An Exploration of Willingness to Participate in the Evaluation Phase

Investigating the Influence of Emotional State and Self-efficacy

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Abstract

The internet is a tool for companies to work with consumers in innovation. By using open innovation platforms, organisations can capture outstanding ideas crowdsourced by encouraging bottom-up innovation while not being limited to organisational bounds. However, convincing consumers to participate on these platforms seems harder than expected. Innovation is a primary driver for economic growth and, therefore, important for companies; it is crucial to find factors influencing consumers' participation in open innovation platforms. The focus is specifically on idea contests, as this open innovation platform is accessible to consumers without previous experience.

This research focuses on the evaluation phase, as this phase has not been researched as much as idea selection and idea generation. By focusing on idea evaluation, a knowledge gap can be filled, and a comprehensive understanding of this stage can be gained. Secondly, idea evaluation plays a vital role in enhancing idea quality. Effective idea evaluation can lead to more informed decision-making and identifying ideas that align with organisational goals.

This research consists of an online experiment using a questionnaire to manipulate emotional states and to see whether this influences consumers' willingness to participate. Secondly, self-efficacy is measured to determine if this would influence the relationship between emotional state and the willingness to participate.

According to the results, the emotional state might have an influence on the willingness to participate. However, this cannot be said with certainty, as the manipulation was unsuccessful. This effect needs to be researched in research designs where the manipulation was successful in determining if there is a main effect of emotional state on the willingness to participate. There was a significant main effect of self-efficacy on the willingness to participate. Self-efficacy was measured using the new general self-efficacy scale, which organisations can easily implement. These findings are important as they indicate that organisations should select consumers for participation in the evaluation phase of (open) innovation platforms based on their level of self-efficacy. The new general self-efficacy scale is an accessible measurement that is reasonably easy to implement when searching for participants in open innovation platforms.

Preface

This master's thesis marks the end of a six-month period in the master's program in Business Administration with a specialisation in 'Marketing'. These past six months have had their fair share of ups and downs, as working individually can sometimes be quite isolating. While open innovation platforms are a hot topic, I had limited prior knowledge. Therefore, I am grateful for the opportunity to dive deeper into such an interesting topic.

There are a few individuals without whom I would not have been able to complete this master's thesis. Firstly, I would like to thank my thesis supervisor, Ms. I. Weeterings, for her guidance throughout this research. She motivated me to give my best and was always available to address any questions. Despite my initial apprehension about the number of comments I would receive when submitting my thesis for feedback, I can confidently say that they significantly improved the quality of my research. I would also like to thank Dr. M. Hermans for her valuable contributions to this study. Additionally, I would like to thank Lisa Bierhaalder-Valk, with whom I collaborated during the data collection phase due to overlapping variables. It was quite helpful to have someone to discuss my thesis with and get help with the SPSS chapter. Lastly, I would like to express my appreciation to my family and friends for their unwavering support, even when I was frequently stressed.

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Chapter 1: Introduction

Innovation is a primary driver of economic growth and, therefore, important for companies (Bugshan, 2014). Our current economic environment is mainly supplied by technological changes, globalisation, and competitive intensity (Gui, Lei & Ba Le, 2021) and in earlier research, Chen and Tang (2021) mentioned that consumer demand is diversifying, and market competition is intensifying, increasing the requirements for the goods and services provided by businesses. These requirements mentioned by Chen and Tang (2021) include newer products and healthier ingredients, which are part of product innovation. So, innovation has become an instrument to achieve goals such as maximising profit, reaching sustainable goals and customer satisfaction. Companies can use different types of innovation to reach their goals, such as organisational, process and product innovation (Demircioglu et al., 2019). In this research, there is a focus on product innovation as this is the most recognisable for consumers.

Another well-known type of innovation is open innovation (OI), a distributed invention process based on strategically managed knowledge flows across organisational boundaries that uses financial and non-financial mechanisms per the organisation's business model (Bigliardi et al., 2021). Organisations today must cooperate with external stakeholders through the cross-boundary exchange of information, technology, and resources (Zhao et al., 2016; Bigliardi et al., 2021).

Co-creation is a form of open innovation supporting collaboration with external stakeholders. Co-creation initially comes from the proposition that consumers are co-creators of value and, maybe more importantly, that firms cannot deliver value by themselves (Saha et al., 2019). Priharsari et al. (2019, p763) describe co-creation as "*a cooperative phenomenon that reflects a shift in thinking from the firm as a definer of value to more participative customers*." Benefits of co-creation include budgetary benefits, increasing customer interest and expanding customer base (Voorberg et al., 2015). Ultimately co-creation can lead to successful innovation (Priharsari et al., 2019). Through networked interactions between the business and the consumers, co-creation in virtual communities has developed a reputation to be an effective method for involving enthusiastic customers worldwide in a company's development processes (Priharsari et al., 2019; O'Hern & Rindfleisch, 2009).

Boudreau (2010) states that open innovation platforms are an intermediary that allows internal and external parties to complete and deliver innovative projects. The open innovation platforms stimulate co-creation and challenge traditional collaboration using external resources and channels (Chen & Tang, 2021). Due to their network connectivity capabilities and professional advantages, these platforms ensure real-time interaction and provide essential soil for open innovation, which has significant potential for the entire innovation system (Chen & Tang, 2021). The open innovation platforms offer resources that third-party entities can exploit to develop innovative products (Liu et al., 2022). Battistella and Nonino (2012, p558) state that "*open innovation can be a means for companies to accelerate the innovation process*." So, one of the biggest reasons companies use open innovation platforms is that it

enables them to collectively innovate their products and services, create a community and engage with consumers. Companies can use open innovation platforms for different purposes, such as crowdsourcing and idea contests.

Crowdsourcing involves a continuous interaction between consumers and the company, where consumers can post feedback, product improvements and new product ideas (Seltzer & Mahmoudi, 2012). The company outsources a job to an unspecified (extensive) network of people when normally the same job is done by employees. A fundamental tenet of crowdsourcing is the idea that the winning contributions rise with participation (Füller, 2017).

In idea contests, companies present innovation-related issues to a diverse audience, who compete to provide the best proposal and potentially win prizes (Stouras et al., 2022; Özaygen & Balagué, 2018). Idea contests allow companies to engage with external individuals possessing specialised skills for innovative problem-solving (Stouras et al., 2022). Unlike crowdsourcing, idea contests do not necessarily require community participation and often involve a single interaction (Özaygen & Balagué, 2018).

Idea contests frequently produce much material. So, to make it more transparent and well-organised, it is essential to follow the different phases of the innovation process. These phases include idea generation, idea evaluation and selection of ideas.

Idea evaluation is a fundamental task in the OI (open innovation) process, but it is less researched than idea generation (Özaygen & Balagué, 2018). Idea generation transforms new thoughts into novel and valuable ideas (Zhang & Li, 2021). When all the ideas are generated, it is important to assess the ideas based on various criteria, which is known as the selection of ideas (Sääksjärvi & Hellén, 2019). In the idea evaluation phase, ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further or implemented, reworked, or rejected (Bhimani et al., 2021). Open innovation communities frequently produce a large amount of material. Managing and organising the evaluation phase becomes essential to ensure transparency and effective decision-making (Bhimani et al., 2021).

One aspect that could influence the innovation process is the emotional state, particularly positive and negative emotional states, as emotions can influence judgement and decision-making (Hodgins, 2017). Additionally, emotions influence many behaviours, including how much risk we take (Andrade & Ariely, 2009). In this research, the effect of a positive and negative emotional state on the willingness to participate is manipulated as the emotional state can influence people's behaviour.

Self-efficacy is another important aspect of the innovation process (Liao et al., 2021). It refers to an individual's inherent belief in their ability to succeed in a given situation or task (Chen et al., 2021). It is important to research the influence of self-efficacy as a moderator, as someone's beliefs about their capabilities can influence their motivation and decision. Self-efficacy is expected to be a moderator as

their belief in one's abilities can influence how emotions are processed and controlled, potentially influencing willingness to participate.

1.1 Research question

This research consists of a main effect and a moderating effect. So, the research question is as follows: *To what extent does emotional state influence the willingness to participate in the evaluation phase in ideation contests on (open) innovation platforms, and how does self-efficacy moderate this relation?*

In addition to the research question, sub-questions will be answered. The sub-questions are:

- What types of emotional states are there?
- To what extent does emotional state influence the willingness to participate in the evaluation phase?
- To what extent does self-efficacy moderate the relationship between emotional state and the willingness to participate in the evaluation phase?

1.2 Research approach

This study will use a quantitative, deductive approach in which several hypotheses will be developed and examined. The hypotheses are formed using existing literature and tested using an online experiment. The respondents will be approached via social media platforms such as LinkedIn and Instagram. During the online experiment, the respondents are randomly put into two groups: positive and negative emotional states. The manipulation will be done by using pictures from scientific research. Both groups must answer questions about their emotional state to check if the manipulation succeeded. The moderator self-efficacy and dependent variable, willingness to participate, are also measured using questions. The results of the online experiment will be analysed through a two-way ANOVA. Based on the outcomes, the hypotheses will be supported or not supported.

1.3 Academic relevance

Earlier research found that different factors influence the willingness to participate in open innovation platforms. These factors include environmental elements, brand familiarity and brand loyalty (Zhao et al., 2018), receiving rewards, personal gain (Li, 2011), social motivation, opportunity, and ability (Bettiga et al., 2017) and emotional state (Vuori, 2015; Lee & van Dolen, 2015; Bhimani et al., 2021). Bhimani et al. (2021) found that consumers in a happy mood engage in abstract thinking, which facilitates higher creativity ratings than those in other mood circumstances. Their article investigated the role of impact and cognitive processing in idea appraisal, providing innovative explanations for some of the observed effects beyond the present emphasis on predispositions in OI literature. Their main

finding was that the effect they observed across mood conditions does not extend to variations in the evaluation of ideas within a given condition.

In previous research, self-efficacy, as a moderator, has positively affected the relationship between germane cognitive load and idea convergence quality in open innovation idea crowdsourcing settings (Cheng et el., 2020). In their research, the effect of self-efficacy had a moderating effect on the relationship between intervention and task performance was examined in organisational settings, and researchers discovered that transformational leadership interventions prompted individuals with high self-efficacy to engage in more proactive behaviours. The study by Liao et al. (2021) was conducted in the technology industry (mobile phones), and here they found that the relationship between the enthusiasm to share ideas and the quality of ideas was moderated by self-efficacy. It would be interesting to see if self-efficacy has a moderating effect in the evaluation phase, as this phase requires individuals to critique and make decisions about the generated ideas, where self-efficacy can impact their motivation and confidence in performing these tasks.

This research specifically focuses on the evaluation phase, as the evaluation phase has a direct impact on future activities and outcomes. By researching the evaluation phase, contributions can be made on how to improve evaluation processes, raise decision-making accuracy, optimise resource allocation, and increase the possibility of successful innovation outcomes. This research will be relevant due to two contributions. First, it extends the existing literature by focusing on self-efficacy as a moderator. Secondly, it will provide information about the idea evaluation phase, which has yet to be researched as much as other innovation phases.

1.4 Managerial relevance

Companies can learn from the insights of this research and, as a result, convince more consumers to evaluate ideas with them on open innovation platforms. By doing this, companies increase the chances of evaluating ideas that could be successful and profitable innovations, positively affecting a firm's performance (Bigliardi et al., 2020; Liem et al., 2019). Another important insight that could be useful for companies is information on how they could use emotional states to get consumers to participate in the evaluation stage. A positive picture or atmosphere could be useful if it ensures that consumers react differently than when there is a negative atmosphere. The possible moderating effect of self-efficacy may change for people who want to participate in evaluating ideas. Managers could use the potential moderating effect by providing training and tools to enhance consumers' self-efficacy and increase their participation in the evaluation phase.

1.5 Outline

The structure of this research is as follows; the next chapter will dive into the theoretical background drawing from previous literature. This chapter will provide the necessary theoretical content from which hypotheses will be derived. Subsequently, the methodology will be discussed. Chapter five will present the results and their implications, while the final chapter will contain a discussion followed by limitations and recommendations.

Chapter 2: Theoretical background

2.1 Open innovation platforms

Digital platforms share three fundamental characteristics: they are technologically mediated, they facilitate interaction between user groups, and they allow those user groups to perform specific activities (Bonina et al., 2021). Combining open innovation and platforms has provided entrepreneurs and their businesses numerous opportunities, ranging from compliments on existing platforms to providing innovation input for established companies (Nambisan et al., 2018). The internet is a tool for organisations as it gives them different opportunities to use different platforms for collaborative creativity and reaching creative individuals due to modern technology and advancements in communication technologies (Gassmann, 2006).

The social (open) innovation platforms are intended for organisations to find the collective intelligence of stakeholders' communities, capture outstanding ideas, and crowdsource by encouraging bottom-up innovation within and beyond organisational boundaries (Battistella & Nonino, 2012). According to the Open Innovation (OI) approach, firms can use knowledge inflows to accelerate internal innovation processes and knowledge outflows to expand their markets by making knowledge, intellectual property (IP) rights, and patents available to partners to help them innovate (Abbate et al., 2019).

This master thesis will focus on open innovation platforms where companies generate ideas through idea contests, as consumers do not need any previous knowledge about co-creation to participate, and it can be a single interaction (Özaygen & Balagué, 2018). Idea contests can be defined as competitions that are IT-based and time-limited and organised by an organisation or individual who invites the general public or a specific target group to use their expertise, skills, or creativity to submit a solution for a particular task previously defined by the organiser who strives for an innovative solution (Adamczyk et al., 2012).

The contest “Do Us a Flavour” by Lays is a good example of an idea contest. Consumers were asked to think of new flavours that could be made into new products; the winner would win 1 million dollars (Acar, 2018).

Hossain and Islam (2015) examined the case of My Starbucks Idea, an online platform for idea generation. They discovered that while the crowd's opinions play a significant role in determining idea potential, the final decision for implementation lies with the management team. This means that the top proposals from the crowd may not always be implemented, although their contributions help the management team identify promising ideas. They explored open innovation and the willingness to participate, focusing on idea generation. In contrast, this master thesis will concentrate on idea

evaluation, aiming to develop targeted engagement strategies for increased participation and utilisation of evaluation data.

2.2 The idea evaluation phase

The process of moving a product or service from an idea to the market is known as new product development (NPD). The procedure outlines the stages that new products typically go through (Hoppe et al., 2017). Idea generation, pre-technical evaluation, business case preparation, technical development and testing, and launch are all standard phases of the stage-gate model (Cooper, 2008; Kahn, 2018) used in the innovation process. There has been a lot of research done on idea generation compared to idea evaluation, and there is one main difference between the two; idea generation is expected to generate novel ideas, whereas idea evaluation is anticipated to improve idea quality (Bhimani, 2021).

