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Change of Mind Through Priming: An Empirical Study of How Future-Oriented Decision-Making is Influenced by Planning

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Abstract. People often make decisions based on both immediate needs and possible future consequences. This study investigates whether future-oriented priming can influence decision-making. Thinking about future consequences is essential because many everyday decisions can affect a person's future. Six participants aged 27–29 took part in the study. They completed 18 everyday decision-making situations before and after the intervention, encouraging the participants to think about their future selves and long-term consequences. Five participants were more future focused after the intervention. One participant showed a slight decrease. The amount of change differed among participants and decision-making domains. Some participants changed more in long term planning, emotion, spending, sleep or attention. These results suggest that priming for the future may influence decision-making. It may increase the salience of future consequences in decision making. However, the scenarios may not fully reflect real-life decisions either. Future research could use more participants and more realistic everyday scenarios. In general, the results support the idea that future-oriented priming can influence future-oriented decision making.

Keywords: Future-oriented decision-making, Future-self priming, Priming, Decision-making, Long-term planning

1. Introduction

People are often forced to choose between the immediate gratification of rewards and the long-term benefits for their lives. Future-oriented decision-making is the consideration of the future in a choice. It refers to the ability of executives to set goals and achieve them through organisation, behaviour modification, etc. Therefore, in light of the above, delay of gratification is relevant to behaviour changes by individuals. Delay of gratification is the capacity to forgo an immediate reward in favour of a more beneficial outcome in the future. Looking ahead is necessary in daily life because many of the choices people need to make require balancing and considering what will be more advantageous in the future by thinking about the present. For example, a person with a delay of gratification might choose to do a task that is not enjoyable now because there will be a long-term reward later [1].

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Reasons for change can be internal or external to the organisation. External factors such as the situation and environment of the decision-making process can alter people's behaviour in different circumstances. Motivation, emotion and other reasons in one's own life can lead to changes in behaviour. Priming can also be employed to change people's minds. Priming can increase the visibility of some ideas or thoughts prior to a decision. According to Bayes's Theorem, people base their decisions on past experience and expectations; when they learn of new information, these expectations may change. Priming may be able to do so by enhancing the importance of a certain idea in people's minds before they make a decision [2].

Does the prospect of the future change people's behaviour in daily life, according to this study? Considering the future, one will be aware of the possible results of one's choices and therefore wish to achieve a good long-term outcome. I believe that after the priming intervention, the participants will choose the options that are more beneficial to them in the long run. However, the results of different kinds of decisions would be different. Stable characteristics are those that have become habits and are not expected to change much or at all. Context-dependent decisions that require long-term planning and persistence are expected to be modified in the future-oriented answers [3].

2. Methods

2.1. Participants

The study included six participants, with three females and three males, aged 27–29. All participants volunteered to take part in the study and were informed that their data would only be used for this study.

2.2. Procedure & design

The experiment included 18 everyday decision-making scenarios across six dimensions: sleep and daily habits, attention and phone distraction, task persistence, spending decisions, emotion control, and long-term planning. For each dimension there were three scenarios. Participants were given a choice between two options, one of which was a more future-oriented choice, the other a more immediate choice. The scenarios covered common situations involving study and sleep habits, distractions, persistence with difficult tasks, spending and saving, emotional responses, and planning for future academic goals.

The experiment was done using PsychoPy to study how thinking about the future may affect decision-making [4]. 6 participants took part in the experiment. The experiment was divided into 3 different sections: pre-test, intervention, and post-test. A pre-test is administered to determine how participants will make decisions in the absence of thinking about the future. Then, the intervention was used to have the participants think more about their future selves and the long-term consequences of their choices. Then, the post-test was administered to observe whether there had been any changes in their decisions and thinking.

They were told to sit in front of a computer, select one of the answers by pressing the left or right button, and then it would display their selection. Read the situations of all the questions aloud and have the students choose between A and B. The choices of the respondents were based on their estimation of which option they would choose. A total of 18 questions on daily life circumstances related to sleep, mobile phone use, spending, emotions and long-term goals were developed [5].

