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# **A problem of a shortage of female managers or a problem of a surplus of male managers?**

**An experiment on the effects of framing on stock-flow failure.**

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## *Abstract*

*This paper aims to add knowledge about solving stock-flow tasks, in particular in the field of personnel policies, by studying the effect of differences in framing of such a task on performance of subjects. Framing is the effect that the formulation of a problem has on ones understanding of and actions towards that problem. Participants in a system dynamics inventory task seem to react differently to a problem when it is formulated in different ways, which in turn might have an effect on the degree of stock-flow failure of the participant. Participants had to perform a variation of the Female Professors task, namely a managers task from a male perspective and a managers task from a female perspective, in which the question asked was the same but the frame of the tasks differed. It appeared that the participants with the managers task from the male perspective recommended on average more extreme numbers in their reasoning than the participants with the managers task from the female perspective. There was no difference in stock-flow failure between the two groups of participants.*

*Key words: framing effect, stock-flow failure, system dynamics inventory task*

## **Introduction**

During the last couple of decades personnel management has become a topic of growing theoretical attention. Human resource management is a term that is often used to emphasize the importance of high quality personnel management in organizations. One of the perspectives underlying this trend is the Resource Based View of the firm (Barney, 1991). This perspective states that an organization has internal resources that can enable a competitive advantage for the organization. The personnel base is a part of these internal resources, and because of that a thorough selection of high quality personnel is necessary in order to achieve a competitive advantage. Regarding the selection of personnel in organizations, the selection of women in high positions is a topic that has gained a lot of attention lately. Considering this, the Dutch government introduced policies to increase the amount of women in higher positions in organizations in the Netherlands. In 2008 the so called Charter "Talent to the Top" was introduced, a voluntary agreement between the government and public or private organizations, in which organizations set target figures for the number of women in higher positions in their own organization (Bleijenbergh, Van Engen, Vennix & Jacobs, 2011).

The introduction of target figures for hiring women can ensure an increase in the quality of personnel because specific goals are set (Dahlerup, 2009). It is measurable if the targets have been achieved and, if not, what needs to be done. Nevertheless, introducing quota, especially gender specific quota, is not an easy job. There are advantages and disadvantages involved in the process. The most important disadvantages are the following. First of all, gender quota could be considered discriminating, because they would appear to favor female candidates for jobs compared to male (Bleijenbergh et al., 2011). People may assume that, in principle, it would be easier for women to get a high position in the organization than it is for men. Secondly, with gender quota an organization might give the impression that candidates are being selected based on their gender instead of their competencies. Thirdly, introducing gender specific quota can cause conflicts within the organization, which is not favorable for the cooperation of the employees. On the other hand, there are advantages also. Quota can compensate for the barriers women usually experience in a not entirely emancipated society when aiming for a high position. Introducing

quota also makes the selection procedure more transparent, which can potentially improve the trust of the employees.

In practice, organizations tend to be very good at establishing quotas, but compliance to these quotas seems to be difficult. There appear to be large differences between the number of women that should be in high positions according to the quota and the number of women that are actually employed in these high positions. A possible reason for this difference is the fact that managers do not seem to be able to translate the quota into the real number of women they should hire to accomplish the target within a given time frame. To shed more light on this Bleijenbergh et al. (2011) conducted a stock-flow experiment with the so-called Female Professors task.

### **The Female Professors task**

So far a number of experiments on stock-flow tasks have shown that most people have quite some difficulties in solving stock-flow tasks correctly (Sterman & Booth Sweeney, 2002). The Female Professors task is also a stock-flow task, albeit with a different underlying structure. In the Female Professors task, participants were asked to recommend a hiring percentage of female professors they thought necessary to reach gender balance in an unbalanced personnel situation and to estimate the timeframe needed to reach this goal. The difference between this task and the stock-flow tasks performed before is twofold. Firstly, the Female Professors task focuses on a social relevant issue. Secondly, the problem that the participants have to face entails not only the in- and outflow plus the stocks, but also two stocks that are interdependent. This adds a new difficulty to the task.

The social relevant aspect of the Female Professors task resulted in participants showing the tendency to provide politically loaded arguments in their reasoning process, rather than numerical ones. Furthermore, the researchers found that the participants in general underestimate the time needed to accomplish the target. There was no correlation found between recommended percentage and target year over all. This paper will examine if the frame in which a problem is formulated influences the understanding of participants of the task.

