for any further steps.

Reference list

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (DSM). *Washington, DC: American psychiatric association*, 429

Armfield, J. M. (2006). Cognitive vulnerability: a model of the etiology of fear.*Clinical psychology review, 26*(6), 746-768. Doi: 10.1016/j.cpr.2006.03.007

Behrend, A., Biermann, K., Stockrahm, S., Polke-Majewski, K., Venohr, S. & Blickle, P. (2015, May 6) Was wir über den Absturz von Flug 4U9525 wissen. Zeit online. Retrieved April 2015 from http://www.zeit.de/wissen/2015-03/airbus-a320-germanwings-absturz-frankreich-faq [call date: 28.04.2015]

Bland, J. M., & Altman, D. G. (1997). Statistics notes: Cronbach's alpha. *Bmj,314*(7080), 572. Doi: 10.1136/bmj.314.7080.572

Bor, R., & van Gerwen, L. (Eds.). (2003). Psychological perspectives on fear of flying. Burlington, VT: Ashgate. In: Oakes, M., & Bor, R. (2010). The psychology of fear of flying (part I): A critical evaluation of current perspectives on the nature, prevalence and etiology of fear of flying. *Travel medicine and infectious disease, 8*(6), 327-338. Doi:10.1016/j.tmaid.2010.10.001

Chandran, N. (2015). *Malaysia Airlines: One year after MH 370*. Retrieved March 2015 from: http://www.cnbc.com/id/102478605 [call date: 08.03.2015]

Costa-Font, M., & Gil, J. M. (2012). Does expert trust and factual knowledge shape individual's perception of science?. *International Journal of Consumer Studies, 36*(6), 668-677. Doi: 10.1111/j.1470-6431.2011.01044.x

Dean, R. D., & Whitaker, K. M. (1982). Fear of flying: Impact on the US air travel industry. *Journal of Travel Research*, *21*(1), 7-17. DOI: 10.1177/004728758202100104 In: Wilhelm, F. H., & Roth, W. T. (1997). Clinical characteristics of flight phobia. *Journal of Anxiety Disorders, 11*(3), 241-261. Doi: 10.1016/SO887-6185(97)00009-1

Depla, M. F., Margreet, L., van Balkom, A. J., & de Graaf, R. (2008). Specific fears and phobias in the general population: results from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Social psychiatry and psychiatric epidemiology, 43*(3), 200-208. Doi: 10.1007/s00127-007-0291-z

Oakes, M., & Bor, R. (2010). The psychology of fear of flying (part I): A critical evaluation of current perspectives on the nature, prevalence and etiology of fear of flying. *Travel medicine and infectious disease, 8*(6), 327-338. Doi: 10.1016/j.tmaid.2010.10.001

Earle, T. & Siegrist, M. (2008) Trust, confidence and cooperation model: a framework for understanding the relation between trust and risk perception. *International Journal of Global Environmental Issues,*8, 17–29. Doi: 10.1504/IJGENVI.2008.017257 In:

Costa-Font, M., & Gil, J. M. (2012). Does expert trust and factual knowledge shape individual's perception of science?. *International Journal of Consumer Studies, 36*(6), 668-677. Doi: 10.1111/j.1470-6431.2011.01044.x

Ekeberg, Ø., Kjeldsen, S. E., Greenwood, D. T., & Enger, E. (1990). Correlations between psychological and physiological responses to acute flight phobia stress. *Scandinavian Journal of Clinical & Laboratory Investigation,50*(6), 671-677. Doi: 10.3109/00365519009089186

Foreman, E. I., Bor, R., & van Gerwen, L. (2006). Flight or fright? Psychological approaches to the treatment of fear of flying. *Aviation Mental Health: Psychological Implications for Air Transportation*, 69. in: Oakes, M., & Bor, R. (2010). The psychology of fear of flying (part I): A critical evaluation of current perspectives on the nature, prevalence and etiology of fear of flying. *Travel medicine and infectious disease*, *8*(6), 327-338. Doi: 10.1016/j.tmaid.2010.10.001

Foreman, I. E., Bor, R., & Van Gerwen, L. J. (2006). The nature, characteristics, impact and personal implications of fear of flying. *Aviation Mental Health*, 53-68.

Fredrikson, M., Annas, P., Fischer, H., & Wik, G. (1996). Gender and age differences in the prevalence of specific fears and phobias. *Behaviour research and therapy, 34*(1), 33-39. Doi: 10.1016/0005-7967(95)00048-3

Gaissmaier, W., & Gigerenzer, G. (2012). 9/11, act II: A fine-grained analysis of regional variations in traffic fatalities in the aftermath of the terrorist attacks. *Psychological Science, 23*(12), 1449-1454. Doi: 10.1177/0956797612447804

Gleitman, G., Gross, J. & Reisberg, D. (2011) *Psychology.* (p. 349). Canada: Norton

Glotzbach, E., Ewald, H., Andreatta, M., Pauli, P., & Mühlberger, A. (2012). Contextual fear conditioning predicts subsequent avoidance behaviour in a virtual reality environment. *Cognition and Emotion, 26*(7), 1256-1272. Doi: 10.1080/02699931.2012.656581

Gustafson, P. E. (1998). Gender Differences in risk perception: Theoretical and methodological erspectives. *Risk analysis*, *18*(6), 805-811. Doi: 10.1111/j.1539-6924.1998.tb01123.x

Kunst, M. J. J., & Zwirs, B. W. C. (2014). Posttraumatic stress disorder symptom severity and fear of personal crime: Exploring their interrelationship as a function of risk estimation. *Psychology, Crime and Law, 20*(9), 921-932.