This research focuses on the idea evaluation phase, in which ideas are forecasted into future scenarios and evaluated to determine whether they deserve further development or implementation, need to be revised, or should be rejected (Bhimani et al., 2021).

With an increase in the number of participants in online idea contest platforms, it is hard to identify the most creative ideas. This job can be done internally but is generally completed by participants in idea contests for three reasons: first, it is less costly and faster; second, it creates a user community that will aid in the adoption of new products; and third, there are similarities in rankings between consumer and jury votes (Özaygen & Balagué, 2018). There are two primary ways to evaluate participants' ideas. The open evaluation procedure is the first, and the prediction market is the second (Martinez-Torres & Olmedilla, 2016). The inclusion of external stakeholders in the assessment of submitted ideas is known as open evaluation. This procedure enables all participants to rate the submitted ideas, with the added benefit of being easy to implement. By focusing on idea evolution, more knowledge is collected on how to increase the number of participants in this particular phase. As idea evaluation plays a vital role in enhancing idea quality, effective idea evaluation can lead to more informed decision-making and identifying ideas that align with the goals of an organisation.

2.3 Willingness to participate in open innovation platforms

In the research of Zhao et al. (2017), willingness to participate was defined as participating in the social interaction with enterprises and other customers on product design, development, production or consumption. The study of Yuan and Yang (2023) researched the factors influencing the willingness to participate in the smart services of a library. They defined willingness to participate as the degree to which customers want to participate in a virtual brand community’s value co-creation activities.

Their study relates to this master thesis as it researches the factors influencing the willingness of consumers to participate on an online platform. Although the platform used in their article differs

from an idea contest, it gives insight into which factors influence the willingness of consumers to participate.

In this research, the willingness to participate in open innovation platforms is the readiness and will of participants to participate in the process of evaluation of ideas on open innovation platforms. The willingness to participate in idea generation differs from willingness to participate in idea evaluation, as idea generation focuses on fostering creativity and divergent thinking and producing a broad range of ideas. Idea evaluation involves analysing, assessing and encouraging convergent thinking (Dziallas, 2020).

2.4 Emotional state

Emotional states are widespread and long-lasting emotions. They represent a person's entire emotional state or mood at a specific point in time. Emotional states can cover a spectrum of feelings or a mixture of numerous emotions (Valor et al., 2022).

Emotions have four constitutive elements (Pham, 2007; Roseman, 1991; Valor et al., 2022); the cognitive appraisals associated with an emotion, the valence of emotion, the arousal linked with emotions and the action tendencies triggered by an emotional experience. The manipulation used in this study is the Nencki Affective Picture System (NAPS). The NAPS focuses on the valence of emotion and the arousal linked with emotions. The valence dimension is positive (e.g., pleasant, joyful) or negative (e.g., unpleasant, sad), whereas the arousal dimension is low (e.g., calm, relaxed) or high (e.g., intense, stimulating) (Marchewka et al., 2013).

The valence of the emotion distinguishes between emotions that are usually positive and others that are negative by focusing on the subjective feelings associated with an emotion. The arousal linked with emotions refers to an emotion's immediate physiological reaction, the degree of excitement it causes, or its perceived intensity (Anninou, 2018). In this research, the emotional state is determined by the valence (positive or negative) of emotion and the level of arousal associated with it, both of which can be manipulated using NAPS.

Positive emotional states are significant in human well-being because they create a positive feedback loop and expand our thought-action repertoire (Løvoll, 2017). Feelings such as enthusiasm and joy encourage continued action and construct long-lasting cerebral and personal resources. Secondly, positive emotional states are advantageous for big-picture, imaginative, and creative reasoning and increase the potential for investigation, attention and careful consideration (Langley, 2019; Hodgins, 2019). The research by Grichnik et al. (2010) found that positive emotional states promote a positive assessment of a new chance.

Although negative emotional states tend to narrow action tendencies and drive hasty, decisive actions (Hodgins, 2017), these emotions increase problem-solving efficiency, bottom-up neural function, and accuracy (Langley, 2019). Yang and Hung (2015) found that emotional states such as anger are helpful for idea creation, idea assertion and idea evaluation in the innovation process. In this research, positive emotions are characterised as active, determined, attentive, inspired and alert, whereas negative emotions are defined as nervous, upset, hostile, ashamed and afraid (Thompson, 1999).

The article by Bhimani et al. (2021) shows that individuals in a positive emotional state engage in abstract thinking, leading to higher creativity ratings during idea evaluation. This suggests that emotional states can impact willingness to participate in the evaluation phase of open innovation. Emotions often carry personal relevance and influence participants' perceptions of advantages and potential impact. When overwhelmed with information, positive emotions increase the likelihood of seeing the bigger picture (Langeley, 2019; Hodgins, 2017).

Positive emotional states, as found by Bhimani et al. (2021), promote abstract thinking and higher creativity ratings during idea evaluation. This suggests that individuals in a positive emotional state may be more willing to participate, perceiving the advantages and their potential impact. In contrast, negative emotional states may limit motivation. Positive emotions broaden cognitive perspective, while negative emotions may hinder engagement. Therefore, a positive emotional state is likely to have a positive relationship with willingness to participate.

Given the information stated, the following hypotheses are made:

H1: Willingness to participate in the evaluation phase on an open innovation platform is higher when consumers are in a positive emotional state compared to when they are in a negative emotional state.

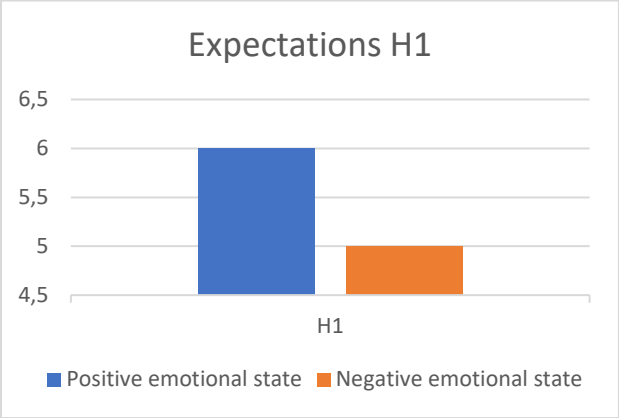

Figure 1: Expectations H1

2.5 Self-efficacy

Based on social cognitive theory, Bandura (1982) developed the self-efficacy theory, which he defined as "*a personal judgement of how well one can execute courses of action required to deal with prospective situations*" (Bandura, 1982, p. 122; Davis, 1989). So, self-efficacy refers to an individual's perception of one's ability to complete any task with the skills one possesses (Wilde & Hsu, 2019).

High self-efficacy means that someone believes in their ability to complete tasks, potentially participating in (open) innovation platforms (Cheng et al., 2019; Wilde & Hsu, 2019; Mumtaz & Parahoo, 2019). Individuals with high self-efficacy possess a firm belief in their capabilities to generate positive outcomes from tasks. They often externalise negative results and adopt a positive outlook, which can be beneficial when experiencing a negative emotional state. Their optimistic mindset, inclination to attribute unfavourable outcomes to externa factors, and resilience empower them to confront challenges, maintain a sense of control, and actively engage in the evaluation process (Wilde & Hsu, 2019). People with low self-efficacy, on the other hand, are more likely to associate negative performance with their low personal efficacy expectations and, as a result, attribute unsuccessful outcomes internally (Chen, 2018). Considering that people with high self-efficacy have strong beliefs in their ability to complete any task with their skills, it would be plausible to expect that this could positively affect someone with a negative emotional state, as they think they can successfully evaluate ideas, regardless of how they feel.

With the given information, the following hypothesis is made:

H2: The difference in willingness between positive emotional states and negative emotional states is bigger when self-efficacy is low vs high.

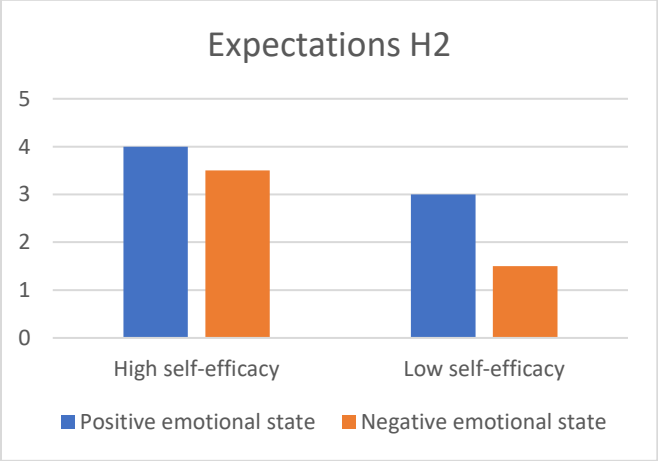

Figure 2: Expectations H2

2.6 Conceptual model

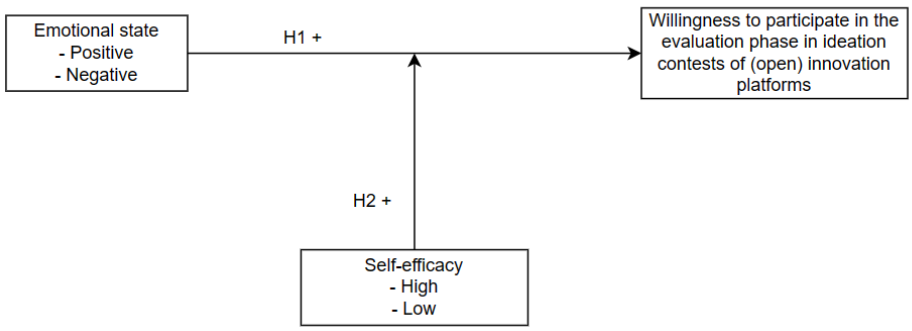

Figure 3: Conceptual model

Chapter 3: Methodology

3.1: Research strategy

During the data collection, there was a collaboration with Lisa Bierhaalder-Valk, as she has the same dependent and independent variables. Her research consists of a different moderator, brand attachment. By working with another student during the data collection, there is a high chance of having a larger sample. During the analysis of the results, brand attachment was deleted from the dataset and, therefore, not analysed.

This research is deductive, utilising existing theories and concepts that have been previously researched in the literature on emotional state, willingness to participate and self-efficacy, as mentioned in chapter two. Additionally, it is a quantitative study, which is a method of gathering and analysing numerical data. It can identify trends and averages, examine causality, and extrapolate findings to larger groups. The natural and social sciences frequently use quantitative studies (Field, 2018).

An online experiment is the most suitable research strategy as it allows one to manipulate the emotional state before respondents answer the questions of the questionnaire. This research approach is chosen because an online experiment has several advantages. First, flexibility makes creating and launching an online experiment easier than ever compared to a field experiment. Another advantage is the global reach; since almost everyone in the Netherlands has access to the internet, large samples are more accessible to obtain than with, for example, lab experiments (Evans & Mathur, 2018).

3.2 Sampling

For this research, the population consists of people currently living in the Netherlands with a minimum age of 18 years. A broad population has been chosen as it would be interesting to see the differences between age groups. The participants do not need to have prior experience with open innovation platforms because the information about open innovation platforms will be given in the questionnaire.

To conduct the survey, a sample is drawn following the principles outlined by Scheuren (2004). An ideal sample should be spread to groups of people with different backgrounds, ages, social statuses and levels of education (Hair, 2018). A combination of snowball and convenience sampling was used, as these are readily accessible.

The online survey is distributed through social media (LinkedIn and Instagram), leveraging the online and offline networks of the two master's students. During the data collection, respondents are encouraged to share the survey among their own contacts, facilitating a wider reach and diversity in responses.

Field (2018) states that the simplest rule of thumb is that the larger the sample size, the better. The preferred number of respondents is 50 for each condition (Hair et al., 2018). As this study has four conditions, a 200-person sample size is ideal.

3.3 Operationalization

3.3.1 Emotional state

In academia and industry, the study of emotion is a growing area of inquiry. Due to the growth in the number of emotion measurement techniques, significant measurement and methodological challenges have emerged (Cardello et al., 2016). In this research, the emotional state is defined as an individual's mental state of readiness concerning a specific referent, such as evaluating ideas in an idea contest to distinguish emotion from other similar concepts (Johnson & Stewart, 2005). The emotional state will be manipulated using NAPS.

NAPS is a standardised collection of high-quality realistic images divided into five categories: people, faces, animals, objects, and landscapes (Marchewka et al., 2013). NAPS images are based on various dimensional theories of emotions and have been used effectively in previous research, providing insight into emotional state (Bayer et al., 2010; Colibazzi et al., 2010; Kassam et al., 2013). Marchewka et al. (2014) propose a collection of NAPS images for each of the five categories, evoking negative, neutral, and positive emotions. In this research, only positive and negative images will be used.

To check whether the desired manipulation of emotional state was successful, a manipulation check was conducted to check if the manipulation had the desired effect on the participants. The manipulation check is measured using PANAS (Thompson, 1999), which is a self-reporting questionnaire for assessing the emotional condition. PANAS is used in this study to gauge a subject's emotional condition (de Holanda Coelho et al., 2021). Ten questions, evenly split between positive (e.g., alert, determined, active) and negative (e.g., distressed, scared, afraid) mental states, makeup PANAS. The items used in this research can be found in (Appendix 1).

3.3.2 Self-efficacy

Self-efficacy will be measured using the new general self-efficacy scale (Chen et al., 2001). This scale provides researchers with a brief but effective tool for reaping the potential benefits of general self-efficacy in the organisational study. This scale is a shorter version of the general self-efficacy scale (GSE). GSE captures individual differences in their propensity to perceive themselves as capable of meeting task demands in a wide range of situations (Chen et al., 2001). The ability of the GSE construct to (a) predict specific self-efficacy (SSE) across situations and tasks, (b) predict general and comprehensive performance criteria, and (c) protect against the crippling impacts of adverse experiences on subsequent SSE is what makes it so significant to organisational study (Chen et al., 2001).

The questions are slightly adapted to ensure that it applies to idea evaluation in open innovation platforms. The scale consists of 8 questions; each should be answered on a 7-point Likert scale (Appendix 1).

3.3.3 Willingness to participate in open innovation platforms

The dependent variable, willingness to participate, will be measured using four questions.

The questions were previously used in the research by Zhao et al. (2017) but slightly changed as their research was about the willingness to participate in idea generation and not idea evaluation (Appendix 1). An important reason to choose the questions from the research by Zhao et al. (2017) is that these questions are simple enough to be understood by people that do not have experience with open innovation platforms. For this variable, the 7-point Likert scale is used to measure the different items.

3.3.4 Control variables

The study includes two control variables, which are measured with the questions: “Do you drink coffee?" and "Have you ever participated in open innovation before?". These variables need to be controlled for as they could potentially influence the relationship between emotional state and willingness to participate.