### **The framing effect**

A frame is the perspective in which a certain problem is formulated. Because human reasoning is not perfect, change of perspective in the problem statement will cause the assumption that certain options are relatively more favorable than other options (Tversky & Kahneman, 1981).

An important theory in the field of rational decision-making is the expected utility theory. This theory states that, when a person has to choose between multiple insecure options, he or she will choose the options with the highest expected value (Scott, 2009). The fundament of this theory is based on four assumptions, namely elimination, transitivity, dominance, and invariance (Tversky & Kahneman, 1986). Framing affects the last one. As Tversky and Kahnemann (1986) state: “Failures of invariance are explained by framing effects that control the representation of options, in conjunction with the nonlinearities of value and belief”. This causes people to fail to make a rational decision and explains why normative decision models, that presume invariance, do not give an adequate representation of decision behaviour (Tversky & Kahneman, 1986).

Frisch (1993) defines framing as follows: “The term *framing effect* refers to the finding that subjects often respond differently to different descriptions of the same problem”. Various experiments have been conducted showing the existence of framing effects in choice and decision making tasks (Tversky and Kahneman 1981;.....). This study combines the idea of stock-flow tasks, more in particular the Female Professors task, with the idea of framing.

The goal of this paper is to gain insight in the difference between estimated percentages of women to hire and men to hire when a gender balance needs to be created in an organization. For this purpose two versions of the original Female Professors task were developed. In one version of the task the question is how many women to hire while in the other version the question is how many men to hire to reach the same goal. In both tasks the baseline will be that the workforce consists 11% women or 89% men. In this paper we will thus answer the following research questions.

*What are the differences between the estimated percentages women to hire respectively men to hire to achieve a gender balance between two groups of participants that are confronted with different frames of the same task?*

*What are the differences between the two groups in the estimated target year in which this gender balance will be achieved assuming the hiring percentages the respondents came up with?*

## **Method**

### **Participants**

The tasks have been performed by two groups of participants, one group consisted of students business administration and the other group consisted of students public administration, both at Radboud University Nijmegen. In total there were 120 participants that performed the tasks. In both the groups there were students that performed the task with the female frame as well as students that performed the task with the male frame.

As former research shows, it does not matter for the performance of participants if they are enrolled in university, have some working experience, or even if they had a short course on system dynamics (Pala & Vennix, 2005). You could say that any person could be selected to perform the tasks. Nevertheless, students business administration and public administration have been chosen for this experiment because of their background. They are expected to be the future managers that will be dealing with this kind of issues.

### **Design and procedure**

#### **Tasks**

For this experiment two 'managers tasks' have been developed; one of them formulated from a female perspective and the other one from a male perspective. The Female Professors task (Bleijenbergh et al., 2011) served as a base for the tasks used. To estimate the influence of framing on the performance of participants on this task, the task has been adjusted. Changes concerned formulating the task in a more neutral context outside academia, in order to exclude any side effect in the understanding of the participants of the task. Also, a variation of the task was formulated, where the problem was framed from the perspective of a surplus of men rather than a shortage of women, in order to compare the stock-flow failure between groups of participants that solve the tasks within different frames.

The stock-flow model that represents the problem the participants had to face with a system dynamics approach is a model that consists of two stocks, namely a stock with male managers and a stock with female managers. These two stocks are interdependent. Because the total number of managers is kept stable at 300, an enlargement of one of the two stocks will inevitably cause a decline of the other and vice versa. Furthermore, both stocks have one inflow (the number of male/female managers being hired per year) and one outflow (the number of male/female managers leaving per year). This simple stock-flow structure looks like this.