Mühlberger, A., Wiedemann, G., Herrmann, M. J., & Pauli, P. (2006). Phylo-and ontogenetic fears and the expectation of danger: differences between spider-and flight-phobic subjects in cognitive and physiological responses to disorder-specific stimuli. *Journal of Abnormal Psychology*, *115*(3), 580. Doi: 10.1037/0021-843X.115.3.580

Myers, D. G. (2001). Do we fear the right things. *APS Observer*, *14*(3), 31.

Slovic, P. (1991). Beyond numbers: A broader perspective on risk perception and risk communication. *Acceptable evidence: Science and values in risk management*, 72

Slovic, P., & Peters, E. (2006). Risk perception and affect. *Current directions in psychological science*, *15*(6), 322-325. Doi: 10.1111/j.1467-8721.2006.00461.x

Wilhelm, F. H., & Roth, W. T. (1997). Clinical characteristics of flight phobia. *Journal of Anxiety Disorders*, *11*(3), 241-261.Doi: 10.1016/SO887-6185(97)00009-1

Williams, M. H. (1982). Fear of flight: Behavior therapy versus a systems approach. *The Journal of Psychology*, *111*(2 nd Half), 193-203. Doi: 10.1080/00223980.1982.9915358

Yamaguchi, S. (1998). Biased risk perceptions among Japanese: Illusion of interdependence among risk companions. *Asian Journal of Social Psychology*,*1*(2), 117-131. Doi: 10.1111/1467-839X.00008

Appendix

Questionnaire

informed consent:

First of all: thanks for participating in my research. In the context of my bachelor thesis I am doing exploratory research on determinants of risk perception.

It takes about ten minutes to fill in the questionnaire. Please read through the questions carefully and answer them seriously. There is no right or wrong answer for the questions, just choose the answer which is best suited to you. Your answers and data are processed anonymously. Furthermore, you can stop filling in the questionnaire at any point. In this case, your data are not used for the research. If you want to obtain more information before filling in the questionnaire you can contact me via S.Singenstroth@student.utwente.nl.

By pushing the button 'next' you confirm the following:

I have obtained enough information about the research and how to fill in the questionnaire.
I know who to contact in cases of questions about the research or if I want to obtain more information concerning the research.
I am aware of the fact that my personal data is processed anonymously and that I can stop filling in the questionnaire at any point.
I am taking part voluntarily in the research and will try to answer the questions as good as possible and to take them seriously.

Please answer the following questions:

How old are you?

_____ years

Are you male or female?

o male

o female

Which of these is your highest educational level?

o school graduation

o A- level

o higher vocational education

o university degree: Bachelor (or comparable degree)

o university degree: Master (or comparable degree)

○ other: _____

Read carefully through the description of the following scenario and try to imagine being in that situation:

Szenario 1:

Imagine sitting in an airplane which is still standing at the airport, you are waiting to take off. The airline is supposed to fly over the ocean: from Kuala Lumpur (Malaysia) to Beijing (China). All seats in the airplane are occupied. You are sitting on the window seat, looking out of the window. It is sunny outside, no clouds, no wind. The doors of the airplane are shut right now, the flying crew is already on board. A stewardess welcomes you through the loudspeaker. On a screen in front of your seat information about the flight are presented: the route is described, the duration and the expected landing time.

Szenario 2:

Imagine sitting in an airplane which is still standing at the airport, you are waiting to take off. The airline is supposed to fly over the ocean: from Kuala Lumpur (Malaysia) to Beijing (China). All seats in the airplane are occupied. You are sitting on the window seat, looking out of the window. It is sunny outside, no clouds, no wind. The doors of the airplane are shut right now, the flying crew is already on board. A stewardess welcomes you through the loudspeaker. On a screen in front of your seat information about the flight are presented: the route is described, the duration and the expected landing time. Furthermore you are given information about the tracking system: A text on the screen informs you about the fact that the position of the airplane is controlled every 15 minutes while flying over the ocean. You are informed that this is an improvement: before, it was controlled every 30- 40 minutes.

Now answer the following questions, still imaging you are in the described scenario:

How high do you estimate the risk that something of the following scenarios happens during the flight?

	No risk	Slight risk	Some risk	Moderate risk	High risk
During the flight I am exposed to physical suffering.	○	○	○	○	○
During the flight everything will progress smoothly.	○	○	○	○	○
During the flight technical complications occur.	○	○	○	○	○
The pilot must make an emergency landing.	○	○	○	○	○
During the flight someone in the airplane is exposed to physical suffering.	○	○	○	○	○
During the flight complications caused by the weather occur.	○	○	○	○	○
Every passenger will survive the flight without any damage.	○	○	○	○	○
While taking off everything progresses smoothly.	○	○	○	○	○

In how far do you agree with the following statements?

	Strongly agree	Disagree	Neutral	Agree	Strongly agree
While flying I am exposed to a higher risk than in my everyday life.	o	o	o	o	o
I expect that the pilot is highly qualified to fly the airplane.	o	o	o	o	o
I am in danger of losing my life during the flight.	o	o	o	o	o
Whenever it is possible I avoid flying.	o	o	o	o	o
I enjoy flying.	o	o	o	o	o
I expect that the air crew can deal with complications during the flight.	o	o	o	o	o

Thanks for participating in my research! If you have any further questions or if you are interested in the result of the research, please contact me via S.Singenstroth@student.utwente.nl