Bachelor Thesis General Economics

Work Benefits and Their Efficiency

Experimental Evidence on Fringe Benefits

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Abstract

The following paper will investigate the effect of fringe benefits on the work of employees. For this a questionnaire has been conducted to see when people feel comfortable, the results have been used to establish the right benefits and an experiment has been conducted. The experiment showed that the benefits rather have a negative effect on the work of employees, unless the job also requires a high amount of creativity.

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Introduction

In order to make their employees happy and satisfied, many companies offer several, innovative employment benefits. Happier workers are more productive, inventive and creative and thus also more beneficial to every company (Unknown, Reward and benefits: performance of perks over pay rises for improving employee engagement, 2007).

Companies such as Facebook, Twitter or Google ensure that their workers are committed to their business by providing them with a work environment that makes them feel at home at the office. They offer things like sports facilities, free snacks and meals in their cafeterias, childcare and pet benefits or even dry-cleaning and free cleaning of the workers' homes.

This paper will focus on intangible benefits that are offered at the workplace and resemble the feeling of hominess for the workers. These intangible fringe benefits are for example free food and drinks, a colorful environment or the possibility to watch TV and play video games with the colleagues.

However after hearing about those different types of benefits, one might ask if these are really effective for the companies or if the costs are higher than the actual gain. It is also questionable what effectiveness means for the companies in this case; can companies attract already good and productive workers through offering those benefits or are they able to make their existing workers become more productive and innovative. The research done throughout this paper investigates whether those benefits offered at various companies can stimulate already existing workers to become more productive, creative and innovative or if it has no effect on their work. The research question will therefore be the following:

What is the effect of intangible work benefits on the idea creation and creativity of workers?

In order to evaluate this question, a laboratory experiment will be conducted in combination with a questionnaire.

The effect of offering benefits and whether therefore the created feeling of comfort at the workplace has any effect on the idea creation and the creativity of the workers will be measured by creating four different types of experiment groups and giving them different treatments. Two groups will receive an assignment in which they will have to come up with a certain business plan, the other two groups will be given a problem set which they will have to solve. Giving them two different types of assignments will ensure that different levels of creativity can be tested, as coming up with the business plan from scratch requires more creativity than solving certain problems that are given.

Two groups, one of each assignment, will be solving their assignment in a room, which resembles a comfortable workplace. In order to find out when people feel comfortable, a survey will be conducted before the experiment and people will be asked through situational questions when they feel cozy. In the 'comfortable' room drinks and snacks will be offered to the participants and they can use blankets in order to feel more comfortable. Furthermore big windows are open in order to receive a more natural light and flowers will ensure a nice environment. The counterfactual groups will be doing their assignments in a the same classroom with only chairs and tables, with no snacks and drinks in order to resemble a working environment without benefits and no feeling at home. Furthermore the windows will be closed in order to make sure that no natural light is used. The experiment will contain eight groups, so two for each treatment.

The following table illustrates the treatment and non-treatment group composition.

	Creative Assignment	Non-creative Assignment
Benefits	Treatment Group Type 1	Treatment Group Type 2
No Benefits	Non-Treatment Group Type 1	Non-Treatment Group Type 2

Through comparing the assignment and the business plans that have been created in the two different environments, the effect of the benefits offered and the feeling of comfort on the idea creation and creativity of the participants can be analyzed for both assignment groups.

The purpose of this research is to establish a concept, which describes the relationship between intangible benefits and the idea creation of workers. Analyzing whether there is any effect of the offered benefits will enable companies to develop a framework on whether offering benefits and making the employees feel more comfortable at the office is beneficial for the companies in terms of the idea creation and creativity of their existing workers.

In case of a positive effect that can be proven, the results from the survey about 'feeling comfortable' can be used in order to establish other more effective benefits that will offer the same effect on the idea creation of workers. This way companies can ensure that they use their resources in the most efficient way and even come up with less costly benefits if necessary.

In the following paper, a literature review will be conducted showing the recent research that has been done on work benefits. Afterwards the concepts of benefits, feeling comfortable and idea creation will be established. In this section the hypotheses can also be found, as well as the results of the questionnaire concerning feeling comfortable.

Afterwards the methodology used to examine the hypotheses and the research question will be explained and the results analyzed. At the end drawbacks of the research will be outlined and a framework for companies will be given on how to use the results of this research.

Literature Review

The research done on employment benefits is surprisingly low, most of the papers furthermore focus on the effect these benefits have on the labor market.

Harald Dale-Olsen for example investigated the effect fringe benefits have on the labor turnover in Norway and found that fringe benefits have a strong negative effect on the excess worker turnover rate, even stronger than its monetary value would suggest (Dale-Olsen, 2003). A reason for this could be that workers become more attached to non-wage benefits and thus assign them with a higher value.

Closer to the effect discussed in this paper, Dencker et al. argue that how workers value employee benefits does not only depend on their generation but also their family status (Dencker, Joshi, & Martocchio, 2007). This assigned value will also influence the outcome of receiving benefits such as their productivity and job turnover.

A study evaluating 'family-friendly' benefits, which could be related to the feeling of comfort one has at home, is the study by Baughman et al. (2003). They explain that family-friendly benefits can improve the productivity of workers mainly by decreasing job turnover and absenteeism (Baughman, DiNardi, & Holtz-Eakin, 2003).

Theoretical Framework

Benefits

In order to analyze the effectiveness of employee benefits that companies offer, the concept of these has to be defined for this research.

Big companies like Facebook or Google offer various benefits to their employees that can affect their workplace but also their private life at home.

While Evernote, an IT company offering several phone applications, offers free cleaning of its employees' homes twice a month, Google hired a company to deliver free and fresh fish for their employees to take home. At many offices, such as the Facebook headquarter in Menlo Park, California or various Google offices all over the world, services like dry cleaning or bike repairing are offered to the workers (Ritchel, 2012). Those employee perks are aiming at supporting the workers in their every day life, also outside of their workplace. This way the employer can ensure that the full focus lies on the work and the employees will not have to worry about their every day household activities.

Hanna Valentine from the Stanford University argues that workers who are worried about their daily household tasks are not able to perform at their highest level on their job and can even suffer from a burnout syndrome (Ritchel, 2012). Offering the benefits and supporting the

workers in those certain tasks are thus also aiming at improving the workers' performance on their job.

This research though will focus on intangible benefits that are offered to the employees on their workplace and affect their work rather than their private life. Examples of this are free breakfast, lunch, dinner and also snacks at companies such as Google, Facebook or LinkedIn. In order to ensure its workers have the equipment they need, Facebook puts vending machines in its offices, where the workers can receive technical devices and other working equipment for free. Also influencing the work of the employees is the working environment the companies offer. John Maeda, a former president of the Rhode Island School of Design, argues that the working environment should give the workers inspiration because otherwise their creativity will not be encouraged (Hardy, 2014). Facebook uses this approach and offers its workers an innovative office with a lot of design aspects and also areas where they can relax. Furthermore Facebook also ensures that there is a current change in the furniture and decoration of the office in order to steadily challenge its workers and give new inspiration. Companies like Google ensure that the offices are equipped with large windows in order to give a lot of natural light and the feeling of space.

Offering these benefits on the workplace can help integrate the employees' work into their private life. It will ensure that they feel more at home and comfortable in their working environment. In order to see when people feel comfortable and 'at home' the concept of hominess will be defined later and a survey will be conducted to see how these feelings can be created and whether workers actually prefer the feeling of a working environment or rather prefer 'feeling at home' even though they are at their office.

Offering these benefits and thus making the employees feel comfortable can have several implications for the companies. On the one side they can attract more and also more suitable workers, as they are able to outperform the offers of competitive companies. The benefits here can be seen as a signaling to show that the company is superior in comparison to its competitors. On the other side those companies are also able to stimulate their already existing workers to work in a more efficient, innovative and creative way. Workers can use their environment and the benefits as an inspiration and motivation to improve their idea creation, their creativity and also it can influence their teamwork. Furthermore, the offered benefits can work as motivation not only for the workers' job but also motivates them to come into the office. This way the group discussions can be stimulated for example, a group feeling can be created and workers can also motivate and stimulate each other.

This research will investigate whether benefits that create a feeling of comfort at the workplace and influence the idea creation of employees. For this the concepts of idea creation and the feeling of comfort will also be exploited and defined later in this part of the paper.

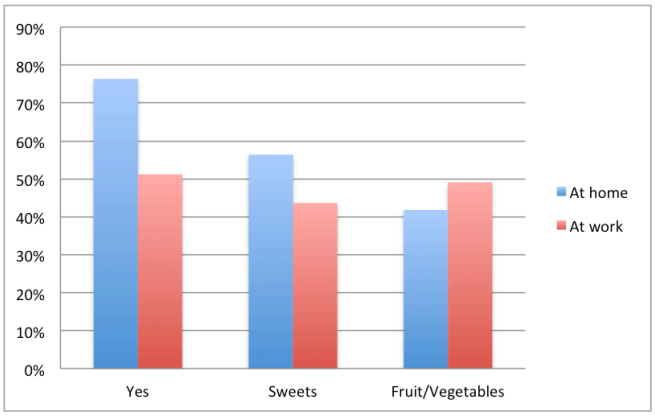
Feeling comfortable at work

As described earlier, many intangible work benefits have the purpose of making employees feel comfortable at their workplace. In order to be able to judge when people feel comfortable a questionnaire has been used.

The questionnaire contains open and closed situational questions and was filled in by 55 participants between the age 20 and 61. The exact questions can be found in the appendix. The questionnaire was distributed by the researcher via social media and email and was send to several companies.

51% of all participants are fulltime employed, with an average age of 35 while 42% are part-time employed (some also while being a student at the same time) with an average age of 21,6. Only 4 participants are only students, and not currently employed. However all participants were employed within the past five years.

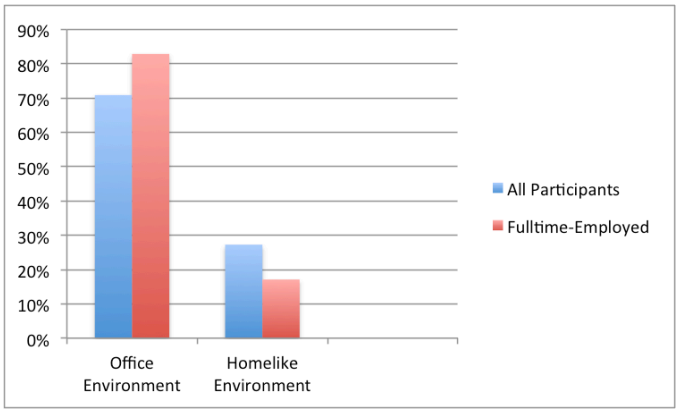
Asking the participants about their preferences concerning drinks, 54% stated they prefer to drink hot beverages at home, and even 61% said they drink hot drinks at their work. Concerning snacks, 53% prefer to eat sweets over fruit at home while only 43% think the same way for snacking at their workplace. Outstanding here, is that 50% of the fulltime employed prefer sweets at home, but only 32% at their workplace. 41% of all participants however prefer to not snack at all during their work. The table below shows these percentages in a bar chart. One can see that people are more likely to snack at home, than at their workplace and they also prefer fruit/vegetables at work and sweets at home.