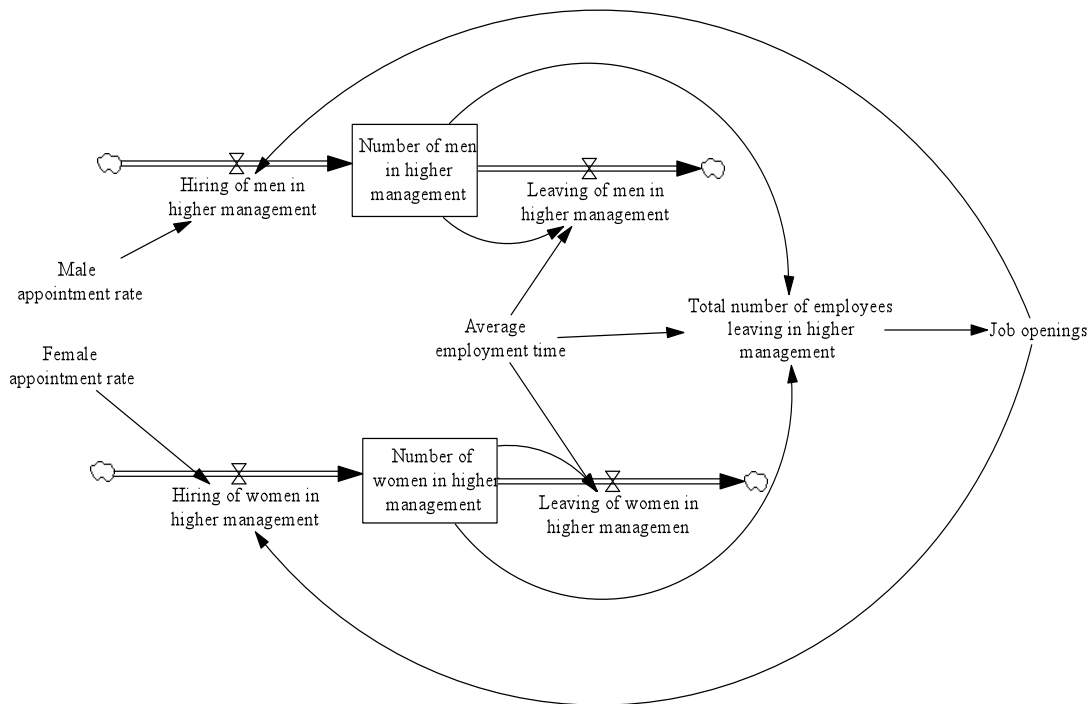


Figure 1: the model

The participants get the information that a manager holds a position for an average of ten years. This means that the outflow of both stocks is 10%. The initial values of the stocks are also given, since the participants know there is an 89% of 300 managers male workforce and an 11% of 300 managers female workforce. The inflows can be calculated by taking the hiring percentage of women or men the participants suggest themselves and multiply it by the number of job openings (which is 10% of 300 yearly).

### Frame

As stated two different tasks have been formulated. One of the tasks is formulated from a female perspective, the other from a male perspective. In task A, which is the task with the female perspective, the question asked to the participants is which

percentage of the new managers per year should be women considering there is a need to achieve a gender balance in top management and top management currently exists for 11% of women. Subsequently the question is asked when the participants think this gender balance will be achieved considering the percentage of female managers they suggested will be hired each year. In task B, which is the task with the male perspective, the question asked to the participants is which percentage of the new managers per year should be men considering the organization wants to achieve a gender balance in top management and top management currently exists for 89% of men. Subsequently the question is asked when the participants think this gender balance will be achieved considering the percentage of male managers they suggested will be hired each year.

These tasks can be used to formulate statements about the effect of framing on the performance of participants on stock-flow tasks because the tasks describe the exact same situation. In task A the information is given that 11% of the higher management exists of women, which implicitly means that 89% exists of men. In task B the information is given that 89% of the higher management exists of men, which implicitly means that 11% exists of women. The only difference between the tasks is thus that the problem is being described from two different perspectives, which is exactly what the framing effect is all about.

## **Data analysis**

A qualitative analysis has been performed to determine the reasoning processes of the participants for both tasks. An analysis of the given percentages of participants has been performed, even as an analysis of the year the participants think the gender balance will be reached.

SPSS (16.0) was used in order to perform the statistical analysis of data in this experiment. The program was used to calculate frequencies of the percentages the participants suggested and t-tests were performed to test if there were significant differences between the average percentage chosen by participants in the task from the female perspective and by participants in the task from the male perspective.

The software Vensim was used to build the system dynamics model, in order to analyze what the development of the gender division in the higher positions would be over the years when hiring a certain percentage of male/female managers.