Coffee consumption may affect arousal levels and cognitive performance, potentially influencing emotional state and willingness to participate (Lieberman et al., 2002). Secondly, consumer preferences for coffee, encompassing variations in taste and consumption preferences such as hot or cold, are highly subjective. Hoyer (2012) highlights the significance of consumer taste in shaping judgments and decision-making processes, particularly for hedonic products. Therefore, controlling for this variable is essential to account for its potential influence.

Prior experience with open innovation may impact knowledge and confidence levels, leading to differences in emotional states and willingness to engage (Füller et al., 2011; Lee et al., 2021). Respondents with prior experience might exhibit different emotional states and levels of willingness to participate compared to those who are new to the concept.

3.4 Procedure3.4.1 Test group

The convenience-based test group for this research comprises acquaintances and relatives of the two master students. A subset of individuals from this test group, varying in age, gender and education level, independently completed the survey, providing valuable feedback that helped clarify the survey scenario and improve its overall quality.

3.4.2 Survey steps

The survey will be done with Qualtrics, provided by Radboud University. The survey is available in English and Dutch. The online questionnaire consists of different parts (Appendix 2).

The survey begins with a gratitude message to express appreciation to the respondent for taking the time to fill out the questionnaire. Then the procedure is explained, and information is given about open innovation platforms and willingness to participate. The anticipated duration of the questionnaire

is indicated, and details regarding the handling of the survey results are provided. Emphasising data security and ensuring the complete anonymity of respondents, the measures taken to safeguard their information are outlined. Concluding the introduction section, respondents are asked to confirm their willingness to participate, provided they meet the minimum age requirement of 18 years. By agreeing to participate, respondents grant their consent for the researcher to utilise their answers.

The second part of the questionnaire will be the manipulation. Qualtrics will randomly present respondents with a picture set (negative or positive) to manipulate their emotional state. The pictures automatically will show one at a time for approximately four seconds. After seeing five pictures, the respondents are redirected to the ten questions that measure their emotional state.

In the third part, the respondents will see a scenario about an idea contest organised by a big coffee company. After ten seconds, they can go to the questions about brand attachment. Then they will answer eight questions about self-efficacy. After the questions about self-efficacy are answered, respondents will see the scenario again. This time there will be no set time to see the scenario, so they can choose to read it again or go to the next page, where they can answer four questions about their willingness to participate.

The fourth part consists of two questions about control variables that might have an influence on the main relationships in the research. After filling out these questions, they will go to the last part of the questionnaire.

In the last part, the demographic questions are asked. Here they are asked about their gender, age and level of education. When respondents complete the survey, they are thanked for their time. The survey will be available for two weeks; then the results will be analysed.

3.5 Data analytics

The two-way ANOVA test was selected, as this test is most applicable to analyse individual effects of the two independent variables (emotional state and self-efficacy), as well as the potential interaction effect (Hair, 2018). Before conducting the ANOVA, the required assumptions of this statistical test must be met to see if the data is suitable for ANOVA (Field, 2018). The ANOVA is used to determine whether there is a significant variation in the mean of willingness to participate based on the main effect of positive and negative emotional states. Furthermore, ANOVA is used to see if the direct impact of emotional state on willingness to participate is moderated by self-efficacy.

3.6 Ethics

Ensuring ethics in the study is of utmost importance, with the primary objective being the protection of respondents (Rhodes, 2018). To achieve this, several measures were implemented. Firstly, participants were assured that their involvement was voluntary and that they had the freedom to withdraw at any point. Privacy was upheld through an anonymous survey system, where personal

information was not required, and participants' identities remained undisclosed. To further guarantee privacy, the survey software obtained from collecting private information such as IP addresses and locations.

To maintain clarity and address any queries, respondents were informed about the questionnaire's process and provided with the researcher's name and contact details for easy communication. The data will be securely stored on RU Connect for approximately two years, after which it will be permanently deleted. Lastly, the researcher commits to the principles of honesty and integrity, assuring that the findings will not be fabricated or falsified and that the survey results will solely serve the purposes of this study.

Chapter 4: Data Analysis

4.1 Data preparation

As this online experiment was created with another student, the moderator brand attachment has been deleted from the data. Secondly, the variables start date, end date, user language, status progress, distribution channel and timing have been deleted as they did not have any value to this research.

The data included some missing values; out of the 353 respondents, 81 respondents did not complete the survey. Out of the 81 respondents, 47 left the online survey after giving their consent. As these respondents did not fill out any usable answers, they were deleted from the dataset. The remaining 34 respondents did not answer the questions about the dependent variable (willingness to participate), making them not valuable for this research. After deleting 81 respondents, 272 respondents were left.

According to Field (2018), the missing values should be less than 10% of the total amount of observations. In this case, the total amount of respondents was 272. In this research, the percentage of missing values was 2.20%. As this is less than 10%, no action was required (Field, 2018).

After checking for missing values, outliers were examined in the data. Outliers are visually represented by stars or dots in SPSS, with stars indicating problematic outliers. Non-problematic outliers in the form of dots were retained for their potential information (Field, 2018). The main concepts were investigated using boxplots in SPSS. The items of willingness to participate showed no outliers (Appendix 3.1). The emotional state variable was checked separately for positive and negative items, revealing no outliers for the positive emotional state (Appendix 3.2) but a few outliers for the negative emotional state (Appendix 3.3). These outliers were reviewed and found to be non-problematic. Additionally, self-efficacy had a couple of outliers, but they were deemed non-problematic by SPSS and were not removed from the data (Appendix 3.4). There were no cases of straight-line behavior for the main concepts.

Next, other variables were examined for outliers. As a result, one respondent with an age of 98 and exhibiting straight-line behavior was excluded from the dataset. Four cases were identified as outliers in terms of duration, indicating potential issues with the experimental manipulation. These cases involved respondents who either completed the survey in less than 4 minutes or took more than 2.5 hours to complete it. Consequently, these four respondents were removed from the dataset. So, the final dataset consists of 267 respondents.

4.2 Sample description

In this paragraph, there will be a closer look at the descriptives of the sample. First of all, the demographics.

Out of the 267 respondents, 24.3% identifies themselves as man and 74.5 % as woman (N=265). 69.3% of the respondents were between 20-40 years old. The smallest age group are 65-80 years old,

and this group contains 2.3% of the respondents. The minimum age is 18; the maximum age is 75 years (M= 33, σ= 14.40). The most common age is 23 years (Appendix 4, table 1).

The majority of the respondents (77.5%) completed a hbo-bachelor/hbo-master/ wo-bachelor/master or a doctoral degree, while 19.5% completed havo/vwo (upper school)/mbo 2-4. The smallest group (3%) consists of respondents who completed primary education/vmbo/mbo1/havo/vwo (lower school).

4.2.1 Representativity sample

The sample's representativeness will now be examined more closely based on gender, age and education level. To determine whether the variables in the sample are representative, the CBS figures are discussed, and the chi-square goodness of fit test is used. For the chi-square test, the following hypotheses apply:
H0: There is no significant difference between the observed and the expected value.
H1: There is a significant difference between the observed and the expected value.

According to CBS (2023), the Dutch population is divided into 48.70% men and 50.30% women (Appendix 4, table 2). Looking at the sample, it is clear that the women in this research are over-represented (74.5% women and 24.3% men). The chi-square goodness of fit test gives the following output (Appendix 5) X^2 (2, N=267) = 225.528, p= .000. The observed p-value is lower than the α, suggesting that the H0 should be rejected, implying that age is not representative for the Dutch population's gender distribution.

When comparing the average age of the sample with the Dutch population visually, it is striking that they are quite different. According to CBS (2023), the largest age group in Dutch society consists of 40-65 years old. In this research, the biggest group consists of respondents between 20-40 years old (Appendix 6). The chi-square goodness of fit test gives the following output (Appendix 5) X^2 (51, N=265) = 551.106, p= .000, which means that it is not representative of the Dutch population's age distribution.

According to the output (Appendix 4, table 3), 77.5 % of the sample completed a hbo-bachelor/master, wo-bachelor/master or a doctoral degree. This is not indicative of the Dutch population, where havo/vwo, mbo 2-4 is most occurring, according to CBS estimates (CBS, 2018). This is not reflected in the results from the online experiment as this group is represented with 19.5%. The smallest group made up 3% of the sample. The chi-square goodness of fit test gives the following output (Appendix 5) X^2 (2, N=267) = 245.55 p<.000. The observed p-value is lower than the α, so the sample is not representative for the Dutch population's level of education. As the sample is not representative of the Dutch

population, the study's results cannot be generalised to the whole population, and results should be interpreted with caution.

4.3 Randomisation check

The randomisation check is done to check whether the randomisation process has effectively assigned participants to groups randomly, resulting in comparable scores between the groups (Field, 2018). There are four categorical questions, two control questions and two demographic questions that are tested using the chi-square of independence, and there is one metric variable that should be tested using the ANOVA. The Fisher exact test was used as all four variables did have expected numbers greater than 5 (Field, 2018). The test should be significant ($p < 0.05$), to assume that two variables are related.

The first control variable asked whether the respondent drank coffee. According to the output, the Fisher exact test was significant $p = 0.019$, meaning that there is a significant association between the variables. Cramer's V is used to determine the strength of the relationship (Appendix 7 table 1). According to the output the of Cramer's V, the relationship was weakly associated (Cramer's V= .102) (Appendix 7, table 2).

The second control variable tests whether the respondent previously participated in open innovation contests. According to the output, the test was significant $p = 0.000$ (Appendix 7, table 3), and Cramer's V suggests a weak relationship (Cramer's V= .178).

Both the demographic variables (Appendix 7, tables 5 & 6) were not significant (education level $p = .911$, gender $p = .056$). This indicates that the variables of education level and gender do not have an influence on the main effects in the ANOVA. As the control variables were significant, they might have an influence and, therefore, need to be controlled for in the analysis.

As age was of metric measurement level, the ANOVA was most applicable to determine if age had any relationship with the four conditions (Appendix 8). There is no significant difference between the age and the four conditions ($F(3.261) = .624$, $p = .600$). Since there is no significant result, it implies that age does not have an influence on the main variables of the study.

4.4 Manipulation check

The emotional state was manipulated during the experiment using the NAPS images. The PANAS was used to measure the emotional state of the respondents. When scores for both emotional states were identical or very close to each other, it indicated that the manipulation did not work. The extent to which positive and negative PANAS scores should differ does not have a fixed threshold (de Holanda Coelho et al., 2021). Instead, researchers should analyse the patterns of scores in conjunction with the manipulation and make informed decisions accordingly (de Holanda Coelho et al., 2021). Higher scores

(>20) correspond to higher levels of positive and negative emotional states (Thompson et al., 2017). The small difference observed between scores was 1, occurring in relatively low scores. Subsequently, differences between 2 and 3 were observed in the data for scores below 20. The first difference of 4 emerged for emotional scores exceeding 20. Therefore, after careful analysing, it was determined that a minimum difference of 4 or higher (if aligned with the manipulation type) would indicate a successful manipulation.

Out of the total respondents, 137 were exposed to negative manipulation, while 130 were exposed to positive manipulation (Appendix 9). The manipulation was deemed successful for approximately 58.4% of the respondents. Among this group, the majority experienced a positive manipulation, accounting for 47.2% of the total sample. Hence, it can be concluded that manipulation was unsuccessful for 41.6% of the respondents.

4.5 Validity

To check whether the scales that will be in the ANOVA are valid, a factor analysis is executed. A factor analysis has two goals: data reduction and finding a good interpretation for patent properties (Field, 2018). After the factor analysis, Cronbach's alpha is checked to determine the reliability of the internal consistency.

4.5.1 Factor analysis

Factor analysis is used to test content validity, the extent to which a test or assessment instrument assesses all facets of the topic, construct, or behaviour being measured (Taherdoost, 2016). For each of the constructs, a separate factor analysis is conducted to ensure convergent validity. Secondly, a factor analysis with all the items is conducted to check the discriminant validity.

4.5.1.1 Willingness to participate

According to Field (2018), correlations above 0.30 are considered high, and there is enough connection between the items. It is important to look at correlations as they explain the relationship between the items; the higher the correlation, the better the items are represented by the underlying factor (Field, 2018). For the items of willingness to participate the lowest correlation is .607, which is enough correlation between the four items (Appendix 10, table 1).

To check whether the items are suitable to use in factor analysis, the KMO and Bartlett's test of sphericity need to be tested. The KMO measures the degree to which a variable may be anticipated by all other variables. The outcome should be higher than 0.50 (Field, 2018). Bartlett's test of sphericity measures if there is enough correlation between the variables. The outcome should be lower than the alpha (0.05) (Field, 2018).

The KMO value of .746 is higher than the minimum requirement of 0.50, indicating the suitability of the items for factor analysis (Appendix 10, table 2). Bartlett's test of Sphericity has a value of .000, indicating that the H0 can be rejected, confirming the appropriateness of the items for factor analysis.

The next step of the factor analysis is to look at the communalities. It is important to check whether the factors are explained well by the underlying items. This is the case when the values after extraction are bigger than 0.20 (Field, 2018). According to the table communalities (Appendix7, table 1), all four items have an extraction value of at least .755 which is higher than the required 0.20. So, no items need to be deleted.

The general rule to determine the number of factors is that the total variance needs to be higher than 60%. According to the table total variance explained, the four items of willingness to participate are explained by one factor (76.25%) (Appendix7, table 3). This is also confirmed by the eigenvalue, which was 3.05 (Appendix 10, table 3), meaning that a factor contains at least as much information as one of the original variables (Field, 2018). As there is only one factor, no rotation is done.

4.5.1.2 Emotional state

For emotional state, all the items have a high correlation (higher than 0.30).

As the KMO is .869 and the Barttlett's test of Sphericity is .000, both tests have been satisfied (Appendix 11, table 1), and the items are suitable to use in the factor analysis. As shown in table communalities (Appendix 11, table 2), all the items have an extraction value of at least .515 which is higher than the required 0.20. So, no items should be deleted. According to the table total variance explained, the ten items of emotional state are explained by two factors (Appendix 11, table 3). The first factor has an eigenvalue of 4.31, and the second factor has an eigenvalue of 2.13. As there are two factors, the next step is to rotate to increase the interpretability of the factors.

The component correlation gives information about the type of rotation (Hair, 2018). According to Field (2018), the type of rotation depends on the outcome of the component correlation matrix (Appendix 11, table 4). If the outcome is higher than 0.30, oblique rotation should be chosen. If the outcome is lower than 0.30 then orthogonal is the most applicable type of rotation. As the output is -.189, orthogonal rotation should be used.

The rotated component matrix (Appendix 11, table 5) shows that EMO_Pos_Alert is a double loader, but it loads higher for positive (component 2) than for negative (component 1), so this item belongs to the positive emotional state, which is expected (Watson et al., 1988) and therefore not deleted.