In order to be able to analyze if the clothes people wear during their work might have an effect on whether they feel comfortable, the participants were asked whether they change their clothes when they come home from work. 69% said they would do so, and even 79% of the fulltime employed participants answered yes. This shows that clothing has a big effect on whether people feel comfortable and that usually the work clothes are not cozy enough to be worn at home. However this only shows that people prefer different attire at home than they working clothes in order to feel comfortable there. If they would also prefer to wear more comfortable clothes at their work is questionable.

Being asked, whether they prefer to be alone or have company at home 61% of all participants answered that they prefer to have company at home. Even 79% of the fulltime employed enjoy company at home. This shows that in order to relax and feel comfortable, the participants often prefer not to be alone.

The participants were also asked which environment they prefer for their office; a homelike environment, which is associated with people feeling more comfortable, or an office environment. 70% of all participants answered that they prefer an office environment to a homelike environment, and even 93% off the fulltime-employed participants gave the same answer. The graph below illustrates that most of the participants and even more of the fulltime-employed ones prefer to work at an office environment.



At the same time, the participants were also asked where they are more productive, at home or at their office. 85% answered they were more productive at their office and even 92% of the fulltime-employed participants stated they were more productive at their work place. Comparing these answers however shows that some people state that they are more productive at one place, but still prefer to work in the other environment. In total 16.4% of the participants gave this contradicting answer.

47% of all participants also stated that they were studying at home when they were students, while 43% used to study on campus or in a library. The percentage working at home is still bigger than the one of participants thinking they are more productive at home; 37% of the participants again gave a contradiction answer. They think they are more productive at their office, however used to study at home or the other way around. One has to keep in mind though that this might also be a matter of experience, as it is possible that they participants only realized later that they are more productive at a certain place. Furthermore it is possible that some schools or universities do not offer certain facilities where students could study and this leads to contradicting answers.

The main reasons the participants mentioned, why they would be more productive in an office environment are that there are people around them working who can also see what they are doing, the facilities are better, the association with work at the office and private life at home, fewer distractions like household duties at the office, a quite atmosphere with less people

talking and also a clean surrounding. Reasons for being more productive at home on the other hand are that there is no pressure, less people that might be distracting and complete silence. Also taking breaks and having the ability to eat what and whenever they want to make the participants prefer working at home to working at an office.

Within four open questions, the participants were asked to elaborate on when they feel comfortable and relaxed at home and comfortable at other peoples' places and their workplace, which are places people usually feel less comfortable at than at home.

In order to relax and feel comfortable at home the participant answered they like to watch TV, listen to (loud) music, read books or cook. They generally enjoy that they can do whatever they want to without feeling uncomfortable or judged. Warm dinner, warm drinks, candlelight, nice decoration/flowers, warm temperature and a lot of light helps the participants as well to feel more comfortable at home. They also answered that they value spending time with their partners and families or sometimes also being alone at home, and also that they have their own furniture and private items and can use pillows and blankets to make themselves feel more comfy.

When explaining what makes them feel comfortable at other people's home and their workplace, the participants mentioned many things that are similar to the answers before. They said that they would enjoy hot drinks and food, comfortable furniture, warm temperatures and a lot of light through big windows. Answers that differed were that they want to be in a tidy and clean environment, have a personalized workspace and be able/allowed to use everything at the place. It also seemed very important to the participants to know all the other people around them and to be able to socialize with them.

The questionnaire conducted for this research showed many aspects of what the participants value in order to feel comfortable. For the experiment used to evaluate the research question, some aspects of this questionnaire have been used in order to define the feeling of comfort at the workplace. The main aspects used are that most participants prefer to snack and drink at their workplace and therefore drinks, warm and cold and also several snacks like sweets or fruits should be provided to employees. Furthermore the participants seemed to value comfortable furniture in addition to blankets and a nice atmosphere created through decoration, flowers and also a lot of light and big windows. Having the company of people and colleagues they like also seems to make employees feel more comfortable.

These aspects will be used in order to create a comfortable atmosphere for the treatment groups in the experiment of this research in order to simulate that they receive work benefits.

Idea Creation

In order to analyze whether the, through several workplace benefits created, feeling of comfort can influence the idea creation of employees, the concept of idea creation first has to be defined.

The idea creation of workers is influenced by many different external and internal factors. Therefore a function describing what ideas depend on has been established.

$$Idea = F(hominess, team\ composition, group\ size, day\ and\ time, feelings\ and\ health\ status, type\ of\ assignment, trainging\ and\ experience, external\ and\ internal\ distraction, IQ, creativity)$$

The quality and quantity of ideas that are created by workers depend on the influencing factors mentioned in the equation above.

Idea creation is influenced by the group size and also the team composition. This includes the gender, race and age of people, but also their educational background. While people that are very alike will find it easier to work together and brainstorm together, having different backgrounds or knowledge will enable them to have broader discussions.

The day and time will influence peoples' focus and motivation. The same applies to the psychological and physical status of people, as, like mentioned before, healthier and happier workers are more productive, inventive and creative (Unknown, Reward and benefits: performance of perks over pay rises for improving employee engagement, 2007).

What type of assignment or problem workers are facing is also important for the process of how they create ideas and work. Depending on what kind of problem people are facing they are also shaping their interest in these and thus their motivation to create more and better ideas. The training and experience the workers have will influence their ability to solve problems and come up with ideas in a faster and more efficient way. And lastly, external and internal distractions can hinder workers in creating ideas. External distractions can be things in the workers environment while internal distractions can be personal circumstances or other unanticipated interruptions the workers are facing. Furthermore the intelligence level (IQ) and the creativity of the people play a major role in their idea creation.

Hypotheses

The main question of this research is whether the idea creation of workers and their creativity are influenced by workplace benefits. In order to analyze this question, it will be split up into several hypotheses.

Since many companies offer several benefits one would also assume that this must be beneficial to those companies. The workers should be positively influenced in their work and should therefore generate more profits, so that in the end the benefits are profitable for the company even when including their costs. This assumption leads to the first hypothesis.

Hypothesis 1: Intangible benefits positively influence the overall quality of the idea creation of employees.

This hypothesis will be analyzed later in this research.

When thinking of how workers can stimulate making profits with their idea, it comes to mind that those ideas should be innovative. Therefore the creativity of employees is important for their idea creation, as also mentioned before in the ' idea equation'. The benefits offered to the workers should make the working atmosphere more comfortable and hence should also stimulate the creativity of the workers and allow them to be innovative with their ideas. Therefore the second hypothesis will be:

Hypothesis 2: Intangible benefits positively influence the creativity of workers.

Ideas can often be very creative, however that will not ensure that they will also generate profits. In order for the company to be profitable it is important that the ideas are not only innovative but also feasible. This means that costs have to be taken into account and the ideas can be used in order to create profit. The third hypothesis is therefore:

Hypothesis 3: Intangible benefits positively influence the feasibility of workers' ideas.

All three hypotheses will be analyzed in the following parts of this investigation.

Data and Methodology

Data

In order to estimate the effect employment benefits have on the work of employees, and experiment will be used. This experiment is aiming at creating a comfortable feeling at a workplace for the participants and measures its effect on their idea creation and creativity.

The effect is not expected to be significantly big for single individuals, as those are usually more likely to focus and concentrate on their assignment as groups will interact with each other. This experiment will thus use groups of 3 participants to analyze the effect described above. A group size of 3 people will also resemble the group meetings done in order to brainstorm at many companies.

Furthermore the participants of this experiment are students as those are the people who will be hired next by the companies. The sample will be randomly assigned to the treatment and control groups.

The experiment will contain four different treatment groups. One group will receive a business plan assignment in a room that resembles a workplace with benefits, while its counterfactual group will receive the same assignment in a room resembling a plain working environment with no benefits. The other two groups will receive a set of problems they have to solve, also one group in the room with a 'homelike' feeling and the counterfactual group in the plain room.

In order to see the effect the benefits and the comfortable feeling have on the idea creation and problem solving the outcome of the treatment groups with the same assignment will be compared. Both assignments can be found in the appendix. The business plan assignment is

called the creative assignment for this experiment, as it asks the participants to come up with several ideas completely from scratch, while the participants with the other assignment already have a framework to work with. The other assignment is therefore called the noncreative assignment. The following table illustrates the treatment and control groups.

	Creative Assignment	Non-creative Assignment
Benefits	Treatment Group Type 1	Treatment Group Type 2
No Benefits	Non-Treatment Group Type 1	Non-Treatment Group Type 2

The room without any benefits and with a non-comfortable feeling will be a plain classroom at the Erasmus University Rotterdam with only a table and chairs to sit at; this will ensure the work environment and the absence of any benefits in the room. The following pictures can illustrate what the room looks like with no benefits.

The comfortable room on the other hand will offer the participants blankets on their chairs, big windows to provide a lot of light and several free drinks and snacks. Furthermore freshly baked cookies will be offered, as this smell makes us kinder to strangers and feel more homely (Hagan, 2012). It is ensured that the heating system is turned on and flowers are used for decoration. The participants also have a laptop with Internet access that they can use. All the benefits that are provided come from the questionnaire that has been conducted before and ensure that the participants feel comfortable. While this room will have a more comfortable environment, it is still at the university and will therefore also be in a working environment. This ensures that the

benefits offered are more similar to the benefits offered at workplaces. The following pictures illustrate what the room looks like when benefits are provided.

55% of the meetings in cooperate America (cooperation and big businesses in the US) are 30 to 90 minutes long (Romano & Nunamaker, 2001) while the concentration span of a student is only 10 to 15 minutes (Wilson & James, 2007). Therefore the time the treatment and control groups have to work on their assignments will be 30 minutes for every group.

Before entering their room the groups will receive their assignments and a questionnaire that they will have to fill in before they start their work. While the participants read their assignments and fill in their questionnaire, the researcher is present.

The questionnaire is aiming at accounting for the other factors that can influence one's idea creation. The idea function mentioned before illustrates these factors.

$$Idea = F(hominess, team\ composition, group\ size, day\ and\ time, feelings\ and\ health\ status, type\ of\ assignment, trainging\ and\ experience, external\ and\ internal\ distraction)$$

Since this research is only aiming at measuring the effect of hominess on idea creation, the researcher has to account for all other factors. In order to account for the day and time, the time of the day will always be the same and the experiment will only take place on Tuesdays, Wednesdays and Thursdays in order to have no correlation with any anticipation for the weekends. The group size will also always be the same and since the students come from one university it can be assumed, that they know each other, just like work colleagues. Furthermore we can expect them to have about the same experience and educational background. To account for their age, gender and study background the first three questions of the questionnaire will be:

1. *How old are you?*
2. *What is your gender?*
3. *What do you study?*

In order to also account for their mental and health status and also their internal and external distraction the participants will also be asked:

4. How many hours did you sleep last night?
5. How many hours do you sleep usually on average?
6. Did you visit the doctor within the last 7 days due to an unanticipated illness?
7. How often did you visit the doctor within the last year due to an unanticipated illness?
8. Did you experience any outside interruptions within the 30 last days?