### **Recommended hiring percentages**

The participants were asked which percentage male or female managers they would hire on yearly bases to achieve a gender balance in the long run. Whether participants are able to understand the relationship between stocks and flows partly depends on the percentage chosen for this yearly rate. The current employee situation, as stated in the tasks, is unbalanced with 11% female managers and 89% male managers in top management. To achieve a gender balance, the percentage of female managers should be increased and thus the hiring percentage for female managers should be at least 50%. The opposite counts for the percentage of male managers. Since this percentage needs to be decreased, the hiring percentage for male managers should be at highest 50% in order to achieve a gender balance.

Most participants were able to state a percentage with which a gender balance would be achieved in the long run. Only 7.6% of all participants stated an appointment rate with which a gender balance would never be achieved. This is much lower than the results from the Female Professors task, in which 33.9% of the participants was not able to estimate a sufficient hiring percentage.

To summarize, in general participants are able to understand which appointment rates lead to an increase in female managers or a decrease in male managers. Similar outcomes were gained in the bathtub task (Booth Sweeney & Sterman, 2000), where participants were able to point out the moments that the inflow and outflow of water in the bathtub were the highest, and in the department store task (Cronin & Gonzalez, 2007), where participants were able to point out the moments that the most clients entered or left the store. Although this is a good starting point, it does not provide us with information about the performance of the participants on stock-flow tasks.

### **Differences between recommended hiring percentages**

To estimate whether a certain frame affects the performance of participants on the stock-flow task, the absolute differences between the given percentages should be taken into consideration first. It appeared that participants very rarely mentioned the most logical numbers, namely 0% for the hiring percentage for men and 100% for the hiring percentage for women. The group of participants that performed the task from the male perspective recommended on average a higher appointment rate than the

group that performed the task from the female perspective, when this percentage was translated in a hiring percentage for women. The average appointment rate chosen by participants that performed the task from the female perspective is 68.3% ( $SD=22.2$ ). The average appointment rate chosen by participants that performed the task from the male perspective was 21.2% ( $SD=18.4$ ) (which is equal to 78.8% female manager annually). A t-test shows that the recommended percentages in the task from the male perspective were statistically higher than the recommended percentages in the task from the female perspective:  $t(87)=-3.140, .002<.01$ . The results are summarized as follows.

**Recommended percentages for the managers task with a female frame**

<b>Recommended percentage</b>	<b>Percentage</b>	<b>Interpretation of result</b>
0-49	10.2	Underestimation of percentage
50 (exact)	27.1	Correlation heuristic
51-100	62.7	Sufficient understanding of the stock-flow task

**Recommended percentages for the managers task with a male frame**

<b>Recommended percentage</b>	<b>Percentage</b>	<b>Interpretation of result</b>
0-49	80.0	Sufficient understanding of the stock-flow task
50 (exact)	16.7	Correlation heuristic
51-100	3.3	Overestimation of percentage

Table 1: Recommended hiring percentages

**Performance on year stated by participants**

When a participant recommends a realistic percentage, that means the participant states a percentage with which a gender balance can be achieved in the long run, a corresponding year can be stated in which this balance should be achieved. In order to be able to calculate this year correctly, the participant must be able to understand the stock-flow model that was presented before. The first step in the reasoning process the participant has to take, is the understanding of the fact that the model contains two stocks that are interdependent and that both these stocks not only have an inflow, but also an outflow. The second step in the reasoning process of the participants would be to calculate how many female/male managers enter top management, how many female/male managers leave top management and how many female/male managers are in top management by the end of each year. In general, the participants

underestimated the average time it takes for the gender balance to be reached, which is consistent with the outcomes of the Female Professors task (Bleijenbergh et al., 2011). The performance on the year stated by the participants does not seem to differ between the groups, but a t-test has shown that this is not significant:  $t(86) = -1.335, .185 > .01$ . The results from the participants with the different tasks have been summarized as follows.

**Estimated target year for the managers task with a female frame**

<b>Estimated number of years</b>	<b>Percentage</b>	<b>Interpretation of result</b>
1-9	70.7	Underestimation of delay
10 (exact)	22.4	Misperception of delay
11-20	6.9	Possibly sufficient understanding of the stock-flow task

**Estimated target year for the managers task with a male frame**

<b>Estimated number of years</b>	<b>Percentage</b>	<b>Interpretation of result</b>
1-9	93.3	Underestimation of delay
10 (exact)	3.3	Misperception of delay
11-30	3.3	Possibly sufficient understanding of the stock-flow task

Table 2: Estimated number of years before target will be reached

As concluded in the experiments of Bleijenbergh et al. (2011) as well as Jacobs et al. (2011) considering the Female Professors task, there is a severe underestimation of the outflow of the stocks among participants. This was also apparent in the current experiment, a relatively high number of participants either underestimate the year in which a gender balance will be achieved, or state that the whole stock of top management will be emptied within 10 years and thus the gender balance will be reached after 10 years. Noticeable is the fact that this misperception of the outflow seems to be less frequent among the participants that performed the task with the male frame.