4.5.1.3 Self -efficacy

For the items of self-efficacy, the lowest correlation is .389, which is still a high correlation. So, there is enough correlation between the four items. The KMO test is .897 and the Barttlett's test of Sphericity is .000 (Appendix 12, table 1). As both tests are met, the items are appropriate for the factor analysis.

According to the table communalities (Appendix 12, table 2), all eight items have an extraction value that is higher than 0.20. So, no items need to be removed. Looking at the table of total variance explained, it becomes clear that the eight items of self-efficacy are explained by one factor (61.25%) (Appendix 10). This is in line with the eigenvalue criteria, as the eigenvalue is 4.900 for one factor (Appendix 12, table 3). As there is only one factor, no rotation needs to be done.

4.5.2 Cronbach's alpha

Cronbach's alpha is a measure of internal consistency and measures how closely connected a set of items are as a group. The Cronbach's alpha should be higher than 0.60 (Field, 2018). According to the factor analysis, emotional state consists of two factors. So, Cronbach's alpha is conducted four times.

Variable	Cronbach's alpha
Willingness to participate	.899
Positive emotional state	.750
Negative emotional state	.903
Self-efficacy	.908

Table 1: Cronbach's alpha

As all variables have a Cronbach's alpha higher than the required 0.60, it can be concluded that all the variables are reliable scales, and Cronbach's alpha cannot be increased by removing any of the factors. In order to prepare the variables for ANOVA analysis, certain steps were taken. For self-efficacy, the eight items of self-efficacy were averaged to obtain an overall score. The average score was used to categorise self-efficacy into two groups: high and low. To achieve this categorisation, a median split method was used based on the study by Lacobucci et al. (2015). Scores ranging from 5.1-7 were labelled as high, while scores of 5.09 and below were labelled as low.

The items assessing positive and negative emotional states were analysed separately. The scores for each emotional state were obtained by summing up the respective items. This allowed for a comparison between the scores of positive and negative emotional states to determine if the manipulation was successful. As for willingness to participate, no additional preparation was needed, as this variable was already measured on a metric scale.

4.5.3 Discriminant validity

Discriminant validity assesses whether constructs that should not be connected to each other are, in fact, unrelated (Field, 2019). According to the output (Appendix 13), there are four variables for all the items. This is aligned with the outcomes of the three factor analyses.

4.6 Assumptions ANOVA

Before the ANOVA can be conducted, testing whether the assumptions are met is essential. Five assumptions need to be tested (Appendix 14).

First, the dependent variable should be of metric measurement level (interval or ratio). The dependent variable (willingness to participate) is measured on a Likert scale, which can be treated as an interval scale.

Secondly, there should be one or more independent variables of nominal or ordinal measurement level. The independent variable (emotional state) is measured as positive or negative, while the moderator (self-efficacy) is categorised as high or low, both falling under nominal measurement levels.

According to the third assumption, the observations should be independently and randomly selected. The experiment has a between-subject design; respondents only experience one condition. This design ensures that the different units are independent.

The fourth assumption is that the data should be normally distributed. This is specifically tested for the dependent variable. For this test, it is important to look at the Shapiro-Wilk test, as there are less than 2000 units. This test gives a p= .178, which is higher than the α of 0.05 (Appendix 14, table 1). So, it can be concluded that the distribution is normal.

The last assumption assumes equal variances within the categories (homogeneity). To be able to run the ANOVA, it is important to look at Levene's test (Appendix 14, table 2). Ideally, Levene's test is not significant. According to the output of Levene's test, the test was not significant (p> 0.05), which means that there are equal variances within the groups.

4.7 Main analyses ANOVA

The main analysis will be a two-way ANOVA, which is most applicable when there is a between-subjects design and to test the moderating effect. Emotional state and self-efficacy will be used as fixed factors. The analysis will be done twice. First, for all the respondents, and then for the respondents where the manipulation was successful, to see whether the outcome changed.

4.7.1 ANOVA I

There are four experimental conditions: negative emotional state- low self-efficacy/ negative emotional state- high self-efficacy/ positive emotional state- low self-efficacy/ positive emotional state- high self-efficacy. In table 2, the group sizes of the four conditions are shown.

	Low self-efficacy	High self-efficacy	Total
Negative emotional state	59	78	137
Positive emotional state	44	86	130

Total	103	164	267

Table 2: Group sizes conditions

The group sizes are unequal as self-efficacy is measured and not manipulated. The median is quite high (M = 5.07), considering it is measured on a 7-point scale, which results in slightly more people with a high score (e.g., high self-efficacy). Secondly, a couple of respondents have been deleted as they did not fill out the whole questionnaire, so the negative manipulation is slightly overrepresented in the study.

The two-way ANOVA (Appendix 15) revealed that there was no statistically significant interaction effect for emotional state and self-efficacy ($F(1,263) = .637$, $p = .429$). However, there were statistically significant effects of emotional state ($F(1,263) = 4.808$, $p = .029$) and self-efficacy ($F(1,263) = 68.211$, $p = .000$).

According to the output, the mean for willingness to participate was higher for respondents with a high self-efficacy (5.142) than those with a low self-efficacy (3.826). The mean of willingness to participate for positive emotional state (4.577) was higher than for the negative emotional state (3.390).

4.7.2 ANOVA II

For the second ANOVA, 156 respondents were manipulated successfully. The remaining 111 respondents were excluded from the test.

	Low self-efficacy	High self-efficacy	Total
Positive manipulation and positive mood	65	61	126
Negative manipulation and negative mood	5	25	30
Total	70	86	156

Table 3: Emotional state manipulation

The second two-way ANOVA (Appendix 15) revealed that there was no statistically significant interaction effect between the emotional state and self-efficacy, ($F(1,152) = 2.808$, $p = .106$). Secondly, there was no statistically significant effect of emotional state ($F(1,152) = .025$, $p = .874$). However, self-efficacy was significant ($F(1,152) = 38.041$, $p = .000$).

As self-efficacy was still significant, it can be concluded that there is a significant difference between respondents with high self-efficacy and low self-efficacy. The mean of the willingness to participate is higher for respondents with a high self-efficacy (5.423) compared to respondents with a low self-efficacy (3.748).

4.8 ANCOVA

As there were two control variables that were significant, an ANCOVA was conducted to see whether the control variables had an influence on the relationship between the emotional state and the willingness to participate in the evaluation phase. First, assumptions are tested for both control variables.

The majority of the assumptions are the same as for ANOVA. However, there are three additional assumptions specifically for the ANCOVA (Field, 2018), which are:

- Covariates should correlate with the dependent variable.
- Covariates and independent variable(s) should be independent.
- Covariate should have a consistent impact across all levels of the independent variable (homogeneity of regression lines).

4.9 Assumptions ANCOVA

4.9.1. Control variable 1

The first variable the assumptions are tested for is the question, "*Do you drink coffee*?" (Appendix 17). Field (2018) states that covariates must correlate with the dependent variable. This assumption is met if Pearson's correlation is significant. In this case, Pearson's correlation is significant (p= .001) and has a value of -.212, indicating that the first assumption is met.

The second assumption is that the covariate and the independent variable should be independent. To check this assumption, a t-test is done since there are only two answer options. According to the output (Appendix 17, table 2), the result is significant *p*= .006, and the outcome of the second row should be interpreted (Field, 2018). Here the outcome is not significant *p*= .095, meaning that the control variable and the independent variable are independent.

The third assumption is that the covariate must be equally reflected in all levels of the independent variable. The homogeneity regression lines show no significant result ((*F*(1) = .310; *p*= .578). This non-significant result implies that the slopes or the associations between the covariate and independent variable are equal within sampling equations. So, the assumption is met.

4.9.2 Control variable 2

The second variable the assumptions are tested for is "*have you ever participated in open innovation before*?" (Appendix 18). According to the output, Pearson's correlation is significant (p = .000) with a value of -.333. So, the covariate correlates with the dependent variable.

The second assumption is that the covariates and the independent variable are independent. The t-test shows a non-significant result (*F*(262) = .007 *p*= .935). So, the control variable and independent variable are independent.

The third test shows no significant result ($F(1) = .027$; $p = .869$). This implies that the slopes or the associations between the covariate and dependent variable are equal within sampling equations. So, the assumption is met.

4.10 ANCOVA

As both control variables met the assumptions, they need to be controlled for in an ANCOVA. For the variable "*do you drink coffee*?" there is not a significant result ($F(1.261) = 3.68$, $p = .087$) (Appendix 19, table 1). However, the effect of self-efficacy still stands. So, this control variable does not have a meaningful effect on the dependent variable, nor does it influences the relationship between self-efficacy and willingness to participate.

For the second control variable, "*have you ever participated in open innovation contests before*?" there is a significant result ($F(1.260) = 32.731$, $p = .000$) (Appendix 19, table 2). So, the control variable does have a meaningful effect on the dependent variable. Looking at the parameters estimate (Appendix 19, table 3), it suggests that the control variable has a negative effect (B = -1.675) on the willingness to participate. More importantly, the significant effect of self-efficacy remains, meaning that the covariate does not exhibit any observable impact on the outcome of the ANOVA.

4.11 Summary

The first ANOVA analysis revealed a significant relationship between emotional state and willingness to participate, with respondents expressing a higher mean of willingness when experiencing a positive emotional state than a negative emotional state. The impact was not replicated in the second ANOVA study, which focused solely on successfully manipulated respondents. Furthermore, neither ANOVA test indicated an interaction effect between emotional state and self-efficacy, implying that these variables do not influence one another in this setting.

Hypothesis 1: *Willingness to participate in the evaluation phase on an open innovation platform is higher when consumers are in a positive emotional state compared to when they are in a negative emotional state.*	Partly supported
Hypothesis 2: *The difference in willingness between positive emotional states and negative emotional states is bigger when self-efficacy is low vs high.*	Not supported

Table 4: Hypotheses

Chapter 5: Conclusion

5.1 Conclusion

The study aims to investigate if someone's emotional state has an influence on their willingness to participate and if self-efficacy could influence this relationship. Hence, the following research question was formulated: "*To what extent does emotional state influence the willingness to participate in the evaluation phase in ideation contests on (open) innovation platforms, and how does self-efficacy moderate this relation?"*

In this research, the emotional state was divided into positive and negative emotional states. According to the output of the first ANOVA, with all the respondents, there was a significant effect, which means that there is a difference between positive emotional state and negative emotional state on the willingness to participate in the evaluation phase in (open) innovation platforms. Looking at the output, it becomes clear that the mean for positive emotional state is higher than for the negative emotional state. This implies that consumers with a positive emotional state are more willing to participate than consumers in a negative state, which is in line with the literature. However, this significant effect does not endure in the second ANOVA, where only successfully manipulated respondents were used. So, the only conclusion that can be drawn is that there is an indication that there might be a relationship between the two types of emotional state and the willingness to participate, as there was a significant result. However, since the groups in the second ANOVA are so small, this cannot be said with certainty.

There was no significant interaction effect, which indicates that self-efficacy does not have a moderating effect. However, there was a significant main effect observed of self-efficacy on the willingness to participate in both tests.

The significance of self-efficacy in both tests indicates a difference between high self-efficacy and low self-efficacy. High self-efficacy has a higher mean than low self-efficacy, implying that participants with high self-efficacy are more willing to participate than participants with low self-efficacy. This was not anticipated while formulating hypotheses.

Additional to the main concepts, control variables were used to determine if they would influence the core findings. According to the ANCOVA, the question "*Have you ever participated in open innovation contests before*?" was significant, meaning that the control variable affected the willingness to participate. Secondly, the lack of significance of emotional state and interaction effect remained. Lastly, the significant effect of self-efficacy holds, even after controlling for the control variable.

Taking all this into consideration, it can be concluded that there might be an indication that the emotional state influences the willingness to participate. However, self-efficacy does not have a moderating effect

on this relationship. Instead of a moderate effect, self-efficacy has a main effect on the willingness to participate.

5.2 Academic implications

The results of the study indicate that contributions should be made with caution. First of all, the results imply that an individual's emotional condition may influence their willingness to participate in open innovation platforms. The result that people in a positive emotional state are more likely to participate is consistent with previous research. However, it is important to highlight that this significant effect was not consistently detected in the second ANOVA, indicating the need for more research to establish a definitive relationship.

Secondly, the study shows that, while self-efficacy does not operate as a moderator, it does have a main effect on the willingness to participate. This effect was not expected as there were indications for a moderating effect. Academics could use the results from this study to better understand the effect of self-efficacy on willingness to participate in the evaluation phase in ideation contests on (open) innovation platforms, as this had not been researched previously.

Furthermore, the inclusion of control variables exposes the impact of many circumstances on the fundamental conclusions. The importance of the control variable related to previous participation in open innovation challenges demonstrates its impact on willingness to participate. Additionally, the persistence of self-efficacy's influence after controlling for the control variable highlights its importance in forming individuals' willingness to participate.

5.3 Practical implication

There are a couple of implications that could be useful for companies. First of all, understanding the role of emotional state and self-efficacy might help organisations or platforms that want to encourage participation in open innovation platforms. Recognising that people in a positive emotional state are more likely to participate could help improve the creation of interventions or techniques that promote positive feelings among potential participants (e.g., creating engaging and supportive surroundings that encourage positive emotional experiences).

Secondly, understanding the importance of self-efficacy in determining the willingness to participate could be helpful in the selection of persons to evaluate ideas on open innovation platforms. Organisations might focus on selecting consumers who have high self-efficacy since they are more likely to participate than consumers with low self-efficacy. This knowledge can be used to develop recruitment programmes to boost self-efficacy among potential participants.

Chapter 6: Discussion

The lack of significance of the main effect was not expected. Previous studies found that someone's emotional state is important to the innovation process. Bhimani (2021) found that persons in a positive emotional state engage in abstract thinking, which allows them to be more creative than those in other emotional states. Yang and Hung (2015) discovered that emotions like anger could aid with idea generation, idea assertion, and idea appraisal during the innovation process. So, it is interesting that expectations based on previous research were not found in this master thesis.

A reason for the lack of significance of the emotional state would be the failed manipulation. The NAPS images were chosen as it is the largest general affective picture database available (Horvar et al., 2022), is accessible and has normative ratings (Marchewka et al., 2014). As mentioned before, mainly negative manipulation did not work properly. One reason for this could be that five images were shown in this study. It is noteworthy that various studies did have a successful manipulation using the NAPS image set. The number of showed images spanned from 8 (Kang & Chin, 2022), 41 (Quiñones-Camacho et al., 2018), and even as high as 144 (Basar et al., 2020), indicating that five images were not enough to manipulate the (negative) emotional state.