These 8 questions have to be answered by the participants before the experiment start in order to ensure that they are not influenced or answer the questions with a different feeling or view with what they started the assignment. The information given in the questionnaire will later on be used as control variables in the regressions used. This will be illustrated more into detail in the methodology part of this paper.

After the participants filled out the questionnaire, the researcher will leave the room in order not to influence the discussion with her presence. This will ensure that there is no researcher bias and provides a context in which stimulus-independent behaviors may arise in the absence of conscious monitoring of the researcher (Liu, et al., 2012).

In order to exemplify how the experiment will work, its schedule is shown in the following table.

Start	Participants arrive at the room
	Researcher welcomes participants, hands out assignments and questionnaire
	Participants enter the room

	Participants fill out their questionnaire
+5 minutes	Researcher leaves the room and stops the time
	Participants work on their assignment
+35 minutes	Researcher will enter room and collect the assignment and notes

After the experiment was conducted the researcher will evaluate the assignments.

The problem solving assignment will be judged looking at creativity and feasibility of the answers and the overall quality; the business plan assignment on the other hand will be evaluated using the business model canvas as well as judging its creativity and feasibility.

The business model canvas assesses business plans on the basis of several criteria. These criteria are

1. Key partners
    a. Who are key partners and which key activities do they perform?
2. Key activities
    a. What key activities are performed?
    b. Distribution channel?
    c. Revenue stream?
3. Value Propositions
    a. Which problem of the customer is solved?
    b. Which need is served?
4. Customer Segments
    a. Most important customers
5. Customer Relationship
    a. What relationship with which segment?
    b. How costly is building and maintaining the relationship?
6. Key resources
    a. What key resources are needed?
7. Distribution Channels
    a. How can we reach the segment?
    b. Integration of channels
    c. Cost-efficiency of channels
8. Cost Structure
    a. What is most expensive?
    b. Cost-efficiency
9. Revenue Stream
    a. For what value are the customers really willing to pay?
    b. How are revenues created?

c. How much comes from each Revenue Stream?
d. How are the customers paying?

(Unknown, The Business Model Canvas , 2012)

The data retrieved from the questionnaire that the participants filled in before they worked on the assignment showed the characteristics of the participants. A full table of the data can be found in the appendix.

In total 27 students participated in the experiment, 13 male and 14 female and they were separated into 9 groups. Five of these groups received benefits, 2 of those worked on the creative assignment the other 3 on the noncreative one. The other 4 groups did not receive any benefits and 2 of them each worked on one of the assignment.

The average age of all participants is 21,6 and the average age of the groups with benefits is 21,33 and for the one without benefits it is 21,9. All participants are students at the Erasmus University Rotterdam and study Economics, in English or Dutch, or Business. They therefore have similar educational backgrounds. The average hours of sleep the participants had the night before the experiment was 7.04 and for 11 of them their sleeping hours were less than their average. 7 of these participants were in the treatment group, 4 in the control group.

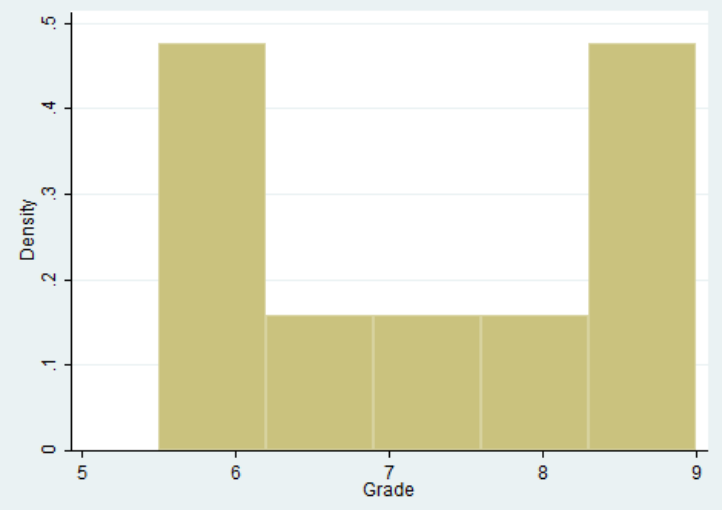
Of all participants 2 were ill and visited the doctor within the last 7 days before the experiment more often than usual and 12 of all participants were facing interruptions in their life that might disturb them during work.

In general one can see that the treatment and the control groups are very similar. This was likely to happen, as the participants have been randomly assigned to one of the groups. This ensured the selection bias to be as small as possible.

During the experiment, the participants (in groups of three) were asked to work on two different assignments. They wrote down their results and those were collected after 30 minutes. The written results can be found in the appendix. After the experiment the researcher judged the assignments and used the business canvas model, which was already explained above in order to grade the answers. For the grades, the Dutch grading system was used; the grades lie between 0 and 10, with 10 being the best and a 5.5 being a pass and symbolize the overall quality of the assignments.

The assigned grades can be found in the list with all data of the experiment in the appendix. On average the groups were given the grade 7.22. While the treatment group had an average grade of 6,9, the groups without benefits had an average of 7.62. Whether this difference in overall quality of the assignments is due to the effect of the benefits will be investigated later on. Therefore this data will be used to analyze the first hypothesis, which will be described further into detail in the methodology part of this investigation.

Looking at the histogram of the grade distribution, one can see that it is no normal distribution. The small sample has a higher density for the grades on the boarder than for the middle ones.



In order to analyze the second and the third hypothesis not only the overall quality, but also the creativity and the feasibility of the assignments of each group were judged.

The creativity was evaluated by comparing all results and for every idea that was not mentioned by any other group, the specific group received a 'creativity point'. Therefore, the higher the score assigned to one group, the more creative their assignment was in comparison to the other groups. In case groups mentioned things that were also mentioned by other ones, but are much more described into detail, they can also receive half a point.

The highest score assigned to the groups was 4.5 while the lowest one was 0.5. On average the participants received 2.22 points for creativity.

Concerning the feasibility of the assignments the same method has been used as for the creativity. The more feasible a answer seems in order to generate a long-term profit for the dating apps, the more points will be assigned to the groups. In order to do so the answers will be compared to each other and the Dutch grading system will be used again.

The average grade that the participants received for productivity was 5.16 and the highest grade assigned was 6.5 while the lowest was 3. This shows that the feasibility of all ideas was rather low and the range was small.

Methodology

In order to analyze all hypotheses mentioned in the theoretical framework of this paper, the data explained above will be used. For this several linear regressions will be established. A linear regression can show the relationship between a dependent variable and independent variables. For this investigation the independent variables are $Benefits_i$,$Creativity_i$ and an interaction between both. The variable $Benefits_i$takes on the value 1 if the group received benefits during their work; otherwise it has the value 0.

The variable $Creative_i$ has the value 1 in case the group received the business plan assignment; otherwise it is 0. The interaction variable is the product of both variables mentioned before and

it enables one to see the simultaneous effect both variables have on the dependent variable, so what the effect would be if the group received benefits and also the creative assignment.
As for the dependent variable the assigned grades for the overall quality of the assignments, the creativity score and the grades for feasibility will be used in order to analyze all three hypotheses.
The multiple linear regression used in this investigation, will estimate the relationship between the independent variables and the outcome variable. Linear regression needs several assumptions to be true concerning the data used. Since the sample used is very small, some of the assumption can only be assumed to hold. The assumptions for linear regression are the following.

1. The variables should be continuous, so they are ratio or interval variables. This is the case for the data used in this investigation.
2. A linear relationship should exist between the outcome and independent variables.
3. There should be no outliers included in the data.
4. The data should be homoscedastic, so the variance has to be constant. (Montgomery, 2012)

The assumptions of linear regression are assumed to hold for the data used. All multiple linear regressions described below will be modeled using the statistical program STATA.

Hypothesis 1: Intangible benefits positively influence the overall quality of the idea creation of employees.

In order to analyze the first hypotheses, a multiple linear regression will be used that will look as following:

$$Grade_i = \beta_0 + \beta_1 Benefit_i + \beta_2 Creative_i + \beta_3 Benefit * Creative_i + ß_4 Age_i + \beta_5 Gender_i + \beta_6 Study_i + \beta_7 Sleep_i + \beta_8 HoursOfSleep_i + \beta_9 Illness_i + \beta_{10} Interruptions_i + \varepsilon_i$$

with β_i being the coefficient and the independent variables

$$Benefit_i = \begin{cases} 1, receive\ benefits \\ 0, otherwise \end{cases}$$

$$Creative_i = \begin{cases} 1, creative\ assignment \\ 0, otherwise \end{cases}$$

and their interaction effect $Benefit * Creative_i$. The coefficients of those variables will show the effects that the three independent variables have on the dependent variable, which is the overall grade in the case of the first hypothesis.
The other variables mentioned in the regression equation are control variables and control for aspects that might influence the individual performance of the participants. The data for the

control variables was retrieved from the questions that the participants had to answer before working on the assignments.

The variable Age_i shows the age of each individual, $Gender_i$ takes on the value 1 in case the individual is male and the variable $Study_i$ shows what the participants studies; its value is 1 if the individual studies economics in English, 2 if he studies economics in Dutch, 3 if he studies Marketing and 4 if he studies International Business. All participants studied at the Erasmus University Rotterdam, hence only their study subject is taken into account. The variables $Sleep_i$ and $HoursOfSleep_i$ show whether the individual slept less than he usually does (then the value would be 1) and the amount of hours the individual slept the night before the experiment. $Illness_i$ is equal to 1 in case the participant is ill and has visited the doctor the past 7 days before the experiment due to an unanticipated illness and more often than usually. And the last control variable $Interruption_i$ is equal to 1 in case the participant was facing any interruptions within the past 30 days before the experiment. This accounts for the fact that people might be facing any problems or positive news that could distract them from their work and would therefore influence the actual effect of interest.

The coefficient β_1 will show the effect that having benefits have on the overall quality of the assignments and the coefficient β_3 of the interaction effect $Benefit * Creative_i$ will show the simultaneous effect of having benefits and the creative assignment on the quality. Seeing the effect of the benefits in this experiment will enable one to estimate the general effect benefits could have on the work of employees.

Hypothesis 2: Intangible benefits positively influence the creativity of workers.