**Reasoning process of participants**

In order to understand why participants in general perform so poorly on stock-flow tasks, it is important to take a better look at the reasoning process of the participants. As was concluded in the Female Professors task performed by Bleijenbergh et al.

there is a high need for qualitative research to understand the motives of participants in their reasoning process.

Contrary to the results of the Female Professors task, most arguments for the given percentage and estimated target year used by participants that performed the task from the female perspective in this experiment were numerical. Fifty-three percent of the arguments given by participants in the managers task from the female perspective was numerical, which means that only 47% of the arguments given was 'politically loaded'. Although this is a small difference in favor of the numerical arguments, it is remarkable since the arguments in the Female Professors task consisted for 68% of politically loaded arguments. The arguments given by the participants performing the task from the male perspective consisted for 56% of numerical explanations,. This shows that a task that has been formulated in a more neutral manner might trigger participants to use numerical arguments in their reasoning process rather than politically loaded arguments.

Some remarkable outcomes were deducted from the reasoning processes of the participants. The first remarkable outcome can be noticed when comparing the performance of participants that gave only a numerical explanation with the performance of participants that gave a numerical explanation in combination with a politically loaded argument. Remarkable is that the most mistakes in reasoning were made by participants that only gave a numerical explanation. Although these participants stated a higher appointment rate on average, their prediction of the target year was worse than the prediction of the target year of the participants that gave a politically loaded argument as a base for their numerical explanation. This holds for the participants of the task from a female perspective as well as for participants of the task from a male perspective. The second remarkable result was the fact that not one participant of the male-framed task made the explicit remark that the whole stock would be emptied within 10 years. The argument that the stock will be emptied within 10 years is an example of the fact that people seem to have specific troubles with continuous delays and thus reason with concrete delays, which was also concluded by Jacobs et al. (2011). Where 24% of the numerical explanations of participants with the female-framed managers task holds the argument that 'within 10 years the whole employee base will be renewed', not a single explanation that contained this specific misperception of outflow was found in the sample of participants that performed the

task with the male frame. Examples of this kind of argumentation of the participants are as follows.

Participant 23 (male, female-framed task, 50%, 2022): "Within 10 years the total personnel base will be replaced. When you start hiring 50% women right now, your goal will be reached after 10 years."

Participant 45 (male, female-framed task, 50%, 2023): "You do not know if there are male or female managers leaving. For that, you have to hire 50% female and male managers annually and then after 10 years you will have a renewed personnel base with 50% female and 50% male managers."

The third outcome of the experiment that was not found in the Female Professors task performed by Bleijenbergh et al. (2011), or by Jacobs et al. (2011) was the organizational culture - argument that was stated in a couple of explanations. Initially the arguments of participants in this experiment have been grouped into the same groups as were used to analyze the performance of participants in the Female Professors task (Bleijenbergh et al., 2011), namely 'quality of the applicants', 'equal treatment of men and women', 'women's (lack of) career motivation', 'need to compensate for present inequalities', and 'numerical explanations'. On top of these arguments 14% of the explanations of participants in this experiment contained a specific notification that it might be problematic for the organizational culture to hire a high number women at once. Twenty-three percent of the participants with the male-framed managers task pointed this out, as well as 13% of the participant with the female-framed managers task.

Participant 65 (male, female-framed task, 70%, 2022): "In my opinion it is too rigorously to replace all managers for female managers immediately. 70% is a reasonable amount with which it is possible to replace managers. It is a cultural change for the organization and this needs to be done carefully. 10 years is a nice period to achieve such a change."

Participant 113 (female, male-framed task, 50%, 2020): "In my opinion it is not a good idea to just hire women at once, then it is a sudden invasion. You should just bring the change slowly and make the goal carefully clear."