However, in the future, a validation experiment employing more modern databases, such as the OASIS (Kurdi et al., 2017) or GAPED (Dan-Glauser & Scherer, 2011) or watching sad movies (Svaldi et al., 2014), should be considered to test if the negative manipulation would be more successful. In addition, de Buisonjé et al. (2017) successfully manipulated emotional state using a natural setting. Here they presented participants with images of a smiling baby, positive music, and positive words such as active and growing, but this could also be moderated to negative images, audio (Jansen et al., 2008; Yang et al., 2018) or negative words such as frustration and burdened.

This indicates that different methods outperform NAPS alone regarding success rates, emphasising the potential benefits of combining various approaches for better manipulation. Combining supplemental strategies such as synchronised exposure to music and visual stimuli from the OASIS set, followed by a violent movie clip, for example, may result in better results.

Another outcome that was not expected was the main effect of self-efficacy on the willingness to participate.

In this study, it was hypothesised that self-efficacy would have a moderating effect between emotional states and willingness to participate. Previous research supported the assumption that individuals with strong self-efficacy tend to employ adaptive emotion regulation strategies when faced with negativity, potentially enhancing their willingness to participate despite negative emotional states (Pocnet et al., 2017). Positive emotions have also been associated with higher levels of self-efficacy, which could increase motivation to participate. Conversely, negative emotions might reduce the impact of self-efficacy on performance (Villavicencio & Bernardo, 2016). Moreover, research has shown that

individuals with strong self-efficacy are less affected by negative social feedback or peer pressure, enabling them to maintain their confidence and performance even in the presence of external pressures, such as negative emotional states (Rhee et al., 2017). As the manipulation failed, there was no relationship for self-efficacy to moderate.

Despite previous research and potential reasons for self-efficacy to act as a moderating effect, the analysis revealed that respondents with high self-efficacy demonstrated a greater willingness to participate than those with low self-efficacy. Several factors contribute to self-efficacy having a main effect rather than a moderating effect. Firstly, self-efficacy is linked to effective problem-solving (Nguyen et al., 2022), which aligns with the scenario of evaluating new coffee flavours in this study. Respondents with high self-efficacy may be more likely to participate due to their problem-solving abilities, regardless of their emotional state. Additionally, studies propose that self-efficacy has an influence on performance. According to social cognitive theory, the positive effect can be attributed to increased self-efficacy, which enhances motivation, persistence, effort, and ultimately improves performance and the willingness to participate (Tzur et al., 2016). Moreover, limitations in study design, including ineffective manipulation and a smaller sample size, may have hindered the identification of a moderating effect. Lastly, the influence of motivational factors, such as respondents' familiarity with the researchers, might have overshadowed the moderating role of self-efficacy, particularly when external sources heavily influence motivation (Hair 2018).

This study identified that the control variable "*Have you ever participated in open innovation before*?" influenced the willingness to participate. Despite controlling for this variable, the lack of significance of emotional state and the interaction effect persisted, while the significance of self-efficacy remained. Previous experiences with ideation contests significantly shape individuals' interest in future involvement. Positive experiences and successful outcomes fuel enthusiasm and engagement, while negative experiences and failures can lead to frustration and decreased motivation (Füller et al., 2011).

6.1 Limitations

One of the biggest limitations of this research was the failed manipulation of emotional state. The NAPS images were used to manipulate the emotional state in the online experiment. The emotional state was measured using the PANAS model, which does not have strict rules to determine what emotional state someone was in. The manipulation check showed that only 156 respondents were manipulated versus 111 respondents where the manipulation failed. The majority of the 157 respondents were positive; 126 respondents were in a positive emotional state versus 30 in a negative emotional state. Because of this, the results were not as expected, as there were not enough respondents with the required emotional state.

In addition, the majority of the respondents seemed to be biased. Regardless of the type of manipulation they saw, most of the participants were in a positive emotional state.

A second limitation is the representativeness of the study, as the majority of the social circle of the researcher are students of higher professional education or university education. So, with variables such as age and education level, the results are skewed. This negatively influences the generalisability as the results cannot be translated back to the entire research population (Field, 2018).

The last limitation concerns the choice to conduct an online experiment instead of, for example, an on-site experiment, which might allow for better manipulation as the researcher has more direct control over numerous factors that may influence manipulation success (Hair, 2018).

6.2 Further research

One of the most significant disadvantages of this study was the ineffective manipulation of emotional state using NAPS images. More research may be directed towards establishing more reliable and proven methods for influencing and evaluating emotional states in online experiments. Investigating alternate image sets or integrating them with additional techniques, such as physiological data or facial expression analysis, could result in a more accurate and trustworthy assessment of emotional states.

Another limitation addressed in the study is the sample's lack of representativeness, mainly consisting of students from higher education institutions. Future studies should aim for a more diversified participant pool by recruiting from a wider demographic range, including different age groups and educational levels. This could be achieved by using other sampling techniques than the ones used in this study. For example, simple random sampling, where everyone in the target group has an equal chance of being selected for the study (Field, 2018). This would improve the findings' generalizability and provide more comprehensive knowledge of the relationship between the variables of this study across different demographics.

In addition, experimenting with diverse research settings, such as performing on-site experiments in real-world open innovation environments, could provide a valuable alternative to online experiments. On-site studies may enable more controlled and immersive manipulation situations, allowing for a better understanding of the effects of the variables in the study. The results of online and on-site experiments could assist in validating and supplementing the findings, resulting in more knowledge of the relationships.

Addressing these three limitations through more research would lead to a better understanding of emotional state, willingness to participate and self-efficacy in open innovation platforms and increase the findings' validity and relevance in real-world contexts.

Chapter 7: References

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Appendix

Appendix 1: Measurement variables

Variable	Measurement item	Measurement	Source
Emotional state	Active Determined Attentive Inspired Alert Nervous Upset Hostile Ashamed Afraid	7-point scale *(strongly disagree, disagree, somewhat disagree, either agree or disagree, somewhat agree, and agree))*	Thompson (2007)
Willingness to participate	WP1: I am willing to try to participate in idea evaluation co-creation activities of the virtual brand community. WP2: I am willing to learn more to better participate in the idea evaluation of the virtual brand community. WP3: I am willing to recommend others to participate in the idea evaluation of the virtual brand community. WP4: I am willing to invite other consumers to participate in the idea evaluation of the virtual brand community.	7-point Likert scale *(Strongly disagree, disagree, somewhat disagree, either agree or disagree, somewhat agree, and agree)*	Zhao et al. (2017)
Self-efficacy	SE1: I will be able to achieve most of the goals that I have set for myself. SE2: When facing difficulty evaluating ideas, I am certain I will succeed. SE3: I think I can obtain outcomes that are important to me and the company. SE4: I believe I can succeed at most any endeavour to which I set my mind. SE5: I will be able to evaluate the ideas in this coffee idea contest successfully. SE6: I am confident I can evaluate many ideas effectively. SE7: Compared to other people, I can evaluate ideas very well. SE8: Even when things are tough, I can perform quite well.	7-point Likert scale *(Strongly disagree, disagree, somewhat disagree, either agree or disagree, somewhat agree, and agree)*	Chen et al. (2001)

Appendix 2: Questionnaire

You can change the language settings to <u>Dutch</u> at the top of the right corner.

Thank you for taking time to answer the questions in this questionnaire. You are invited to participate in a research project investigating the willingness to participate in open innovation platforms. This research project is being conducted by Lisa Bierhaalder Valk and Mijs van Berkel, students of the Master of Marketing at Radboud University. **Please only participate if you are above 18 years.**

The procedure involves filling out an online survey. Companies such as Lego, Starbucks and Ikea use these kinds of platforms to work together with their customers on open innovation platforms to find new ideas or vote on the best one. With the willingness to participate in an open innovation platform, the *evaluation phase* is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.

Filling out the survey will take approximately 10 minutes. The research data will be made anonymous/pseudonymized and safely stored according to the research data management guidelines of Radboud University and conform to the General Data Protection Regulation. There will be no questions asked about name, address or contact information, so all the information that is filled in will be completely anonymous. The researchers involved in this study will use the research data for academic publications and presentations. The anonymous data may become available in the context of Open Science so that other researchers can refer to and reuse it. For research integrity purposes, the research data will be accessible to the academic community for a period of at least 10 years. Your participation in this research is voluntary. This means you can withdraw your participation and consent at any time during the data collection period without giving a reason.

I declare that I read all the information stated above and that I am older than 18 years. To add, I am aware that participation in this study is voluntary.

- I agree
- I disagree (end of survey)

Please have a look at the following five images. Each image will be shown for 4 seconds. After this, you will automatically be sent the questions.

Positive	Negative

Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree.

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Stronlgy agree
Active	○	○	○	○	○	○	○
Determined	○	○	○	○	○	○	○
Attentive	○	○	○	○	○	○	○
Inspired	○	○	○	○	○	○	○
Alert	○	○	○	○	○	○	○
Nervous	○	○	○	○	○	○	○
Upset	○	○	○	○	○	○	○
Hostile	○	○	○	○	○	○	○
Ashamed	○	○	○	○	○	○	○
Afraid	○	○	○	○	○	○	○

Questions regarding self-efficacy using the self-efficacy scale (7 point Likert scale, strongly disagree, disagree, somewhat disagree, either agree or disagree, somewhat agree, and agree) [WI(2]

1. I will be able to achieve most of the goals that I have set for myself.
2. When facing difficulty evaluating ideas, I am certain I will succeed.
3. I think I can obtain outcomes that are important to me and the company.
4. I believe I can succeed at most any endeavour to which I set my mind.
5. I will be able to evaluate the ideas in open innovation platforms successfully.
6. I am confident I can evaluate many ideas effectively.
7. Compared to other people, I can evaluate ideas very well.
8. Even when things are tough, I can perform quite well.

Please read the following scenario. After 10 seconds, you can go further to the next questions.

Companies such as Lego, Starbucks and Ikea use open innovation platforms to work together with their customers to find new ideas or vote on the best one.

In this case, a big coffee company is looking for participants willing to evaluate ideas generated by other customers for new ideas for their coffee products (new coffee flavors). The ideas were conceived through a competition where consumers suggest new ideas that are judged.

è To the questions (appears after 10 seconds)

Now, please answer the following questions regarding **coffee**. Please provide an answer with the statements below *(strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree).*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
I have a personal bond with coffee	○	○	○	○	○	○	○
Coffee has a very special role in my life	○	○	○	○	○	○	○
Coffee is very dear to me	○	○	○	○	○	○	○
I am very attached to coffee	○	○	○	○	○	○	○
I feel emotionally connected to coffee	○	○	○	○	○	○	○

-scenario again-

With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.

Please indicate your willingness (readiness/will) to participate in the evaluation of coffee ideas for this company *(strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree).*

1. I am willing to try to participate in evaluating the generated ideas for this coffee company
2. I am willing to learn more and thus better participate in evaluating coffee ideas
3. I am willing to recommend others to participate in evaluating ideas for this coffee company
4. I am willing to invite other consumers to participate in evaluation of coffee ideas for the coffee company

Control variables

Do you drink coffee?

- o Yes
- o No

Have you ever participated in open innovation contests before?

- o Yes -> follow up question: in which pase have you previously participated (click box; idea generation, idea evaluation, business case preparations, technical development, testing)
- o No

Demographic variables
I identify myself as:

- o Man
- o Woman
- o I prefer not to say
- o Other, namely: open answer

What is your age (in years)?
Open answer

What is your highest completed level of education?

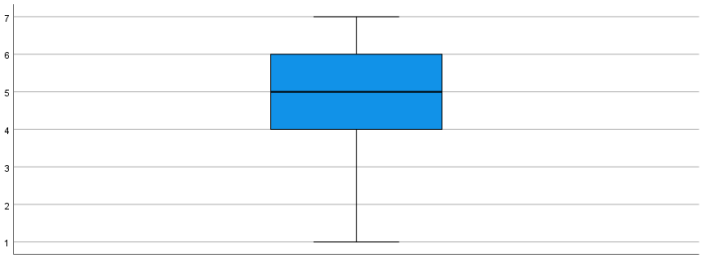
- o Primary education, vmbo, mbo1, havo/vwo (lower school)
- o Havo/vwo (upper school), mbo 2-4
- o Hbo-bachelor/master, wo-bachelor/master and doctor

This is the end of the survey. Thank you for your participation. Your participation helps to improve our knowledge about willingness to participate on open innovation platforms.

If you would like more information about this survey, now or in the future, please do not hesitate to contact Mijs van Berkel or Lisa Bierhaalder Valk via e-mail: mijs.vanberkel@ru.nl or lisa.bierhaaldervalk@ru.nl.

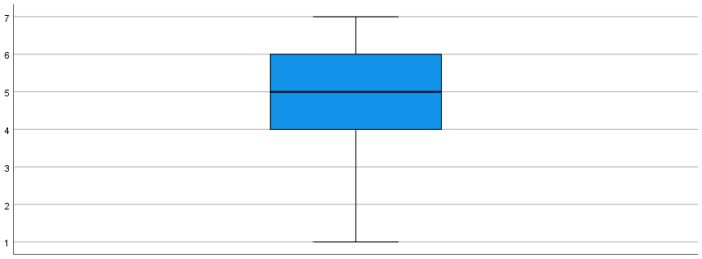
Appendix 3: Outliers

3.1 Willingness to participate



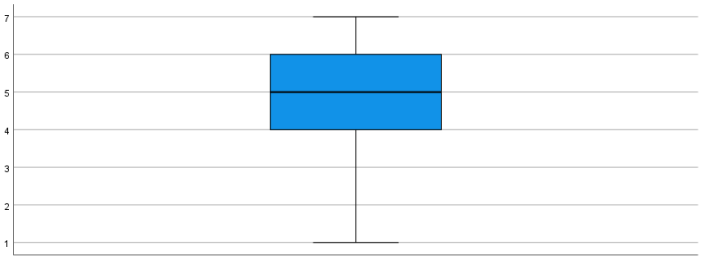
With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.

Please indicate your willingness (readiness/will) to participate in the evaluation of coffee ideas for this company (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree). - I am willing to try to participate in evaluating the generated ideas for this coffee company



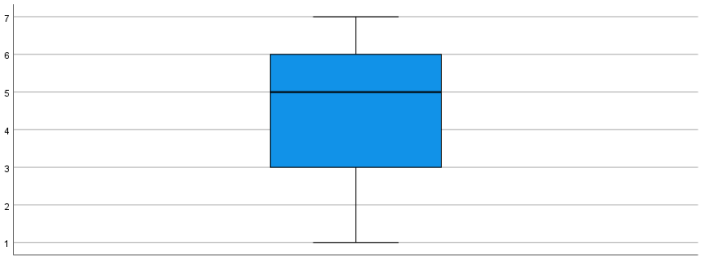
With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.

Please indicate your willingness (readiness/will) to participate in the evaluation of coffee ideas for this company (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree). - I am willing to learn more and thus better participate in evaluating coffee ideas



With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.