The second hypothesis will also be analyzed by using a linear regression. The same independent and control variables as before will be used, however the dependent variable in this case will be the creativity score. The regression will look as following:

$$\begin{aligned} Creativity_i = {} & \beta_0 + \beta_1 Benefit_i + \beta_2 Creative_i + \beta_3 Benefit * Creative_i + ß_4 Age_i + \beta_5 Gender_i \\ & + \beta_6 Study_i + \beta_7 Sleep_i + \beta_8 HoursOfSleep_i + \beta_9 Illness_i + \beta_{10} Interruptions_i \\ & + \varepsilon_i \end{aligned}$$

Here the coefficient of $Benefit_i$ will show the effect benefits have on the creativity of the participants and the coefficient of the interaction variable $Benefit * Creative_i$ will show the simultaneous effect that having benefits and the creative assignment will have on the creativity. This analysis can be used in order to estimate the general effect benefits have on the creativity of employees.

Hypothesis 3: Intangible benefits positively influence the feasibility of workers' ideas.

For the third hypothesis again a multiple linear regression will be used but with the grades for feasibility as the dependent variable. The regression will look as following:

$$Feasibility_i = \beta_0 + \beta_1 Benefit_i + \beta_2 Creative_i + \beta_3 Benefit * Creative_i + ß_4 Age_i + \beta_5 Gender_i + \beta_6 Study_i + \beta_7 Sleep_i + \beta_8 HoursOfSleep_i + \beta_9 Illness_i + \beta_{10} Interruptions_i + \varepsilon_i$$

The regression will be used in order to find the effect of having benefits and also the simultaneous effect of benefits and creative assignment have on the feasibility of the ideas that the participants produced. This result will be applied to the work of employees outside of the experiment.

The results of the above mentioned regressions will be discussed in the following part of the paper.

Results

The following part is divided into sections according to the hypotheses. For each hypothesis the results will be analyzed and also concluded again.

Hypothesis 1: Intangible benefits positively influence the overall quality of the idea creation of employees.

The first hypothesis will be analyzed using a multiple linear regression that was introduced earlier.

Grade	Coefficient	P-Value
Creative	-0,261	0,797
Benefit	-1,529	0,128
CreativexBenefit	1,935	0,11
Age	-0,071	0,6
Gender	-0,742	0,31
Study	0,202	0,566
Sleep	0,029	0,974
HoursOfSleep	-0,304	0,435
Illness	0,314	0,774
Interruptions	-0,673	0,372
Constant	11,799	0,012

The table above shows the results from the regression using the data from the experiment. The outcome variable is $Grade_i$ and the dependent variables are $Benefits_i$, $Creative_i$ and their interaction variable. The other variables are control variables using the data from the questions the participants had to answer.

Looking at the main coefficient of interest, the coefficient of $Benefits_i$, one can see that this is -1.528889, which means that receiving benefits would reduce the overall grade by 1.53 grade points. This result again would mean that we cannot accept our first hypothesis and we cannot

say that intangible benefits positively influence the overall quality of the idea creation of employees. However assuming a significance level of 5% and looking at the p-value of the mentioned coefficient, one can see that this is actually not significantly different from 0 as $p = 0.128 > 0.05$. Also looking at all other independent and control variables and their coefficient, one can see that all of the p-values exceed the significance level of 5%, meaning that none of the coefficients are significantly different from 0. This however could also be the case, as the treatment and control groups are very similar, also due to randomization. Therefore the regression will be used however the control variables will not be included as we do not have to control for these in case of similar treatment and control groups.
The results are shown in the following table and were also generated using the statistical program STATA.

Grade	Coefficient	P-Value
Creative	-0,5	0,489
Benefit	-1,541	0,026
CreativexBenefit	1,916	0,058
Constant	7,875	0

As the control variables have been removed from the base regression, the coefficients of the independent variables changed. Looking at the coefficient of the variable $Benefits_i$, one can see that having benefits seems to have a negative effect of -1.541667 on the overall grade. In this case, assuming a 5% significance level, the coefficient is significantly different from 0 as $p = 0.026 < 0.05$. We can therefore not accept the first hypothesis. Applying this result to a larger sample, so the general workforce, could lead to the conclusion that that fringe benefits seem to have a negative effect on the work of employees. A reason for that might be the distraction that comes from the benefits and therefore makes it harder for the workers to concentrate on their task. Casual evidence for this phenomenon comes from the researcher talking to the participants after the experiment. Many of the participants explained after doing that there were heavily distracted by the benefits that were offered to them. The main distraction came from the computer according to the participants, as they also used it for private causes. The interaction with the other group members, which was also stimulated by the environment with food and drinks, lead to a more private environment which was rather focused on discussing private issues than work related issues. Furthermore many groups that received benefits used the time in order to go on social networks together as they could use the computer. According to some participants, this was the main reason why they were distracted by the benefits. Taking these complaints from the sample into account, one might ask whether the negative effect of the benefits is maybe not only a negative effect caused by having a laptop and using it for private reasons. Having the opportunity to use the computer for private reasons,

such as social networking, might hinder employees in doing their work. As some participants already mentioned in the questionnaire about feeling comfortable that was conducted before the experiment, it seems important to many people to have working people around them that can also see what they are doing at their workplace and that is why they prefer to work at an office. In the case of the experiment however the researcher was not present in the room and the group could therefore use all benefits, especially the computer for anything they want. Not being watched might have therefore even strengthened the negative effect having the computer had on the overall quality of the work.

In general one can say, that instead of having a positive effect on the overall quality of the idea creation, the fringe benefits rather had a negative effect on the grades assigned. One main reason for this might be that the benefits were rather seen as a distraction from work than stimulation. Looking at the other coefficient of interest, the coefficient of the interaction variable $Benefit * Creative_i$, one can see it has the value 0.9617535 and it is close to being significantly different from 0 as $p = 0.058 > 0.05$. The negative coefficient means that there is a positive simultaneous effect of having a benefits and working on the creative assignment. Therefore the benefits might actually be beneficial if the work requires more creativity than others. The effect however is much smaller than the one of the general benefits effect described earlier and is also only close to being significant. A reason however for this positive effect might be something that was described by some groups. They explained that they came up with some ideas in their business plan, like a flower delivery service, as they were surrounded by benefits, like flowers, that inspired them. These findings also lead to the second hypothesis, which assumes that fringe benefits positively influence the creativity of workers.

As the participants worked in groups during the experiment, the base regression will also be estimated when the results are grouped. Therefore the data will be grouped and instead of the individual age, hours of sleep and gender, the average age, hours of sleep and the number of male members of each group will be used as control variables. The results for this regression are shown in the appendix. The results are similar, we can see a negative effect of benefits and a smaller positive effect for the interaction effect, however all coefficients are not significantly different from 0 as all p-values exceed the significance level of 5%. Therefore in order to analyze the first hypothesis, the individual regression without control variables is used.

To conclude the first hypothesis cannot be accepted and it seems like there is even a negative effect of having benefits on the overall quality of the idea creation and a smaller positive interaction effect of having a creative assignment and benefits at the same time. Reasons for that might be that the benefits on the one hand might be used as inspiration when more creativity is requested, however in general they seem to be more distracting to the workers.

Hypothesis 2: Intangible benefits positively influence the creativity of workers.

The second hypothesis will again be analyzed by using a linear regression that was estimated with the statistical program STATA.
The regression used the creativity score as the dependent variable and included all control variables that were already shown before. The following table summarizes the results.

Creativity	Coefficient	P-Value
Creative	1,293	0,274
Benefit	-0,070	0,949
CreativexBenefit	-0,622	0,64
Age	-0,090	0,564
Gender	-0,647	0,435
Study	0,158	0,694
Sleep	0,183	0,858
HoursOfSleep	-0,386	0,386
Illness	0,329	0,792
Interruptions	-0,793	0,358
Constant	6,825	0,168

Again looking at the main coefficient of interest, the coefficient of $Benefits_i$, one can see that it has the value -0.0704108, however it is not significantly different from 0 as $p = 0.949 > 0.05$. Though the coefficient is not significant, one can see that there is a negative effect of fringe benefits on the creativity of workers. Looking at the coefficient of the interaction variable $Benefit * Creative$, one can again see a negative coefficient of -0.06225854, which however again is not significantly different from 0 as the p-value exceeds the significance level. It still shows that even when more creativity is requested for the task than usual, the benefits still have a negative effect on the creativity. It shows that the benefits might rather act as a distraction for the workers and not as a inspiration to their creativity. As the coefficients of all control variables are also not significantly different from 0, the regression will be changed accordingly and all control variables will be excluded. The following table shows the results.

Creativity	Coefficient	P-Value
Creative	1	0,225
Benefit	-0,166	0,822
CreativexBenefit	-0,583	0,596
Constant	2	0,002

Again looking at both coefficients of interest, one can see two negative effects, however both coefficients are again not significantly different from 0 as the p-values exceed the significance level of 5%. Therefore also for this hypothesis the base regression, which uses individual data,

will now use the grouped data. The results for this changed regression can be found in the table below.

Creativity	Coefficient	P-Value
Creative	1,301	0,522
Benefit	-1,512	0,413
CreativexBenefit	0,085	0,968
AverageAge	-0,844	0,252
NumberMale	-1,427	0,145
HoursSleep	-0,308	0,141
Constant	25,313	0,16

Here again a negative effect of the benefits is shown through a negative coefficient, however there seems to be a smaller, but positive interaction effect. However all coefficients are not significantly different from 0 as the p-values exceed the significance level.
In case of all three types of regression, the results were not significant. However the impression is raised that benefits have a negative effect on the creativity of employees, even when they work with a high level of creativity.

Hypothesis 3: Intangible benefits positively influence the feasibility of workers' ideas.

Just like both hypothesis before, also the third hypothesis will be analyzed using a linear regression, which was modeled using STATA.
For the regression all control variables are included and the grade for feasibility was used as the dependent variable. The results are shown below.

Feasibility	Coefficient	P-Value
Creative	-0,809	0,374
Benefit	-1,190	0,177
CreativexBenefit	2,397	0,031
Age	-0,032	0,785
Gender	-6,710	0,3
Study	0,288	0,359
Sleep	-0,288	0,717
HoursOfSleep	-0,247	0,472
Illness	0,570	0,558
Interruptions	-0,466	0,482
Constant	8,392	0,036

One can see that again the effect of benefits on the feasibility seems to be negative and the interaction effect of the creative assignments and benefits have a big positive effect on the feasibility of 2.39757. In this case only the coefficient of the interaction variable is significantly

different from 0, as $p = 0.031 < 0.05$. Therefore it seems that the effect of having benefits on the feasibility might be very positive if more creativity is requested from the task. Since in the case of the assignments used during the experiment, but also in real like business tasks, the feasibility and therefore the margin for profit, is the main aim of the work, one could conclude that more feasibility can be reached by offering benefits, in case the task working on requires exceptionally a lot of creativity.

Since all other coefficients in this regression however are not significantly different from zero, the regression will also be used without any control variables. The results are shown below.