## **Conclusions**

Based on the experiment that has been presented in this paper conclusions can be drawn according to the difference in hiring percentage participants state when confronted with a managerial stock-flow task, as well as conclusions according to the difference in stock-flow failure between groups of participants with differently framed stock-flow tasks. The emphasis has been on the reasoning process of participants, since we want to contribute to the knowledge about framing on the reasoning process.

The first conclusion that can be drawn is the fact that participants with a male-framed managers inventory task seem to state more extreme appointment rates than participants with a female-framed managers inventory task. The difference in average absolute appointment rate between the participants that performed the male-framed task and participants that performed the female-framed task is significant.

The second conclusion that can be drawn is the fact that there does not seem to be any clear difference in stock-flow failure between participants that performed the female framed managers task and participants that performed the male framed managers task. This could mean that the frame in which a problem is formulated does in fact influence the reasoning process of participants, but does not significantly influence the outcome of the reasoning process.

The third conclusion that can be drawn according to the experiment is the fact that participants that were asked to state a hiring percentage for women seemed to be triggered to use concrete delays in their reasoning process more explicitly than participants that were asked to state a hiring percentage for men. As followed from the experiment of Jacobs et al. (2011) the outflow was the most problematic part in the reasoning process of participants, which means that this is the part of the stock-flow failure of participants that needs extra attention in order to improve peoples' understanding of stocks and flows.

The last conclusion that can be carefully drawn according to the experiment is that participants are more concerned about the organization and the influence a certain

quota for personnel has on the organizational culture in the neutralized task that has been performed in this experiment than is the case in the original Female Professors task, where participants were more concerned with the questions if it would be fair towards the applicants and if the applicants that would be hired would be qualified enough. By framing the task in the context of a more neutral organization, it seemed that the emphasis moved from the individual to the organizational perspective. In our opinion, the organization should be the most important perspective when evaluating gender-based target figures, not the individual.

## **Limitations**

A couple of limitations have to be stated that weren't taken into account when analyzing the results and drawing conclusions.

First of all, whether the gender of the participants had an influence on their perception of the stock-flow task hasn't been analyzed. For this, we cannot state if male participants have a lower/higher/equal incentive to higher more female managers than do the female participants.

Secondly, it hasn't been examined whether the participants of the male managers task experienced an extra mathematical difficulty since they had to decrease the number of men instead of increasing the number of women. Knowledge about the perception of such a difficulty is important because it might influence the outcome of the task based on another reason than purely effect of framing.

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## **Appendix A: Managers task from a female perspective**

The Board of Directors of a large organization has decided that they want the higher management to consist for 50% of women and for 50% of men, because that will make the higher management to form a better representation of the customer base of the organization. This will increase customer satisfaction. At this moment the personnel base of the higher management exists for 11% of women. This means that the percentage of women in higher management needs to be increased.

There are 300 positions available in higher management. Because of the bad economic conditions, there will not be any positions added in the upcoming years. The total number of positions will thus remain 300 in the upcoming years. Male and female graduate students business administration are, and will be, largely available at the labor market. Attracting new managers thus will not cause a problem for the organization.

At this moment 33 female managers and 267 male managers are employed in the organization. On average a manager will retain his or her position in higher management for a timespan of 10 years, before he or she leaves the company or is promoted, so a new manager can be hired on that position. This means that 10% of the managers leaves per year and there thus will be 30 job openings yearly. As stated before, the target is to have the higher management consisting for 50% of women and for 50% of men in the long run.

In the Board of Directors there has been a long discussion about the strategy to follow to achieve this goal and the members have been convinced that they should implement a quota. This means that they impose the different divisions that, starting from the year 2013, of all *new hired managers* a certain percentage should be female. You have been hired as a consultant by the organization and as such you had a couple of meetings with them in which you got convinced that the strategic choice they are making is the right one. This is partly due to the fact that research has proved that men and women in management perform equally well.

The Board of Directors has asked you to advise them on the percentage of women to hire per year. Furthermore, the Board of Directors would like to know when you think the goal (50% male and 50% female managers in higher management) will be reached when the percentage advised by you will be used.

Could you now answer the questions below?

Which percentage of women do you advise to hire per year? \_\_\_\_\_ %

When do you think the goal will be reached when the percentage advised by you will be hired yearly? In the year 20\_\_\_\_\_

Could you explain your answers below?