First, the participants were asked to complete a pre-test of 18 questions on their daily decisions. Then they were asked to choose the option they thought was most likely in each case.

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After this the participants were given 10 seconds to read a scenario asking them to think about their future self and that they should consider the long-term effects of the answers they choose for the following questions.

The post-test was the same as before, but the order of the questions had been randomly arranged. Record the answers of the pre-test and post-test and compare them with what was learned through priming.

Figure 1 shows the number of future-oriented decisions made by each participant in the pre-test and post-test. Most of the participants made more forward-looking decisions after the intervention. Participants 1, 2, 3, 4 and 6 increased the number of their future-oriented decisions; Participant 5 showed a slight decrease. Participant 6 had the greatest increase and rose from 13 decisions in the pre-test to 18 in the post-test.

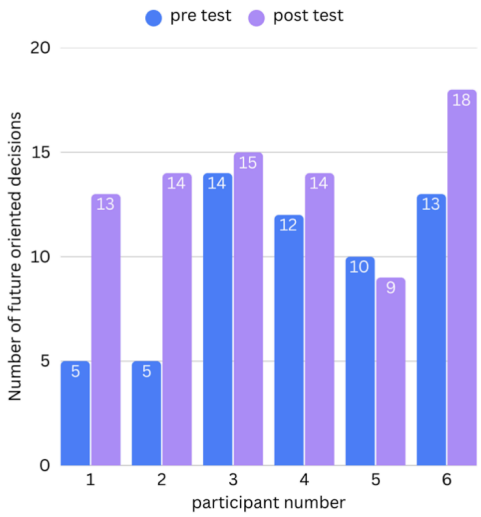


Figure 1. Participant number detail

This study also reports the number of future-oriented choices made by each participant in the six different decision types. Overall, the future-oriented choices in most categories increased after the intervention. Many of the participants showed an increase in the long-term planning section; some did not change at all.

3. Results

Based on the above results, I have combined the data from all six participants to create a bar chart showing the number of future-oriented decisions each participant made before and after the intervention. Based on the above results, most of the participants made more future-oriented decisions after the intervention than before.

Figure 1 shows the total data from the six participants on the number of future-oriented choices before and after priming. The x-axis is the 6 participants, and the y-axis is the number of future-oriented decisions they made. All 18 of the questions proposed by the participants could be selected, and thus more forward-looking decisions were made. Participants 1, 2 and 6 showed the most significant changes after the intervention. Participant 1 and Participant 2 increased their numbers of future-oriented decisions to 13 and 14, respectively. Participant 6 had the highest number of future-

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oriented decisions after priming, at 18 choices. Therefore, Participant 6 selected all of the future-oriented responses after the priming.

The six specific findings of the problem are listed below. Help to show which parts of the decision-making changed the most after future-self priming [6].

Participant 1 showed a significant increase after the intervention. The three most damaged areas are task persistence, emotion, and long-term planning; therefore, only one-third of the future-oriented answers have been generated, and now three-quarters have been achieved.Long-term planning was one of the dimensions I believed people would be more affected by after the intervention since it is "long term" and the intervention was for them to think about their future self. They would be more likely to choose a future-oriented answer for long-term planning because the scenario already asks you to think of something that might be approaching and coming later on. I believe that participants had an increase in task persistence because the scenarios might affect you later on. However, if you are thinking about the moment right now, somebody may not choose to change anything. But after priming, most participants would have an increase in their choices to alter and go more towards the future and think about the consequences. The increase in the emotion dimension might be because they had to control it for the long term and think about the consequences they have to deal with later on. If they choose to control their emotions, it would benefit them later.