Feasibility	Coefficient	P-Value
Creative	-1	0,128
Benefit	-1,25	0,042
CreativexBenefit	2,5	0,008
Constant	5,75	0

Like before, one can see a negative effect of the benefits on feasibility of -1.25 grade points, which this time is also significantly different from 0 as $p = 0.042 < 0.05$. This might mean that in general that offering fringe benefits might hinder the employees in focusing more on the feasibility of their plan, which often is the aim of business tasks. Again this might be as the employees are distracted by the benefits that are offered to you and that makes it more difficult for them to focus on the feasibility of their work. The coefficient of the interaction variable however, also being significantly different from 0 this time, has a value of 2.5, which means that the simultaneous effect of a creative assignment and fringe benefits on the feasibility is positive. It seems again like, the more creativity is asked, the more benefits help the workers to focus on the feasibility. The interaction effect however is much bigger than the negative effect of the benefits, and it might therefore be able to outperform the negative effect and still turn it into a positive one.

In order to have another view on this analysis and as the participants worked in groups, the base regression will also be included when using the grouped data instead of the individual one. The results are shown below.

Feasibility	Coefficient	P-Value
Creative	-1,404	0,498
Benefit	-1,694	0,374
CreativexBenefit	2,75	0,29
AverageAge	-0,261	0,674
NumberMale	-0,88	0,292
HoursSleep	-0,276	0,17
Constant	15,336	0,32

The coefficients in this regression for the variables of interest, Benefit and CreativexBenefit, are -1.694571 and 2.750932 respectively, which indicates a negative effect of benefits on the feasibility of work, however a positive effect in case a high amount of creativity is also included. However as all p-values exceed the significance level of 5%, the coefficients are not significantly different from 0 and therefore for the investigation of the third hypothesis the individual regression without control variables will be used. This suggests that benefits have a negative effect on the feasibility of work, however the interaction effect of benefits and creative tasks is positive and larger.

Not knowing the subject

During the experiment the researcher came across the fact that all the male participants were familiar with the subject Tinder the assignments were about, however the female ones did not use or even know about it. Therefore an additional investigation of this paper will be whether not being familiar with the task or subject might influence the way people react to benefits. For this the regressions without control variables for female and for male will be compared to see whether their coefficients differ.

First we are looking at whether benefits influence the overall quality of the assignments.

GradeFemale	Coefficient	P-Value
Creative	-1,166	0,45
Benefit	-2,428	0,114
CreativexBenefit	2,095	0,263
Constant	9	0

GradeMale	Coefficient	P-Value
Creative	-0,733	0,418
Benefit	-2,15	0,058
CreativexBenefit	3,23	0,044
Constant	7,65	0

The upper table shows the results of the female regression, while the lower ones are only for males. We can see that the trends of the effects are the same for both genders however the negative effect of the benefits seems to be larger for the females which would suggest that not-knowing the subject of the assignment might enhance the negative effect of having benefits even more. However since only the coefficients of the male regression are significantly different from 0, it is difficult to compare the results and draw conclusions.

Looking at the effect on creativity, the results are as following.

CreativityFemale	Coefficient	P-Value

Creative	-0,5	0,798
Benefit	-0,928	0,61
CreativexBenefit	-0,571	0,802
Constant	3	0,099

CreativityMale	Coefficient	P-Value
Creative	0,7	0,433
Benefit	-0,8	0,435
CreativexBenefit	0,8	0,573
Constant	1,8	0,007

Again the upper table shows the results of the female regression. Comparing the coefficients of both regressions, we can see the negative effect of benefits on creativity for females is much bigger than the one for males. This suggests that not knowing the subject and having benefits also reduces the creativity of the participants. However since all coefficients are not statistically significant, the results of this investigation is rather weak.
Lastly it was looked at the effect of benefits on the feasibility of the idea when not knowing the subject.

FeasibilityFemale	Coefficient	P-Value
Creative	-2	0,197
Benefit	-2,5	0,091
CreativexBenefit	3,333	0,076
Constant	7	0

FeasibilityMale	Coefficient	P-Value
Creative	-1	0,219
Benefit	-1	0,279
CreativexBenefit	2,667	0,055
Constant	5,5	0

Looking at the coefficient of the regressions, it suggest that the negative effect of having benefits is even bigger for women, so for people who are not familiar with the subject, than for the male participants. However again the coefficients are not significantly different from 0.
Generally one can see that the negative effect of having benefits seems to be even larger for people who are not familiar with the subject, however the results are very weak. This could show for example that offering benefits to new employees might be even worse than to already existing ones.

Conclusion and Discussion

Conclusion

Since not a lot of research has been done on the efficiency of fringe benefits, this investigation tried to find out whether benefits have a positive influence on the overall quality, the creativity and the feasibility of the idea creation of workers. In order to do so several regressions were used to find the effect of benefits and also the simultaneous effect of benefits and creative assignments. Furthermore a questionnaire was conducted before which looked at when people feel comfortable in order to find out which benefits should be offered to employees according to themselves.

The results showed that benefits did not have a positive influence on the feasibility, creativity and also overall quality of the participants in this investigation. Applying this to the workforce shows us, that benefits might actually have a negative influence on the employees work and are therefore not even beneficial to companies.

For the interaction of having benefits and creative assignments a positive effect was found for at least the overall quality and also the feasibility of the ideas. It however should a negative effect on the creativity and might therefore be contra productive in the end. Companies that need a high level of creativity should offer benefits to their employees, maybe even on a changing basis, in order to stimulate their good work however they should keep in mind and ensure that the negative effect on the creativity is not too big and their level of creativity is still high enough.

At the end, it was also looked at whether not being familiar with the subject of the assignment influences the way people react to benefits.

Within this investigation it became clear that the negative effects of benefits are even larger for employees who are not familiar with the subject, however the results are relatively weak.

Looking at the survey that was done before the experiment it also becomes clear that employees much more value an office environment that is light, offers snacks like sweets and fruit, warm and cold drink and a warm temperature. They however value even more according to the survey a working environment, where they get the motivation from watching other people work around them, enjoying the company of those people but also being watched by others in what they do themselves.

In general this investigation showed that offering benefits might not always have a positive effect on the work of employees, however it might be beneficial when a lot of creativity is requested.

Discussion

The results of this investigation seem to be not very strong due to several drawbacks of the experiment used. However they can still be used in order to improve the range of benefits companies offer due to the interesting findings from the survey that has been conducted before.

In this section the drawbacks of the investigation and experiment will be discussed and it will be explained how this investigation might be used as a pilot experiment.
The main problem of the experiment used is the sample size. As the sample is very small, a full randomization cannot be ensured and there might be a selection bias. Furthermore the sample all comes from the same educational background, which also influences the way they work and therefore the effects of this investigation. In the real workforce however, workers might have different educational business. Also the number of participants might be bigger in business meetings than assumed for the experiment. The external validity of this experiment therefore is very small.
Furthermore another problem might be, that in the case of this investigation, only short-term effects are created as the experiment has only be done once. It is therefore questionable if the benefits offered also have mainly negative effects on the work in the long run. The participants, or the workers, might get used to the benefits after a while and actually benefit from then instead of being distracted. The long-run effect therefore cannot be seen here and might thus be interesting for companies.
A statistical drawback of the method used as well is that the assumptions for linear regression are not all met with the data, mainly because the sample is very small. However still linear regression was used to estimate the effects. This problem however might disappear when using a bigger sample.
Generally this experiment can be used as a pilot experiment for further research. Improving the experiment according to its drawback could give even better indications on how to use benefits and whether they are beneficial to workers. Instead of only doing the experiment one time with a small sample of 27 participants, a bigger sample should be looked at in a longitudinal study. This means the same people will be observed over a longer time period. By doing so, one can better reveal the long-term effects of benefits and a bigger sample can be more representative of the whole population and randomization will be easier. Finding a long-term effect benefits might have on their employees might be more efficient and helpful for businesses. They are also focusing on the long-term success of their company; hence they need workers who can generate long-term profits. It will be interesting for them to see whether the long-term effect differs from the short-term one that was found in this investigation. The results can be compared and used accordingly. For example companies that request a lot of creativity from their workers might want to change their benefits often in order to stimulate the workers all the time with new things and enhance the positive interaction effect of creative assignments and benefits that was found in this investigation.
However this research still shows to companies, that introducing new benefits might not be beneficial to the work of their employees, unless a lot of creativity is requested. Furthermore it was shown that many participants mentioned that the benefits distracted them from their work

and during the survey many also answered that they prefer working at the office as there they have the environment of being watched and watching other people work. Therefore an interesting study based on this investigation might be to look at whether watching people (for example by a boss) might influence how they respond to benefits. In case the effect of benefits will become highly positive just by watching the participants, companies could adjust accordingly when they offer benefits, and make sure this only happens when the workers are controlled in what they do. Furthermore as the results from the survey showed, workers prefer to work in an office environment due to several reasons mentioned above. It might be interesting for companies to therefore limit the use of their benefits for their worker. They could for example block websites on the Internet like Facebook or Twitter, or other social media, to ensure the workers are not distracted by this and concentrate on their actual job.

It is however also questionable whether companies actually offer the benefits to the already existing employees in order to improve their work or just to potential employees to appear like a better employer. The results of this investigation could also mean that companies use benefits in order to compete with other employers on another level than just the salary. By offering many benefits, they might be able to attract more potential employers and are able to pick the best fit or they might even be able to attract better workers and therefore the work they perform would already be at a higher level without any benefits. This view on benefits might again lead to another research which could invest on whether companies are able to attract more or better workers just through offering benefits, whether this is still beneficial in the end looking at the work these employees will perform and whether there are also other influenceable factors that play an important role (apart from salary and benefits) in attracting employees.

Generally one can say, that this research can be used as a pilot experiment for many other experiments that can follow. The next investigations concerning benefits should be a longitudinal study to see the long-term effect, whether being watched influences the response of employees on benefits and whether benefits help to attract more fitting employees or whether there are any other reasons for benefits. Furthermore companies can use this investigation in order to see that the short-term effects of their benefits might not be positive, however if they request a lot of creativity they might actually be beneficial to them. Furthermore tighter control of the workers might ensure a more beneficial use of the benefits for the companies.