*To what extent do you agree on the strategic choice of the organization to aim for 50% women and 50% men in higher management?*

strongly disagree                      disagree                      neutral                      agree                      strongly agree  
                                                                                                                                                       

*What was the task you had to perform?*

The percentage of men:

strongly decrease                      decrease                      keep equal                      increase                      strongly increase  
                                                                                                                                                       

*Finally, we would like you to fill out some personal information:*

Gender:            male  / female

Year of birth: 19\_\_\_\_\_

Study:

*Thank you for your cooperation!*

## Appendix B: Managers task from a male perspective

The Board of Directors of a large organization has decided that they want the higher management to consist for 50% of women and for 50% of men, because that will make the higher management to form a better representation of the customer base of the organization. This will increase customer satisfaction. At this moment the personnel base of the higher management exists for 89% of men. This means that the percentage of men in higher management needs to be decreased.

There are 300 positions available in higher management. Because of the bad economic conditions, there will not be any positions added in the upcoming years. The total number of positions will thus remain 300 in the upcoming years. Male and female graduate students business administration are, and will be, largely available at the labor market. Attracting new managers thus will not cause a problem for the organization.

At this moment 33 female managers and 267 male managers are employed in the organization. On average a manager will retain his or her position in higher management for a timespan of 10 years, before he or she leaves the company or is promoted, so a new manager can be hired on that position. This means that 10% of the managers leaves per year and there thus will be 30 job openings yearly. As stated before, the target is to have the higher management consisting for 50% of women and for 50% of men in the long run.

In the Board of Directors there has been a long discussion about the strategy to follow to achieve this goal and the members have been convinced that they should implement a quota. This means that they impose the different divisions that, starting from the year 2013, of all *managers newly hired* a certain percentage should be male. You have been hired as a consultant by the organization and as such you had a couple of meetings with them in which you got convinced that the strategic choice they are making is the right one. This is partly due to the fact that research has proved that men and women in management perform equally well.

The Board of Directors has asked you to advise them on the percentage of men to hire per year. Furthermore, the Board of Directors would like to know when you think the goal (50% male and 50% female managers in higher management) will be reached when the percentage advised by you will be used.

Could you now answer the questions below?

Which percentage of men do you advise to hire per year? \_\_\_\_\_ %

When do you think the goal will be reached when the percentage advised by you will be hired yearly? In the year 20\_\_\_\_\_

Could you explain your answers below?

*To what extent do you agree on the strategic choice of the organization to aim for 50% women and 50% men in higher management?*

strongly disagree                      disagree                      neutral                      agree                      strongly agree  
                                                                                       

*What was the task you had to perform?*

The percentage of women:

strongly decrease                      decrease                      keep equal                      increase                      strongly increase  
                                                                                       

*Finally, we would like you to fill out some personal information:*

Gender:            male  / female

Year of birth: 19\_\_\_\_\_

Study:

*Thank you for your cooperation!*

## Appendix C: Model equations

Average Employment Time

Unit: Years

Value: 10

Number of Women in Higher Management

Unit: Managers

Initial value: 33

Number of Women in Higher Management (t) = Number of Women in Higher Management (t-dt) + (Hiring of Women in Higher Management – Leaving of Women in Higher Management) \*dt

Number of Men in Higher Management

Unit: Managers

Initial value: 33

Number of Men in Higher Management (t) = Number of Men in Higher Management (t-dt) + (Hiring of Men in Higher Management – Leaving of Men in Higher Management) \*dt

Female Appointment Rate

? (fraction) (to be determined by participants)

Male Appointment Rate

? (fraction) (to be determined by participants)

Hiring of Women in Higher Management

Unit: Managers / year

Job Openings\* Female Appointment Rate

Hiring of Men in Higher Management

Unit: Managers / year

Job Openings\* Male Appointment Rate

Leaving of Women in Higher Management

Unit: Managers / year

Number of Women in Higher Management/ Average Working Period

Leaving of Men in Higher Management

Unit: Managers / year

Number of Men in Higher Management/ Average Working Period

Job Openings

Unit: Managers / year

Total Number of Employees Leaving in Higher Management

Total Number of Employees Leaving in Higher Management

Unit: Managers / year

(Number of Men in Higher Management / Average Employment Time) + (Number of Women in Higher Management / Average Employment Time)