Participant 2 also showed a clear increase after the intervention. However, their categories were in spending, emotion, and long-term planning. This participant didn't have a significant change in task persistence compared to Participant 1, but they did have a significant change in spending. Spending is also a possible category where people might have a different answer after priming. An example of a scenario given is: "You come across a new product online that appeals to you." Before priming, someone may think about the rewards and happiness they could gain from buying it immediately and at the moment, but if someone considers the future consequences and how this money may affect their future, they may start to think the opposite way.

Participant 6 had the largest increase among all of them. After priming, this person chose all future-oriented answers. The dimensions with the most significant changes are sleep, attention, and spending. Different from most of the other participants, this person already had future-oriented decisions in every other category. Their sleep and attention had changed from 1/3 to 3/3. The scenarios of these two were mostly about them thinking about their daily habits and whether they could be easily distracted. After the intervention, this participant began to think more about the consequences and chose the answers that would keep them locked in, which would benefit them and not change the topic of what they are doing or disturb their schedules in the future.

One person showed a slight reduction in future-oriented behaviour following the intervention. Before the intervention, the participant made about 10 future-oriented choices; after the intervention, this number was about 9. Three of the choices were no longer about the future but present-day needs. For example, when the participant received a message during their study session, they did not stop studying to reply; instead, they replied immediately. In a situation where the person was informed that they had received a large sum of money, they changed from saving some of the money for the future to spending most of it on things they desired at that time. In another case, when they were told that a friend had said something unpleasant about them, they did not take the time to calm down and immediately responded in anger. However, it may not be that the person has stopped thinking about the future. They may have thought that if they responded promptly, they would not miss any important information, or that by replying to their friend immediately, the problem would be solved. Similarly, by spending some of the money on things they wanted at the time, they may

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have been avoiding the regret of not buying them later. Therefore, it can be inferred that the participant may have been contemplating the future consequences, but not in a manner that falls under the scope of the forward-looking decisions in the experiment [7].

4. Discussion

The individual differences between participants 1,2, and 6 could be because they had different decision-making patterns before the intervention. They all had different starting positions and the habits they have already developed from their daily life's. It may be that the different situations affect people in different ways based on their usual thoughts before making decisions. Participant 1 first selected 5 future-oriented options, and after priming, increased the quantity of task persistence, emotion and long-term planning significantly. It is likely that the intervention will be more effective and alter the students' thinking in the areas where they have not been proactive in the past. Participant 2 also has 5 future-oriented choices, but the main modifications are in spending, emotion and long-term planning. Therefore, although they begin at the same place, the outcomes of the interventions will differ for different people. Participant 6 was different because they had already made 13 future-oriented choices before the priming; therefore, they were already thinking about the future more than Participants 1 and 2. As a result, there was little change in some areas, but their sleep and attention choices still increased from 1/3 to 3/3. In short, the differences among these participants may be due to varying responses of individuals to the same intervention [8]. Their initial decisions and how they generally think about the future consequences may have altered the effect of priming. According to Ma's Bayesian account of decision-making, this result can be attributed to the use of prior expectations in decision-making and the adjustment of these expectations upon receiving new information. Given the different decision-making patterns of the participants prior to the intervention, they may also have had varying expectations for future outcomes. Therefore, the same future-oriented priming may have affected the participants differently. Suggesting that future interventions may need to consider the individual differences and patterns of the participants rather than assuming that they will have the same effect on everyone. It will help us learn how future-oriented priming works in different situations. It may also provide some references for the daily lives of the people [9].

Overall the results supported the hypothesis to some extent. Out of the six participants, five showed an increase in the number of future-oriented decisions after the intervention, while one participant showed a small decrease. It can be observed from the above data that most of the participants chose a future-oriented option when considering their own future.

One possible reason for the increase in future-oriented behaviour is that the priming intervention made the participants more conscious of the future and what would be more advantageous for them with a lower risk. Prior to the intervention, the subjects may have been focused on what was simple, pleasant or convenient to do. When asked to consider their future selves, they have been thinking about the impact of their current choices on their future lives [10]. For example, one can study and complete one's own tasks on time to avoid stress later and gain some advantages in life.