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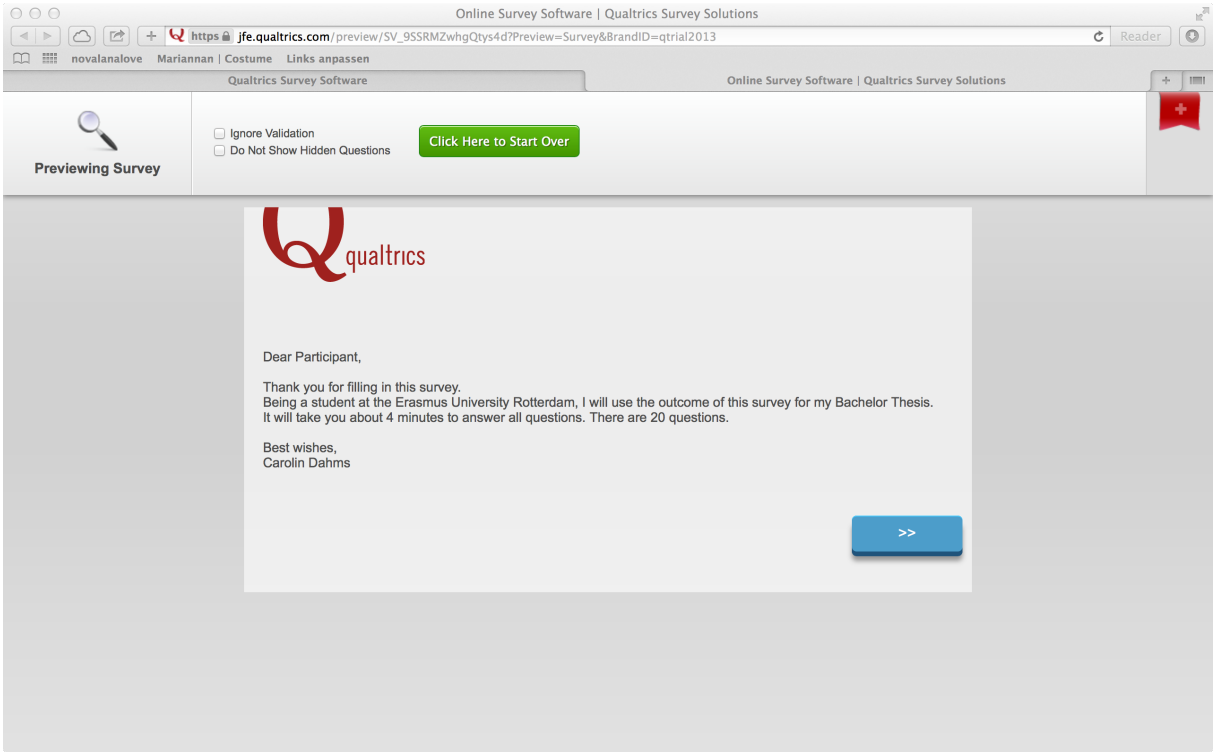
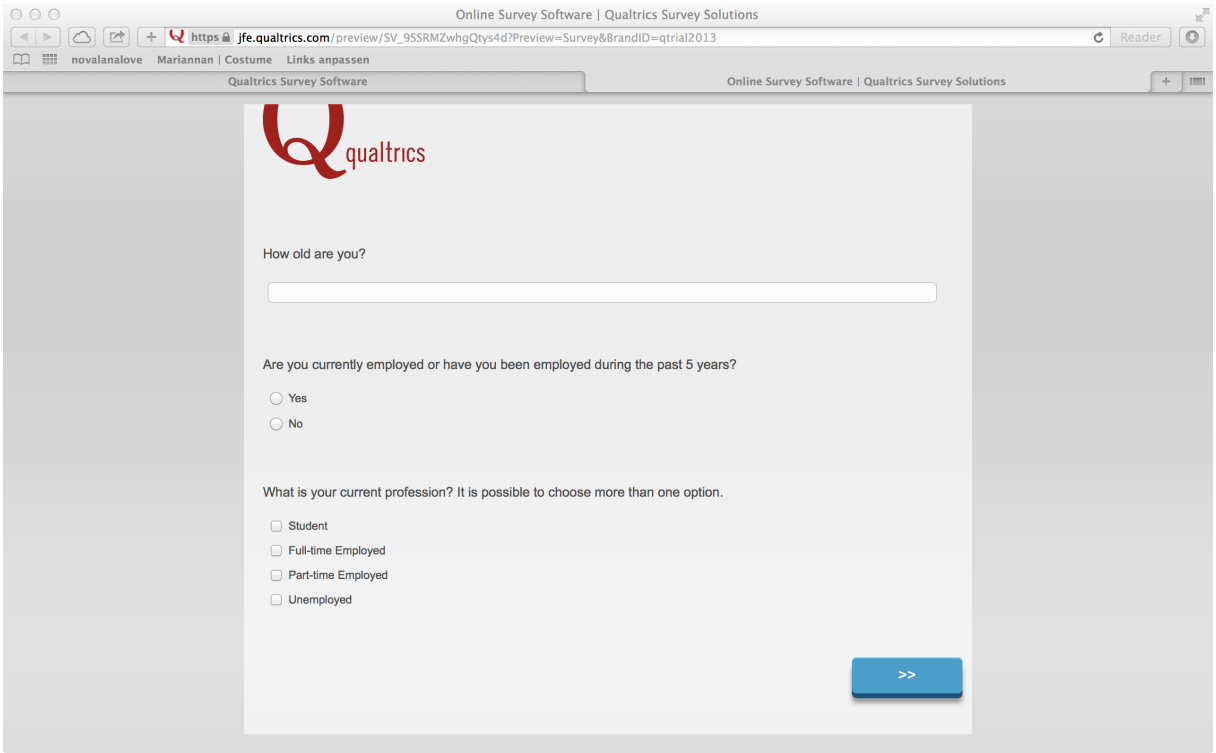
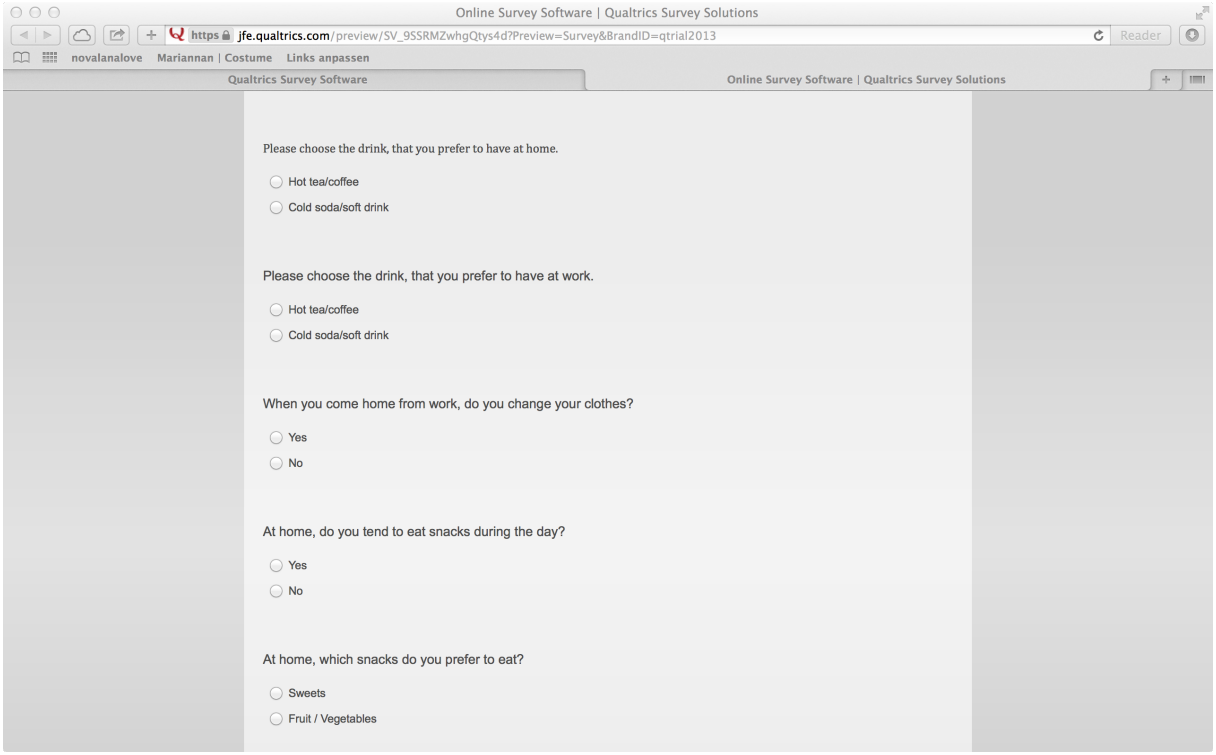
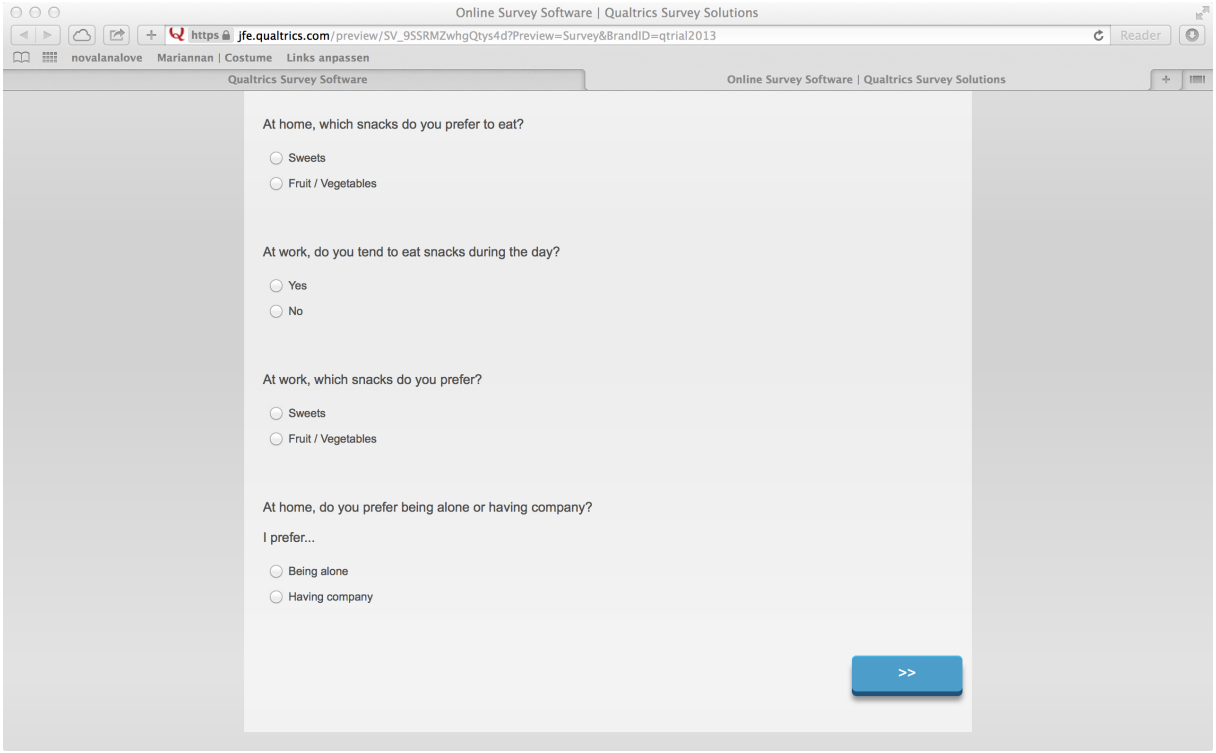
Appendix