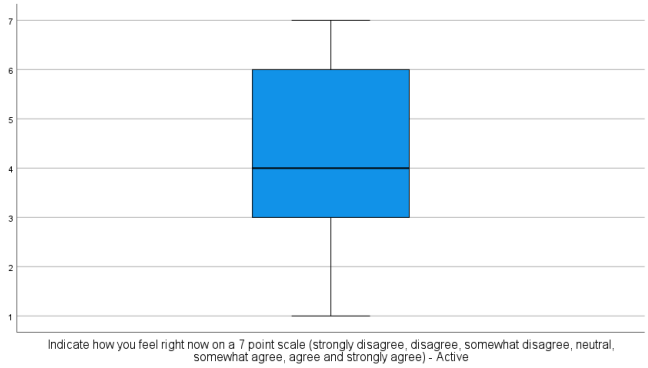
Please indicate your willingness (readiness/will) to participate in the evaluation of coffee ideas for this company (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree). - I am willing to recommend others to participate in evaluating ideas for this coffee company



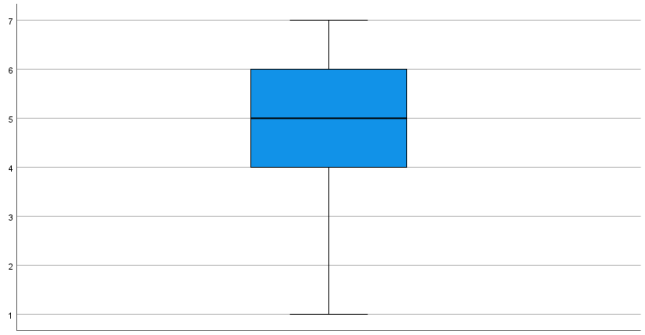
With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.

Please indicate your willingness (readiness/will) to participate in the evaluation of coffee ideas for this company (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree). - I am willing to invite other consumers to participate in evaluation of coffee ideas for the coffee company

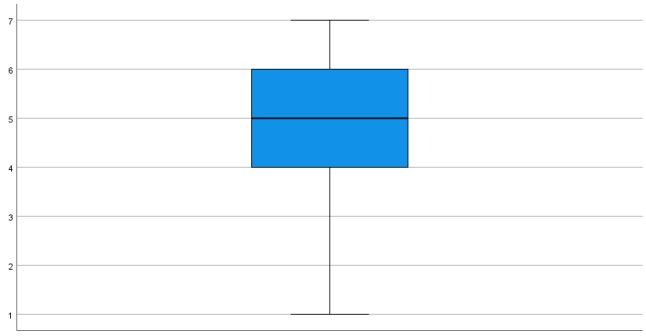
3.2 Positive emotional state



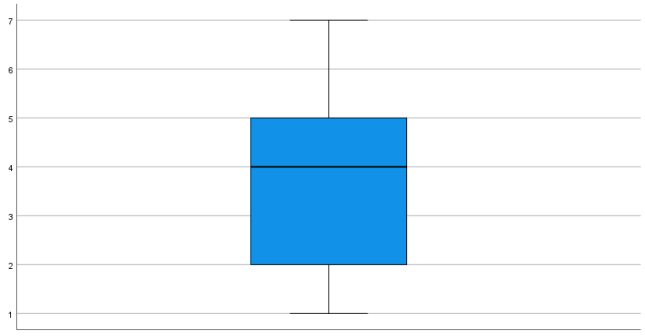
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Active



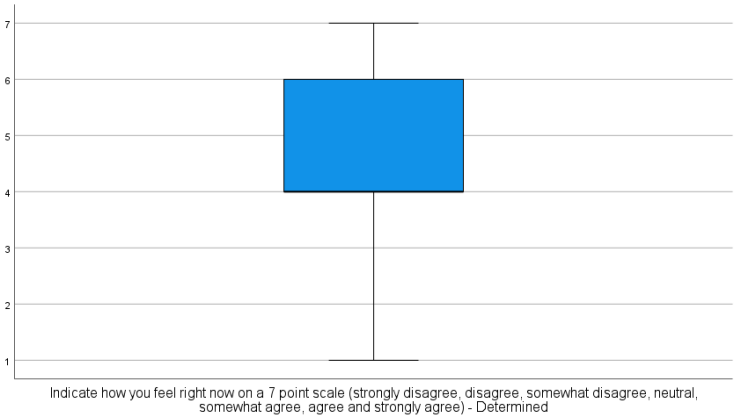
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Alert



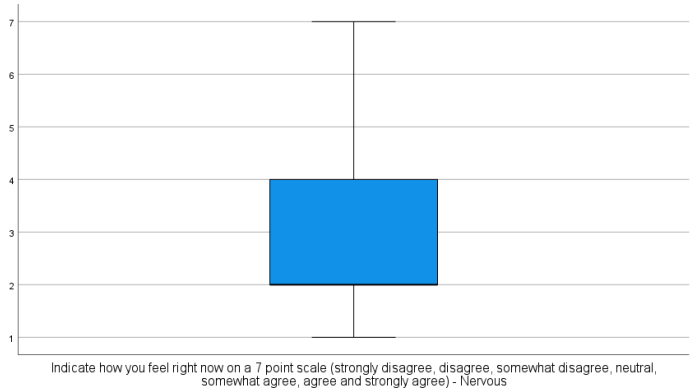
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Attentive



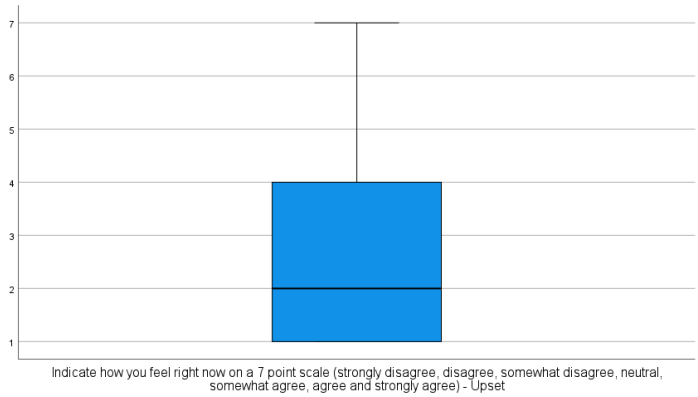
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Inspired


7
6
5
4
3
2
1
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Determined

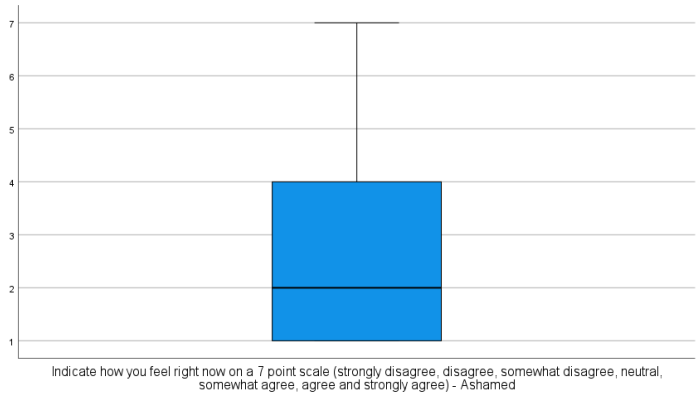
3.3 Negative emotional state



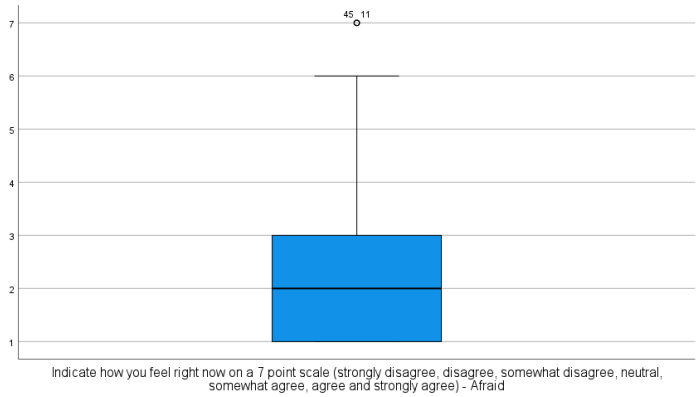
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Nervous



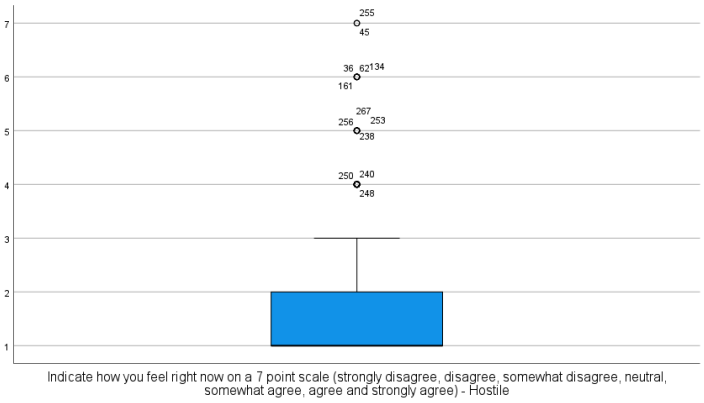
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Upset



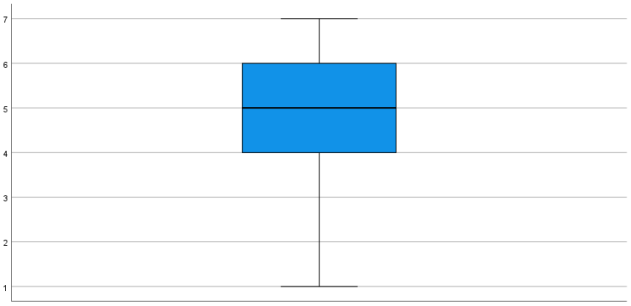
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Ashamed



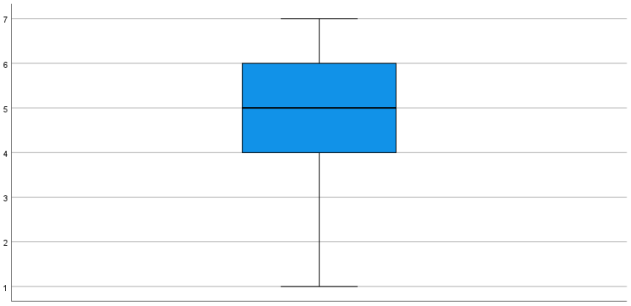
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Afraid


7
6
5
4
3
2
1
255
45
36
62
134
161
267
256
253
238
250
240
248
Indicate how you feel right now on a 7 point scale (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree) - Hostile

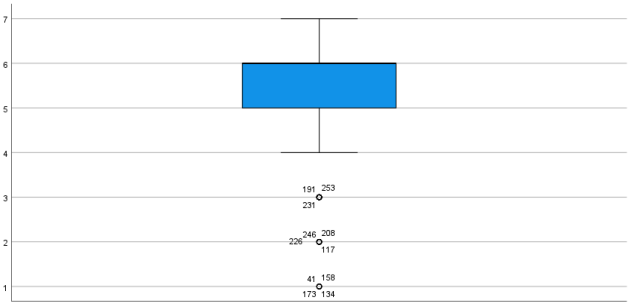
3.4 Self-efficacy



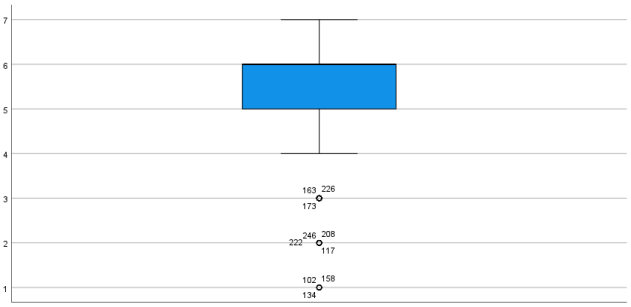
Please indicate to what extent you feel that you are able of evaluating coffee ideas from the idea contest introduced in the scenario (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree). - Even when things are tough, I can evaluate ideas quite well.



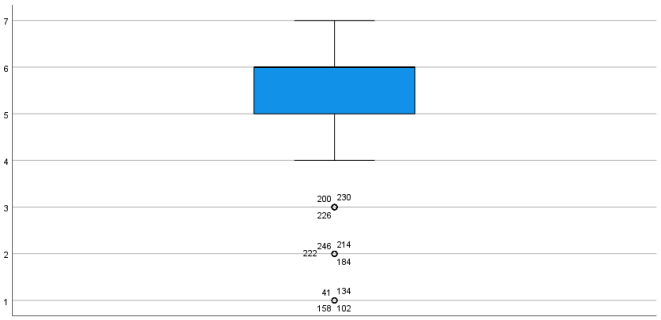
Please indicate to what extent you feel that you are able of evaluating coffee ideas from the idea contest introduced in the scenario (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree). - Compared to other people, I can evaluate ideas very well



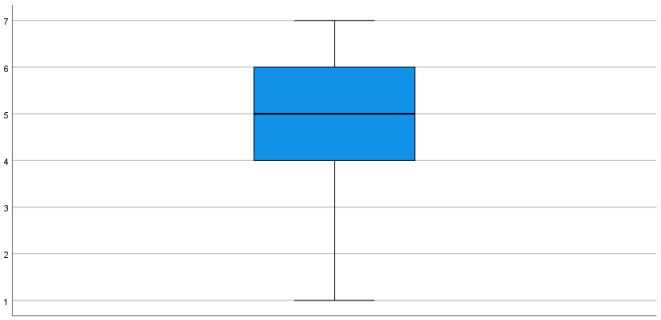
Please indicate to what extent you feel that you are able of evaluating coffee ideas from the idea contest introduced in the scenario (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree). - I am confident I can evaluate many ideas effectively



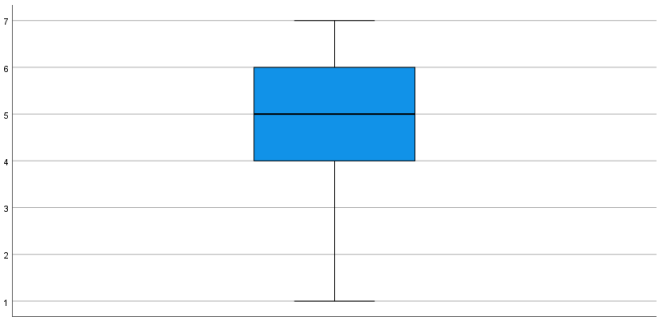
Please indicate to what extent you feel that you are able of evaluating coffee ideas from the idea contest introduced in the scenario (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree). - I will be able to evaluate the ideas in this coffee idea contest successfully