The results may also show that the future-oriented thinking of individuals is affected by their circumstances and habits. For example, a person may be willing to change the answer to a long-term plan, adjust their spending plan, and reduce task persistence, but they may be unable to regulate their emotions or daily behaviour [10].

If there were 60 people in the experiment, I would expect to see the most changes in the long-term plan because the intervention has them directly imagine their future selves. At the same time, sleep and daily life may be more stable because they are related to people's habits that some

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individuals have already formed in their daily lives. Emotion control may also be more stable because emotions are harder to change by thinking about the future; however, some people attempt to reflect on the circumstances first.

5. Conclusion

This study investigated whether thinking about the future alters the behaviour of daily life for people. Based on the above results, it can be concluded that after the intervention, people are more likely to engage in future-oriented thinking and choose larger long-term benefits. Some participants showed changes in persistence, emotion and long-term planning; others showed more changes in spending, sleep or attention, and thus, the impact of future-oriented thinking may vary among people based on their initial beliefs and habits. Instead of just choosing what is convenient or easy at the time, the participants may have been thinking about the possible effects of their choices in the future. Prior to the intervention, people may have been focused on immediate rewards or ease and convenience in their lives; however, by considering the future consequences, they may be motivated to achieve a goal sooner to reduce stress later. This can be used to study how people make decisions about their daily lives and long-term goals. However, the small sample size may not be representative of the general population. Future research will increase the number of participants and the realism of tasks for better support. In short, the research indicates that the future-oriented thinking can help people plan their lives better, but this is not always the case.

There are several deficiencies in the current experiment and design. The first is that a small sample was used. Only six people participated in this experiment; therefore, it is not possible to draw broad conclusions about the response of the general public to such an intervention. There are also individual differences among the relatively small number of participants in this study.

Another problem is that I used the same questions for the pre-test and the post-test, and there was no improvement. It is now convenient for the participants to learn why I want to conduct this experiment. Some of them told me that it seems like I want them to choose a certain answer, and that it seemed wrong of them to choose the other.

The number of participants and the number of questions in the experiment can be increased to improve the experiment. An expanded sample will increase the reliability of the data and enhance the discoverability of a trend. Different kinds of situations and daily-life scenarios could be used in the experiment to make the tasks more practical. The six people who participated were not my desired age; therefore, the language and circumstances may be too simple, and some of them have probably already begun to think about future-oriented decision-making because most of them are in their twenties. Finally, the scenarios can be modified so that the future-oriented and immediate choices are not repeated, and thus the participants will not have different interpretations of the questions.

Many daily choices involve choosing between the pleasure of the present and a greater benefit in the future. For example, do the work that needs to be done by the deadline in time instead of procrastinating, save the money you would have spent on unnecessary things, or control your emotions and avoid getting angry impulsively. Looking ahead, one can consider the likely results of one's decisions in the future before acting. Help people set goals and choose options that will lead to a good life.

Students can use the idea of the future to guide their study and life decisions in the days to come. Considering the future and the consequences of procrastination may motivate them to start earlier and continue to be motivated.

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In general, the results of this experiment supported the hypothesis that motivating people to consider their future would change their behaviour. After the intervention, most of the six participants made more future-oriented decisions than they did before the intervention. Therefore, it can be inferred that asking the participants to think about their future selves may have increased their consideration of the long-term consequences of their choices.

Therefore, the results show that thinking about the future can lead to future-oriented behaviour. Connecting to executive functions are the skills needed to plan, regulate attention, control emotions and consider the consequences of one's actions before making a choice. Most of the participants made their future-oriented decisions after the priming; however, these changes varied among individuals and circumstances. The changes in the areas of long-term planning were relatively large; others were relatively small. The main idea of this experiment is that we should always try to consider how our decisions will affect us in the future, because there is no way to go back in time and change the choices we have made.

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