Survey






Online Survey Software | Qualtrics Survey Solutions
https jfe.qualtrics.com/preview/SV_9SSRMZwhgQtys4d?Preview=Survey&BrandID=qtrial2013
Reader
novalanalove Mariannan | Costume Links anpassen
Qualtrics Survey Software
Online Survey Software | Qualtrics Survey Solutions
Please choose the drink, that you prefer to have at home.
Hot tea/coffee
Cold soda/soft drink
Please choose the drink, that you prefer to have at work.
Hot tea/coffee
Cold soda/soft drink
When you come home from work, do you change your clothes?
Yes
No
At home, do you tend to eat snacks during the day?
Yes
No
At home, which snacks do you prefer to eat?
Sweets
Fruit / Vegetables


Online Survey Software | Qualtrics Survey Solutions
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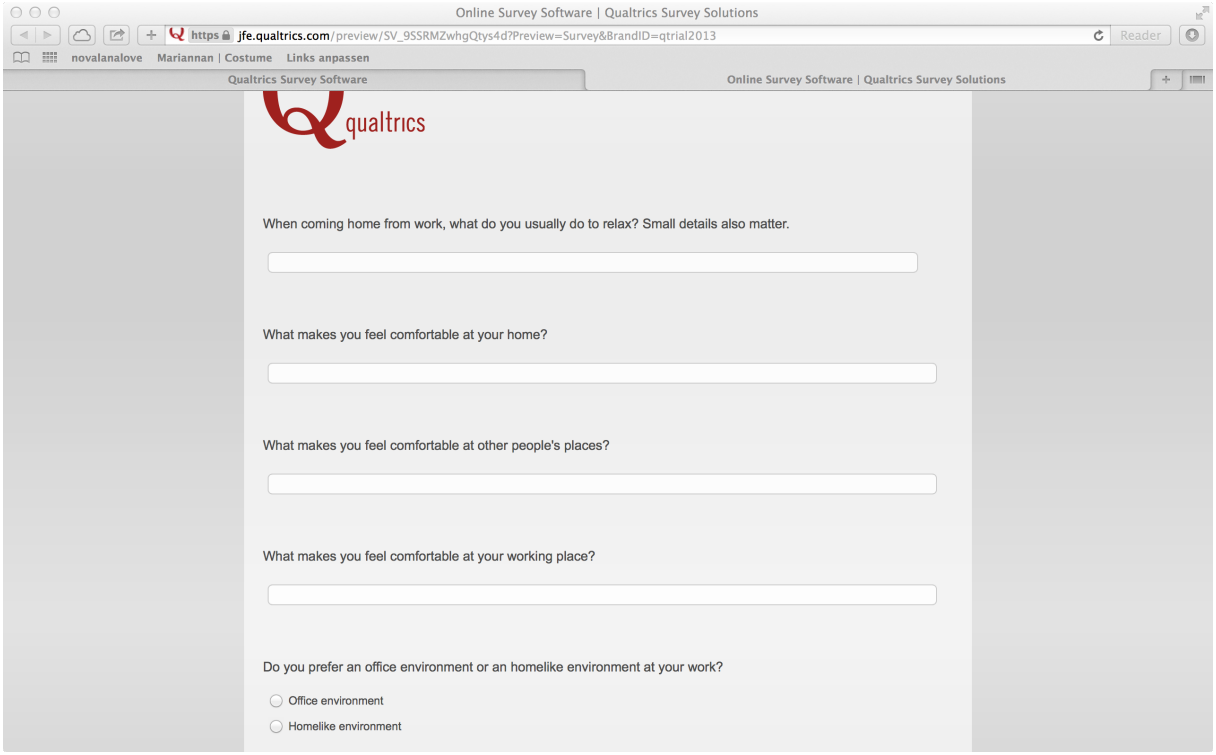
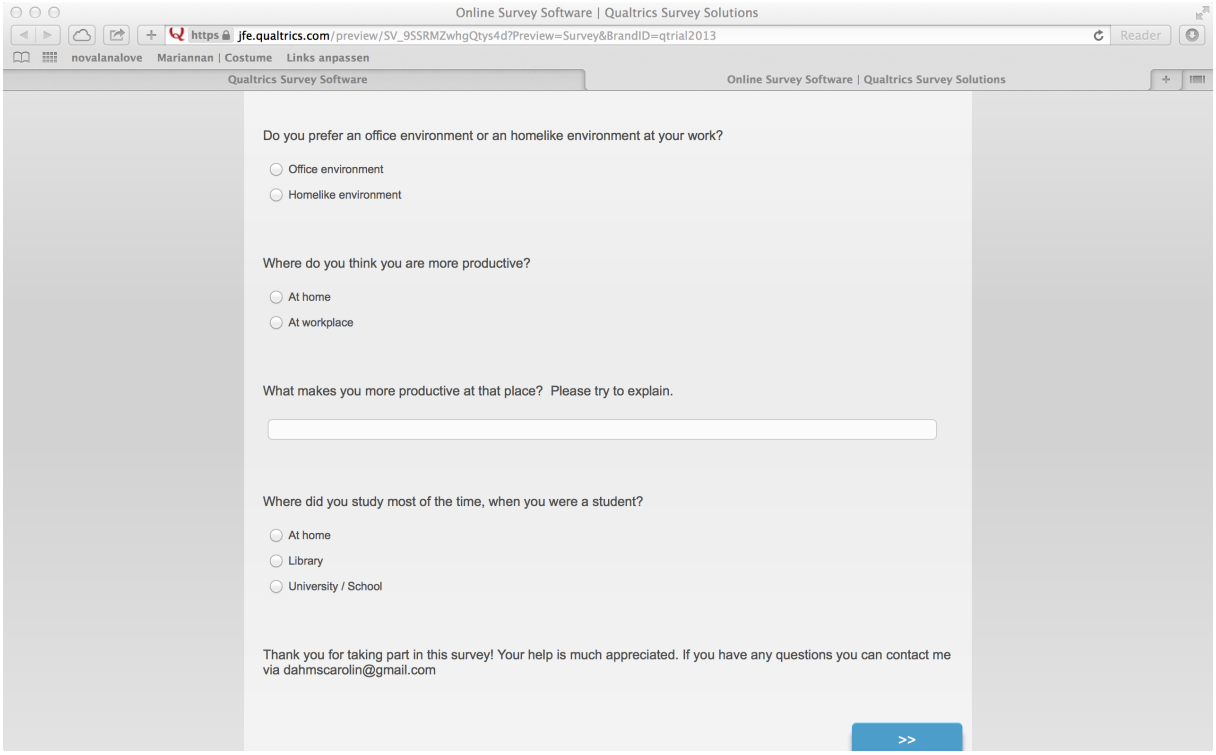
Reader
novalanalove Mariannan | Costume Links anpassen
Qualtrics Survey Software
Online Survey Software | Qualtrics Survey Solutions
At home, which snacks do you prefer to eat?
Sweets
Fruit / Vegetables
At work, do you tend to eat snacks during the day?
Yes
No
At work, which snacks do you prefer?
Sweets
Fruit / Vegetables
At home, do you prefer being alone or having company?
I prefer...
Being alone
Having company
>>





The above pictures show screenshots of the actual questionnaire.

Questionnaire

The following questionnaire was handed to the participants before the experiment.

Dear Participant,

Thank you for taking part in my experiment. You will help me a lot with my Bachelor Thesis. Please write down the answers with the according number.

1. *How old are you?*
2. *What is your gender?*
3. *What do you study?*
4. *How many hours did you sleep last night?*
5. *How many hours do you usually sleep on average?*
6. *Did you visit the doctor within the last 7 days due to an unanticipated illness?*
7. *How often did you visit the doctor within the last year due to an unanticipated illness?*
8. *Did you experience any outside interruptions within the 30 last days?*

Assignments

The following assignments were handed to the participants during the experiment.

1. Creative Assignment

Dear Participants,

In 2012 Tinder was launched, a free phone dating app that is available in 25 countries. Tinder allows its users to judge each other on the basis of their pictures; if both users like each other, they can send messages, if not, they will look at other users. With its simple system, Tinder is exploiting the fear of rejection that each individual has. However since it is so simple, Tinder has no revenue stream.

*Your task is to come up with a **business plan for a dating phone app** that also exploits the fear of rejection but is also able to create revenue. You have **30 minutes** to come up with the business plan for this app with your group. One of you will take notes during your discussion, please also write down the idea or ideas that you came up with before the 30 minutes have passed. Keep in mind that you are asked to also include aspects from a business plan such as customer segment or revenue stream. Make sure to also think of possible costs or who could be your strategic partner.*

*Good luck with your assignment and have fun! I will come back after **30 minutes** to pick up your work.*

2. Non-Creative Assignment

Dear Participants,

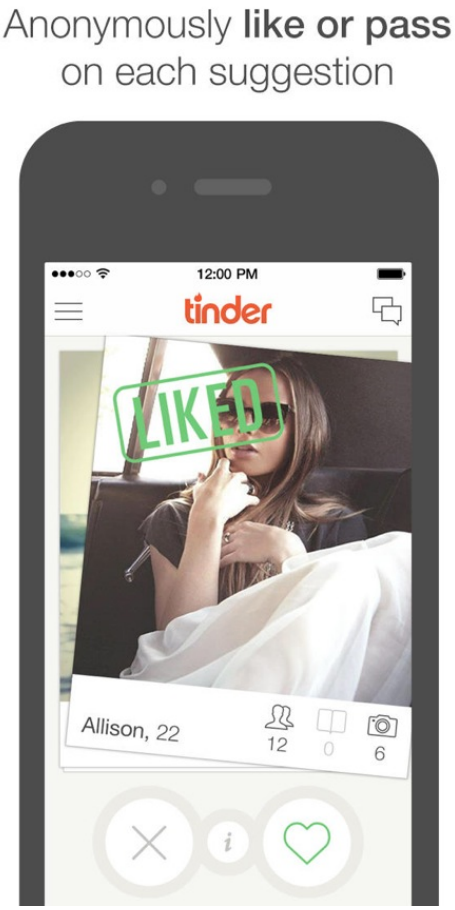
In 2012 Tinder was launched, a free phone dating app that is available in 25 countries. Tinder

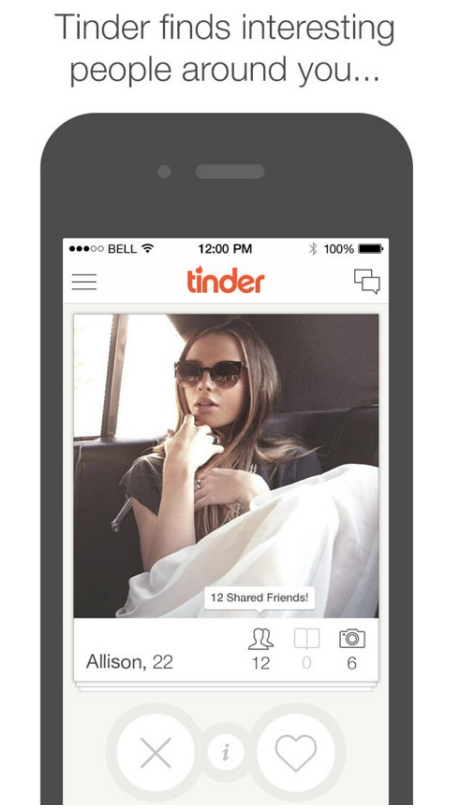
allows its users to judge each other on the basis of their pictures; if both users like each other, they can send messages, if not, they will look at other users. With its simple system, Tinder is exploiting the fear of rejection that each individual has. However since it is so simple, Tinder has no revenue stream.