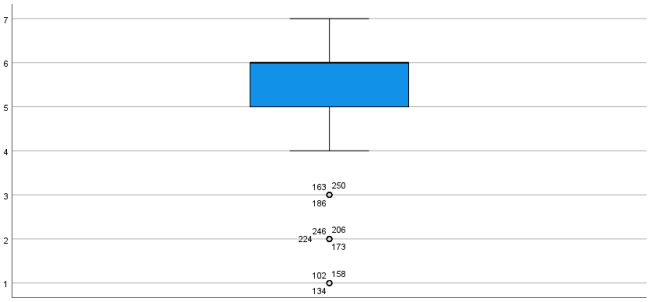
Please indicate to what extent you feel that you are able of evaluating coffee ideas from the idea contest introduced in the scenario (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree). - I believe I can succeed at any evaluation endeavor to which I set my mind



Please indicate to what extent you feel that you are able of evaluating coffee ideas from the idea contest introduced in the scenario (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree). - I think I can obtain outcomes that are important to me and the coffee company



Please indicate to what extent you feel that you are able of evaluating coffee ideas from the idea contest introduced in the scenario (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree). - When facing difficulties in evaluating ideas, I am certain I will succeed



Please indicate to what extent you feel that you are able of evaluating coffee ideas from the idea contest introduced in the scenario (strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree). - I will be able to achieve most of the goals that I have set for myself before joining the idea contest

Appendix 4: Demographic descriptives

Statistics

		Age What is your age (in years)?	Gender I identify myself as - Selected Choice	Education_Level What is your highest completed level of education?
N	Valid	265	267	267
	Missing	2	0	0
Mean		33,62	1,78	2,75
Median		26,00	2,00	3,00
Mode		23	2	3
Std. Deviation		14,408	,490	,501
Minimum		18	1	1
Maximum		75	4	3
Sum		8908	475	733

Table 1: Frequencies of demographic variables

Gender I identify myself as - Selected Choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Man	65	24,3	24,3	24,3
	2 Woman	199	74,5	74,5	98,9
	4 I prefer not to say	3	1,1	1,1	100,0
	Total	267	100,0	100,0	

Table 2: Distribution of gender

Education_Level What is your highest completed level of education?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Primary education, vmbo, mbo1, havo/vwo (lower school)	8	3,0	3,0	3,0
	2 Havo/vwo (upper school), mbo2-4	52	19,5	19,5	22,5
	3 Hbo-bachelor/master, wo-bachelor/master and doctor	207	77,5	77,5	100,0
	Total	267	100,0	100,0	

Table 3: Distribution of education level

Appendix 5: Chi-Square demographic variables

Test Statistics

	Gender I identify myself as - Selected Choice	Age What is your age (in years)?	Education_Level What is your highest completed level of education?
Chi-Square	225,528[a]	551,106[b]	245,551[a]
df	2	51	2
Asymp. Sig.	,000	,000	,000

a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 89,0.

b. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 5,1.

Appendix 6: Age groups

Recode_AGE Recode age into groups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	7	2,6	2,6	2,6
	2,00	185	69,3	69,8	72,5
	3,00	67	25,1	25,3	97,7
	4,00	6	2,2	2,3	100,0
	Total	265	99,3	100,0	
Missing	System	2	,7		
Total		267	100,0		

Appendix 7: Randomization check

Chi-Square Tests

			Asymptotic Significance	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
					99% Confidence Interval			99% Confidence Interval	
	Value	df	(2-sided)	Significance	Lower Bound	Upper Bound	Significance	Lower Bound	Upper Bound
Pearson Chi-Square	36,803[a]	24	,046	,034[b]	,029	,039			
Likelihood Ratio	38,571	24	,030	,058[b]	,052	,064			
Fisher-Freeman-Halton Exact Test	35,662			,019[b]	,016	,023			
Linear-by-Linear Association	11,864[c]	1	,001	,001[b]	,000	,001	,001[b]	,000	,001
N of Valid Cases	266								

a. 30 cells (60,0%) have expected count less than 5. The minimum expected count is ,24.

b. Based on 10000 sampled tables with starting seed 957002199.

c. The standardized statistic is -3,444.

Table 1: Chi-Square tests "Do you drink coffee?"

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-,102	,095
	Cramer's V	,102	,095
N of Valid Cases		266	

Table 2: Cramer's V

Chi-Square Tests

			Asymptotic Significance	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
					99% Confidence Interval			99% Confidence Interval	
	Value	df	(2-sided)	Significance	Lower Bound	Upper Bound	Significance	Lower Bound	Upper Bound
Pearson Chi-Square	104,244[a]	23	,000	,000[b]	,000	,000			
Likelihood Ratio	71,707	23	,000	,000[b]	,000	,000			
Fisher-Freeman-Halton Exact Test	57,959			,000[b]	,000	,000			
Linear-by-Linear Association	29,240[c]	1	,000	,000[b]	,000	,000	,000[b]	,000	,000
N of Valid Cases	264								

a. 31 cells (64,6%) have expected count less than 5. The minimum expected count is ,09.

b. Based on 10000 sampled tables with starting seed 624387341.

c. The standardized statistic is -5,407.

Table 3: Chi-Square tests "Have you ever participated in open innovation before?"

Chi-Square Tests

			Asymptotic Significance	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
					99% Confidence Interval			99% Confidence Interval	
	Value	df	(2-sided)	Significance	Lower Bound	Upper Bound	Significance	Lower Bound	Upper Bound
Pearson Chi-Square	34,084[a]	48	,935	,897[b]	,889	,905			
Likelihood Ratio	36,544	48	,887	,882[b]	,873	,890			
Fisher-Freeman-Halton Exact Test	38,812			,911[b]	,903	,918			
Linear-by-Linear Association	,620[c]	1	,431	,437[b]	,425	,450	,226[b]	,215	,236

N of Valid Cases	267

a. 57 cells (76,0%) have expected count less than 5. The minimum expected count is ,03.

b. Based on 10000 sampled tables with starting seed 1993510611.

c. The standardized statistic is ,787.

Table 4: Chi-Square tests education level

Chi-Square Tests

			Asymptotic Significance	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
					99% Confidence Interval			99% Confidence Interval	
	Value	df	(2-sided)	Significance	Lower Bound	Upper Bound	Significance	Lower Bound	Upper Bound
Pearson Chi-Square	54,245[a]	48	,249	,234[b]	,223	,245			
Likelihood Ratio	48,131	48	,468	,113[b]	,105	,121			
Fisher-Freeman-Halton Exact Test	66,982			,056[b]	,050	,062			
Linear-by-Linear Association	,981[c]	1	,322	,322[b]	,310	,334	,163[b]	,153	,172
N of Valid Cases	267								

a. 55 cells (73,3%) have expected count less than 5. The minimum expected count is ,01.

b. Based on 10000 sampled tables with starting seed 92208573.

c. The standardized statistic is ,990.

Table 5: Chi-Square tests gender

Appendix 8: ANOVA age

Age What is your age (in years)?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	390,568	3	130,189	,624	,600
Within Groups	54416,172	261	208,491		
Total	54806,740	264			

Table 1: ANOVA

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Age What is your age (in years)?	Based on Mean	,715	3	261	,544
	Based on Median	,547	3	261	,650
	Based on Median and with adjusted df	,547	3	250,150	,650
	Based on trimmed mean	,800	3	261	,495

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Age What is your age (in years)?

b. Design: Intercept + Condition

Table 2: Levene's test

Descriptive Statistics

Dependent Variable: Age What is your age (in years)?

Condition Conditions of the research	Mean	Std. Deviation	N
1,00 Negative/low self efficacy	34,03	14,921	58
2,00 Negative/high self-efficacy	31,60	15,434	43
3,00 Positive/low self-efficacy	32,88	13,804	78
4,00 Positive/high self-efficacy	35,00	14,163	86
Total	33,62	14,408	265

Table 3: Descriptive statistics

Appendix 9: Manipulation check

EMOTIONALMood_CHECKER_IMPORANT Manipulation check

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00 Manipulation did not work	111	41,6	41,6	41,6
	1,00 Negative emotional state	30	11,2	11,2	52,8
	2,00 Positve emotional state	126	47,2	47,2	100,0
	Total	267	100,0	100,0	

Appendix 10: Output factor analysis willingness to participate

Communalities

	Initial	Extraction
WP1_Willingness_1 With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.	1,000	,751
WP2_Willingness_2 With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.	1,000	,779
WP3_Willingness_3 With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.	1,000	,761

WP4_Willingness_4 With the willingness to participate in an open innovation platform, the evaluation phase is meant. In this phase, the ideas are projected into scenarios for the future and evaluated to determine whether they should be developed further.	1,000	,759

Extraction Method: Principal Component Analysis.

Table 1: Communalities

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,742
Bartlett's Test of Sphericity	Approx. Chi-Square	745,167
	df	6
	Sig.	,000

Table 2: KMO and Bartlett's test

Total variance explained

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,050	76,250	76,250	3,050	76,250	76,250
2	,585	14,622	90,872			
3	,190	4,761	95,632			
4	,175	4,368	100,000			

Extraction Method: Principal Component Analysis.

Table 3: Variance explained

Appendix 11: Output factor analysis emotional state

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,858
Bartlett's Test of Sphericity	Approx. Chi-Square	1290,080
	df	45
	Sig.	,000

Table 1: KMO and Bartlett's test

Communalities

	Initial	Extraction
Emo_Pos_Act - Active	1,000	,564
Emo_Pos_Det - Determined	1,000	,673
Emo_Pos_Atten - Attentive	1,000	,535
Emo_Pos_Inspired - Inspired	1,000	,556
Emo_Pos_alert Indicate - Alert	1,000	,522
Emo_NEG_Ner - Nervous	1,000	,661
Emo_NEG_upset - Upset	1,000	,810
Emo_NEG_hostile - Hostile	1,000	,687
Emo_NEG_ashamed - Ashamed	1,000	,684
Emo_NEG_FRAID - Afraid	1,000	,747

Extraction Method: Principal Component Analysis.

Table 2: Communalities

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,308	43,084	43,084	4,308	43,084	43,084
2	2,131	21,307	64,391	2,131	21,307	64,391

3	,770	7,702	72,094
4	,660	6,603	78,697
5	,529	5,288	83,985
6	,428	4,280	88,265
7	,378	3,784	92,049
8	,306	3,057	95,106
9	,269	2,689	97,795
10	,220	2,205	100,000

Extraction Method: Principal Component Analysis.

Table 3: Total varience explained

Component Correlation Matrix

Component	1	2
1	1,000	-,191
2	-,191	1,000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Table 4: Component correlation matrix

Rotated Component Matrix[a]

	Component	
	1	2
Emo_Pos_Act Active	-,159	,734
Emo_Pos_Det - Determined	-,161	,804
Emo_Pos_Atten - Attentive	-,154	,715
Emo_Pos_Inspired - Inspired	-,303	,681
Emo_Pos_alert Indicate - Alert	,415	,592
Emo_NEG_Ner - Nervous	,812	-,028
Emo_NEG_upset - Upset	,887	-,151
Emo_NEG_hostile - Hostile	,805	-,197
Emo_NEG_ashamed - Ashamed	,808	-,174

Emo_NEG_FRAID - Afraid	,847	-,172

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Table 5: Rotated component matrix

Appendix 12: Output factor analysis self-efficacy

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,905
Bartlett's Test of Sphericity	Approx. Chi-Square	1239,208
	df	28
	Sig.	,000

Table 1: KMO and Bartlett's test

Communalities

	Initial	Extraction
SELF_EFFICACY1 I will be able to achieve most of the goals that I have set for myself before joining the idea contest	1,000	,489
SELF_EFFICACY2 When facing difficulties in evaluating ideas, I am certain I will succeed	1,000	,508
SELF_EFFICACY3 I think I can obtain outcomes that are important to me and the coffee company	1,000	,596
SELF_EFFICACY4 I believe I can succeed at any evaluation endeavor to which I set my mind	1,000	,684
SELF_EFFICACY5 - I will be able to evaluate the ideas in this coffee idea contest successfully	1,000	,738
SELF_EFFICACY6 I am confident I can evaluate many ideas effectively	1,000	,717

SELF_EFFICACY7 - Compared to other people, I can evaluate ideas very well	1,000	,549
SELF_EFFICACY8 Even when things are tough, I can evaluate ideas quite well.	1,000	,619

Extraction Method: Principal Component Analysis.

Table 2: Communalities

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,900	61,253	61,253	4,900	61,253	61,253
2	,779	9,740	70,993			
3	,623	7,783	78,777			
4	,457	5,712	84,488			
5	,380	4,744	89,233			
6	,376	4,701	93,934			
7	,281	3,506	97,440			
8	,205	2,560	100,000			

Extraction Method: Principal Component Analysis.

Table 3: Total varience explained

Appendix 13: Discriminant validity

Communalities

	Initial	Extraction
Emo_Pos_Act Indicate Active	1,000	,571
Emo_Pos_Det Determined	1,000	,667
Emo_Pos_Atten Attentive	1,000	,535
Emo_Pos_Inspired Inspired	1,000	,562
Emo_Pos_alert - Alert	1,000	,586
Emo_NEG_Ner Nervous	1,000	,662
Emo_NEG_upset Upset	1,000	,809
Emo_NEG_hostile - Hostile	1,000	,689
Emo_NEG_ashamed Ashamed	1,000	,691
Emo_NEG_FRAID Afraid	1,000	,753
SELF_EFFICACY1 I will be able to achieve most of the goals that I have set for myself before joining the idea contest	1,000	,488
SELF_EFFICACY2 strongly agree). - When facing difficulties in evaluating ideas, I am certain I will succeed	1,000	,515
SELF_EFFICACY3 I think I can obtain outcomes that are important to me and the coffee company	1,000	,594
SELF_EFFICACY4 - I believe I can succeed at any evaluation endeavor to which I set my mind	1,000	,685

SELF_EFFICACY5 I will be able to evaluate the ideas in this coffee idea contest successfully	1,000	,743
SELF_EFFICACY6 I am confident I can evaluate many ideas effectively	1,000	,721
SELF_EFFICACY7 Compared to other people, I can evaluate ideas very well	1,000	,565
SELF_EFFICACY8 Even when things are tough, I can evaluate ideas quite well.	1,000	,616
WP1_Willingness_1 I am willing to try to participate in evaluating the generated ideas for this coffee company	1,000	,723
WP2_Willingness_2 I am willing to learn more and thus better participate in evaluating coffee ideas	1,000	,759
WP3_Willingness_3 I am willing to recommend others to participate in evaluating ideas for this coffee company	1,000	,779
WP4_Willingness_4	1,000	,790

Extraction Method: Principal Component Analysis.