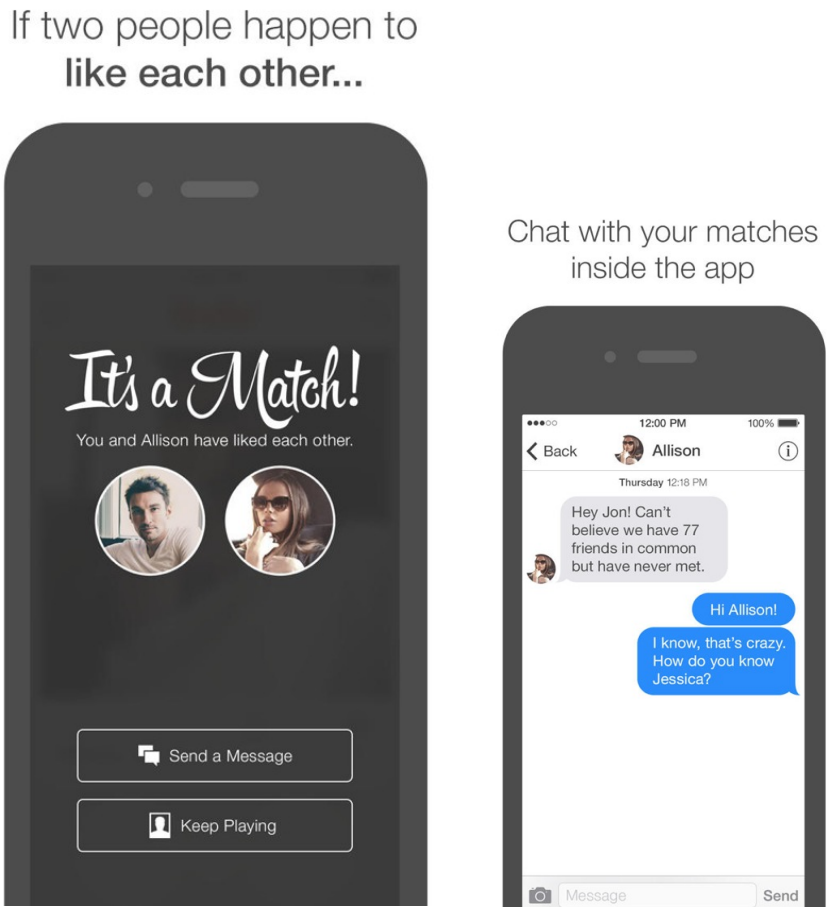
*Please come up with options how **Tinder** could **create revenue**, even if that would mean changing Tinder slightly. You have **30 minutes** to discuss this with your group and write down your ideas. One of you will also take notes during your discussion.*

Below you can find screenshots of the Tinder app in order to get an impression of what it looks like.

*After **30 minutes** I will come back and collect your ideas and notes. Good luck with your assignment and have fun!*







Source: Apple Store

Examples Answers

The following are scans of two answers that were produced by the participants during the experiment.

1. 24
2. Female
3. Marketing
4. 6 hours
5. 7 hours
6. No
7. Never
8. No

* put ads between pictures (8)
* if you find a match, need credit to talk to the person
* location based advertisment
* meet up nearby at these locations then see a list of locations which ~~they can be~~ those places want shown i.e. the bar pays to be on the list and be told the girl is nearby
* premium account so can talk / see more people
* if you have a match and they have a birthday coming up ~~*~~ suggest gift

no benefits + not creative

* if the premium account can have a more extensive profile so know more about the person after you like the picture to see if you do/don't want to chat w/ them
  - turn into more of a dating service
  - people stay on it longer
  - can place ads
  - if you view more than 200 pictures / month have to start paying

* Tinder parties / events where charge entrance fee
* start charging for the app
* ability to video chat / leave video message if have premium account or put some sort of credit on your account so need to pay to use the video chat option
* after ~~chatting~~ two people chat for a while an automatic message comes up suggesting somewhere to meet at a place nearby
* have ads in basic account + pay for premium (eg €2.00/m) for no ads

- ~~Give~~ a bit of random information, multiple choice questions and see the compatibility score
- see places where people are that you are interested
- the most basic things, like having people who are from your region - for free, but open to other region - for extra cost
  premium for seeing extra information ~~from~~ about other people.

other region - 0.99 ~~cents~~
extra info - 0.99 c

arrangement for coffee point: you specify free time slot and finde place (coffee point, safe place) and then in case you match in time and place, ~~$ at pr~~ revenue should be generated from the restaurants, cafes, cinema, etc.

Market segmet: 18-35, you can select your age gap.

Different approach - chatting for meeting
You give information about your plans to go at some „common place". So you see people who are planning to go to the same place and then you could see pictures of people who have similar plans.

Results Regressions

Hypothesis 1

Grade	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	-.2611544	1.000769	-0.26	0.797	-2.38269	1.860381
Benefits	-1.528889	.9527614	-1.60	0.128	-3.548653	.4908747
CreativexBe~t	1.935385	1.144297	1.69	0.110	-.4904162	4.361185
Age	-.0715236	.1338189	-0.53	0.600	-.355207	.2121598
Gender	-.7426134	.7081218	-1.05	0.310	-2.243764	.7585377
Study	.202404	.3457309	0.59	0.566	-.5305129	.9353208
Sleep	.0296871	.883606	0.03	0.974	-1.843474	1.902848
HoursOfSleep	-.3041272	.3801651	-0.80	0.435	-1.110041	.5017868
Illness	.3147238	1.076883	0.29	0.774	-1.968166	2.597613
Interruptions	-.6730744	.7332826	-0.92	0.372	-2.227564	.8814154
_cons	11.79931	4.140258	2.85	0.012	3.022354	20.57626

Grade	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	-.5	.710302	-0.70	0.489	-1.969372	.9693717
Benefits	-1.541667	.6484141	-2.38	0.026	-2.883013	-.2003199
CreativexBe~t	1.916667	.9617535	1.99	0.058	-.072872	3.906205
_cons	7.875	.5022594	15.68	0.000	6.835997	8.914003

Grade	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	-.3464813	1.857261	-0.19	0.869	-8.33763	7.644667
Benefit	-2.935198	1.619446	-1.81	0.212	-9.903111	4.032715
CreativexBe~t	2.748781	2.092058	1.31	0.319	-6.252617	11.75018
NumberMale	-1.281959	.6725213	-1.91	0.197	-4.175584	1.611667
AverageAge	-.6974418	.5810846	-1.20	0.353	-3.197647	1.802764
HoursSleep	-.2327501	.1423488	-1.64	0.244	-.8452274	.3797272
_cons	27.2357	12.68938	2.15	0.165	-27.3623	81.83369

Hypothesis 2

Creativity	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	1.295316	1.143379	1.13	0.274	-1.128539	3.719171
Benefits	-.0704108	1.08853	-0.06	0.949	-2.377992	2.237171
CreativexBe~t	-.6225854	1.30736	-0.48	0.640	-3.394064	2.148893
Age	-.0900272	.1528882	-0.59	0.564	-.4141357	.2340813
Gender	-.6477676	.8090295	-0.80	0.435	-2.362834	1.067298
Study	.1581427	.3949978	0.40	0.694	-.6792152	.9955006
Sleep	.1835788	1.00952	0.18	0.858	-1.956509	2.323666
HoursOfSleep	-.3868663	.4343389	-0.89	0.386	-1.307624	.533891
Illness	.3299097	1.230339	0.27	0.792	-2.278293	2.938112
Interruptions	-.7933211	.8377758	-0.95	0.358	-2.569326	.9826843
_cons	6.82503	4.730247	1.44	0.168	-3.202645	16.85271

Creativity	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	1	.8019451	1.25	0.225	-.6589498	2.65895
Benefits	-.1666667	.7320724	-0.23	0.822	-1.681074	1.34774
CreativexBe~t	-.5833333	1.085839	-0.54	0.596	-2.829562	1.662895
_cons	2	.5670608	3.53	0.002	.8269453	3.173055

Creativity	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	1.301503	1.691884	0.77	0.522	-5.978087	8.581093
Benefit	-1.512779	1.475245	-1.03	0.413	-7.860247	4.834688
CreativexBe~t	.0854296	1.905774	0.04	0.968	-8.114455	8.285314
AverageAge	-.8444132	.5293429	-1.60	0.252	-3.121992	1.433166
NumberMale	-1.427637	.6126378	-2.33	0.145	-4.063604	1.208331
HoursSleep	-.3081702	.1296736	-2.38	0.141	-.8661106	.2497701
_cons	25.31387	11.55948	2.19	0.160	-24.42254	75.05028

Hypothesis 3

Feasiblity	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	-.8093916	.8850536	-0.91	0.374	-2.685621	1.066838
Benefits	-1.190271	.8425972	-1.41	0.177	-2.976498	.5959549
CreativexBe~t	2.39757	1.011986	2.37	0.031	.2522558	4.542885
Age	-.0328838	.1183459	-0.28	0.785	-.283766	.2179984
Gender	-.6711987	.6262443	-1.07	0.300	-1.998777	.6563798
Study	.2888624	.3057554	0.94	0.359	-.35931	.9370348
Sleep	-.2883956	.7814379	-0.37	0.717	-1.94497	1.368179
HoursOfSleep	-.2478835	.3362081	-0.74	0.472	-.9606127	.4648458
Illness	.5704325	.9523668	0.60	0.558	-1.448495	2.58936
Interruptions	-.4664476	.6484959	-0.72	0.482	-1.841197	.9083023
_cons	8.392434	3.661535	2.29	0.036	.6303264	16.15454

Feasiblity	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	-1	.6341718	-1.58	0.128	-2.311884	.3118844
Benefits	-1.25	.578917	-2.16	0.042	-2.447581	-.0524189
CreativexBe~t	2.5	.8586727	2.91	0.008	.7237001	4.2763
_cons	5.75	.4484272	12.82	0.000	4.822358	6.677642

Feasibility	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Creative	-1.404885	1.712494	-0.82	0.498	-8.773151	5.963381
Benefit	-1.694571	1.493216	-1.13	0.374	-8.119359	4.730217
CreativexBe~t	2.750932	1.928989	1.43	0.290	-5.548838	11.0507
AverageAge	-.2617147	.5357911	-0.49	0.674	-2.567038	2.043608
NumberMale	-.8801507	.6201006	-1.42	0.292	-3.548228	1.787927
HoursSleep	-.2765833	.1312532	-2.11	0.170	-.8413201	.2881535
_cons	15.3366	11.70029	1.31	0.320	-35.00568	65.67887