Table 1: Communalities

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6,738	30,629	30,629	6,738	30,629	30,629	6,112
2	4,326	19,663	50,292	4,326	19,663	50,292	4,056
3	1,993	9,058	59,350	1,993	9,058	59,350	2,964
4	1,445	6,570	65,919	1,445	6,570	65,919	4,609
5	,892	4,054	69,973				
6	,733	3,332	73,305				
7	,724	3,289	76,595				
8	,666	3,029	79,624				
9	,548	2,491	82,115				
10	,478	2,172	84,287				
11	,447	2,032	86,319				
12	,427	1,943	88,261				
13	,402	1,829	90,090				
14	,350	1,590	91,680				
15	,329	1,493	93,173				
16	,286	1,299	94,472				
17	,272	1,234	95,706				
18	,235	1,068	96,775				
19	,216	,983	97,757				
20	,198	,900	98,657				
21	,154	,702	99,359				
22	,141	,641	100,000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 2: Total varience explained

Pattern Matrix[a]

	Component			
	1	2	3	4
Emo_Pos_Act Indicate Active	-,075	-,107	,722	-,098
Emo_Pos_Det Determined	,041	-,114	,775	-,041

Emo_Pos_Atten Attentive	-,037	-,104	,700	-,064
Emo_Pos_Inspired Inspired	-,028	-,272	,619	-,164
Emo_Pos_alert Alert	,140	,474	,669	,199
Emo_NEG_Ner Nervous	,006	,823	,064	,008
Emo_NEG_upset Upset	,020	,881	-,069	-,028
Emo_NEG_hostile Hostile	-,057	,798	-,123	-,098
Emo_NEG_ashamed - Ashamed	-,110	,816	-,073	-,050
Emo_NEG_FRAID Afraid	,023	,830	-,111	-,107
SELF_EFFICACY1 I will be able to achieve most of the goals that I have set for myself before joining the idea contest	,643	-,023	,003	-,098
SELF_EFFICACY2 When facing difficulties in evaluating ideas, I am certain I will succeed	,745	-,062	-,039	,040
SELF_EFFICACY3 I think I can obtain outcomes that are important to me and the coffee company	,708	,035	,030	-,094
SELF_EFFICACY4 I believe I can succeed at any evaluation endeavor to which I set my mind	,825	-,063	-,067	-,025
SELF_EFFICACY5 I will be able to evaluate the ideas in this coffee idea contest successfully	,860	-,023	,047	,010

SELF_EFFICACY6 I am confident I can evaluate many ideas effectively	,841	-,006	,023	-,010
SELF_EFFICACY7 Compared to other people, I can evaluate ideas very well	,743	,084	-,017	,003
SELF_EFFICACY8 Even when things are tough, I can evaluate ideas quite well.	,780	-,031	-,007	-,015
WP1_Willingness_1 I am willing to try to participate in evaluating the generated ideas for this coffee company	,191	,072	,026	-,724
WP2_Willingness_2 I am willing to learn more and thus better participate in evaluating coffee ideas	,147	,097	,001	-,776
WP3_Willingness_3 I am willing to recommend others to participate in evaluating ideas for this coffee company	,022	,040	,083	-,854
WP4_Willingness_4 I am willing to invite other consumers to participate in evaluation of coffee ideas for the coffee company	-,033	,041	,030	-,900

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Table 3: Pattern matrix

Component Correlation Matrix

Component	1	2	3	4
1	1,000	,082	,146	-,529
2	,082	1,000	-,181	-,026

3	,146	-,181	1,000	-,130
4	-,529	-,026	-,130	1,000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Table 45: Correlation matrix

Appendix 14: Assumptions ANOVA

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Willingness_MEAN Willingness dependent variable	,164	15	,200	,918	15	,178

a. a. R_Emotional_state_Distribution emotional state positive or negative = ,00, R_SelfEfficacy_Distribution Recode Self-efficacy intro high and negative = 1,00 High self-efficacy

b. Lilliefors Significance Correction

Table 1: Tests of normaliy

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Willingness_MEAN Willingness dependent variable	Based on Mean	1,231	3	263	,299
	Based on Median	,934	3	263	,425
	Based on Median and with adjusted df	,934	3	262,769	,425
	Based on trimmed mean	1,231	3	263	,299

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Willingness_MEAN Willingness dependent variable

b. Design: Intercept + Manipulation_TYPE + Self_efficacy_distribution_new + Manipulation_TYPE * Self_efficacy_distribution_new

Table 2: Levene's test

Appendix 15: Output ANOVA I

Tests of Between-Subjects Effects

Dependent Variable: Willingness_MEAN Willingness dependent variable

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	34,371	3	38,705	24,437	,000
Intercept	5313,802	1	5015,713	3166,750	,000
Manipulation_TYPE	9.110	1	9,110	4,808	,029
Self_efficacy_distributi on_new	108,038	1	108,038	68,211	,000
Manipulation_TYPE * Self_efficacy_distributi on_new	1,188	1	1,188	,627	,429
Error	416,557	263	1,584		
Total	6247,438	267			
Corrected Total	532,671	266			

a. R Squared = ,218 (Adjusted R Squared = ,209)

Table 1: Tests between-subjects effects

Descriptive Statistics

Dependent Variable: Willingness_MEAN Willingness dependent variable

Manipulation_TYPE Emotional state manipulation type	Self_efficacy_distributi on_new Distribution seld-efficacy	Mean	Std. Deviation	N
1 Negative	1,00 Low self-efficacy	3,6737	1,32958	59
	2,00 High self-efficacy	5,1058	1,14424	78
	Total	4,4891	1,41482	137
2 Positive	1,00 Low self-efficacy	3,9773	1,33253	44
	2,00 High self-efficacy	5,1773	1,26890	86
	Total	4,7712	1,40632	130
Total	1,00 Low self-efficacy	3,8034	1,33287	103
	2,00 High self-efficacy	5,1433	1,20806	164
	Total	4,6264	1,41511	267

Table 2: Descriptives statistics ANOVA

Estimates

Dependent Variable: Willingness_MEAN Willingness dependent variable

Distribution self-efficacy	Mean	Std. Error	95% Confidence Interval Lower Bound	Upper Bound
1,00 Low self-efficacy	3,826	,125	3,579	4,072

2,00 High self-efficacy	5,142	,098	4,948	5,335

Table 3: Estimates self-efficacy

Estimates

Dependent Variable: Willingness_MEAN Willingness dependent variable

Emotional state manipulation type	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1 Negative	4,390	,109	4,176	4,604
2 Positive	4,577	,117	4,348	4,807

Table 4: Estimates emotional state

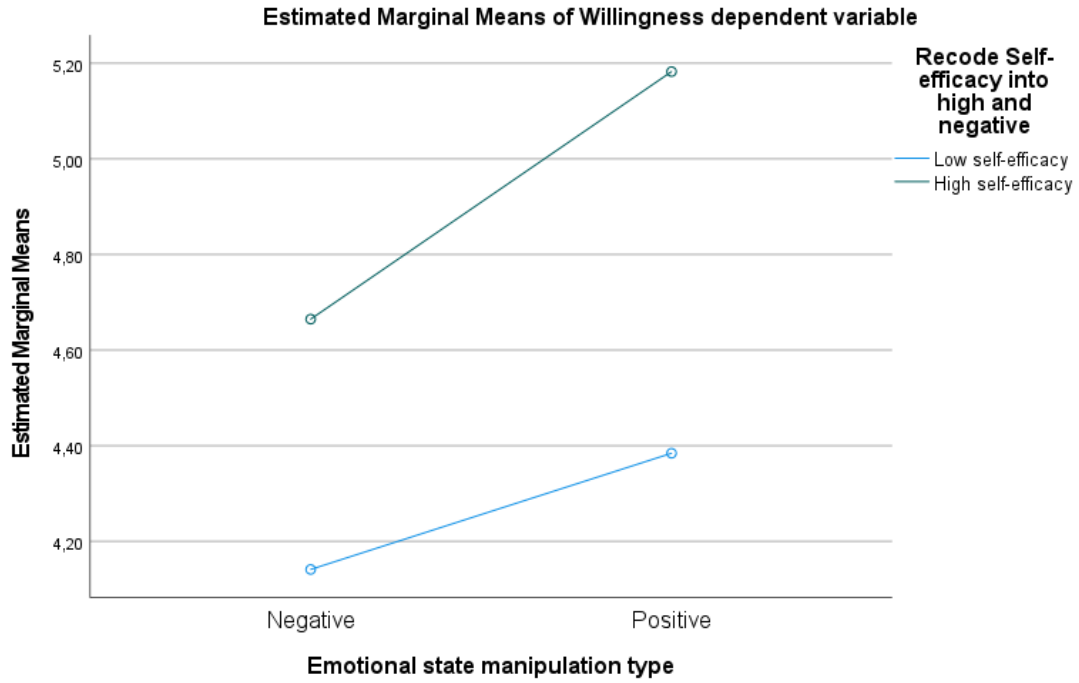


Figure 1: Estimated marginal means:

Appendix 16: Output ANOVA II

Descriptive Statistics

Dependent Variable: Willingness_MEAN Willingness dependent variable

Self_efficacy_distribution_new Distribution self-efficacy	Manipulation_TYPE Emotional state manipulation type	Mean	Std. Deviation	N
1,00 Low self-efficacy	1 Negative	3,5417	1,47260	12
	2 Positive	3,9535	1,33882	43
	Total	3,8636	1,36577	55
2,00 High self-efficacy	1 Negative	5,6719	,89777	16
	2 Positive	5,1735	1,27594	85
	Total	5,2525	1,23364	101
Total	1 Negative	4,7589	1,57598	28
	2 Positive	4,7637	1,41571	128
	Total	4,7628	1,44043	156

Table 1: Descriptives statistics

Tests of Between-Subjects Effects

Dependent Variable: Willingness_MEAN Willingness dependent variable

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	73,620[a]	3	24,540	15,042	,000	,229
Intercept	1859,933	1	1859,933	1140,056	,000	,882
Self_efficacy_distribution_new	62,062	1	62,062	38,041	,000	,200
Manipulation_TYPE	,041	1	,041	,025	,874	,000
Self_efficacy_distribution_new * Manipulation_TYPE	4,581	1	4,581	2,808	,106	,018
Error	247,979	152	1,631			
Total	3860,375	156				
Corrected Total	321,599	155				

a. R Squared = ,229 (Adjusted R Squared = ,214)

Table 2: Tests between-subject effects

Estimates

Dependent Variable: Willingness_MEAN Willingness dependent variable

Distribution self-efficacy	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1,00 Low self-efficacy	3,748	,209	3,336	4,160
2,00 High self-efficacy	5,423	,174	5,079	5,767

Table 3: Estimates self-efficacy

Appendix 17: Assumptions ANCOVA 1

Correlations

		CONTROL_ Coffee Do you drink coffee?	Willingness_ MEAN Willingness dependent variable
CONTROL_Coffee Do you drink coffee?	Pearson Correlation	1	-,212**
	Sig. (2-tailed)		,001
	N	266	266
Willingness_MEAN Willingness dependent variable	Pearson Correlation	-,212**	1
	Sig. (2-tailed)	,001	
	N	266	267

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

Table 1: Pearson's correlation

Independent Samples Test

		Levene's Test for Equality of Variances		
		F	Sig.	t
Manipulation_TYPE Emotional state manipulation type	Equal variances assumed	7,740	,006	1,673
	Equal variances not assumed			1,687

Table 2: ANOVA

Tests of Between-Subjects Effects

Dependent Variable: Willingness_MEAN Willingness dependent variable

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	27,099[a]	3	9,033	4,724	,003
Intercept	820,168	1	820,168	428,881	,000
CONTROL_Coffee	20,195	1	20,195	10,561	,001
Manipulation_TYPE	,033	1	,033	,017	,896
Manipulation_TYPE * CONTROL_Coffee	,593	1	,593	,310	,578
Error	501,033	262	1,912		
Total	6241,188	266			

Corrected Total	528,133	265

a. R Squared = ,051 (Adjusted R Squared = ,040)

Table 3: Tests of between-subjects effects

Appendix 18: Assumptions ANOCVA 2

Correlations

		Willingness_MEAN Willingness dependent variable	CONTROL_participate Have you ever participated in open innovation contests before?
Willingness_MEAN Willingness dependent variable	Pearson Correlation	1	-,333**
	Sig. (2-tailed)		,000
	N	267	264
CONTROL_participate Have you ever participated in open innovation contests before?	Pearson Correlation	-,333**	1
	Sig. (2-tailed)	,000	
	N	264	264

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

Table 1: Pearson's correlation

Independent Samples Test

		Levene's Test for Equality of Variances		
		F	Sig.	t
Manipulation_TYPE Emotional state manipulation type	Equal variances assumed	,007	,935	,078
	Equal variances not assumed			,076

Table 2: ANOVA

Appendix 19: ANCOVA

Tests of Between-Subjects Effects

Dependent Variable: Willingness_MEAN Willingness dependent variable

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	119,490[a]	4	29,873	19,080	,000	,226
Intercept	604,909	1	604,909	386,356	,000	,597
Self_efficacy_distributio n_new	92,391	1	92,391	59,010	,000	,184
Manipulation_TYPE	,717	1	,717	,458	,499	,002
CONTROL_Coffee	4,625	1	4,625	2,954	,087	,011
Manipulation_TYPE * CONTROL_Coffee	1,555	1	1,555	,993	,320	,004
Error	408,642	261	1,566			
Total	6241,188	266				
Corrected Total	528,133	265				

a. R Squared = ,226 (Adjusted R Squared = ,214)

Table 1: ANCOVA "do you drink coffee?"

Tests of Between-Subjects Effects

Dependent Variable: Willingness_MEAN Willingness dependent variable

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	62,090[a]	3	20,697	11,712	,000
Intercept	351,875	1	351,875	199,124	,000
CONTROL_participate	57,840	1	57,840	32,731	,000
Manipulation_TYPE	,267	1	,267	,151	,698
Manipulation_TYPE * CONTROL_participate	,048	1	,048	,027	,869
Error	459,449	260	1,767		
Total	6212,688	264			
Corrected Total	521,540	263			

a. R Squared = ,119 (Adjusted R Squared = ,109)

Table 2: ANOCOVA "Have you ever participated before?"

Parameter Estimates

Dependent Variable: Willingness_MEAN Willingness dependent variable

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	7,967	,777	10,251	,000	6,436	9,497
CONTROL_participate	-1,675	,403	-4,159	,000	-2,468	-,882
[Manipulation_TYPE=1]	-,427	1,099	-,389	,698	-2,591	1,737
[Manipulation_TYPE=2]	0[a]	.	.	.	.	.
[Manipulation_TYPE=1] * CONTROL_participate	,094	,569	,165	,869	-1,027	1,215
[Manipulation_TYPE=2] * CONTROL_participate	0[a]	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Tabel 3: Parameter Estimates