

# **UNIVERSITY OF TWENTE.**

## **Exploring the functionalities of imagining the future in relation to the time span between present and future self in the daily life of university students**

**Faculty of Behavioural, Management and Social Sciences  
Positive Psychology and Technology**

**Bachelor Thesis**

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# Table of Content

Introduction	2
How individuals construct their future selves	2
The functionality of imagining the future: What is thinking about the future useful for?	3
Difference in time span between present and future self	6
Research questions	7
Methods	7
Participants	7
Materials	8
Procedure	10
Development of the coding scheme	11
Results	17
Frequencies of functionalities and situations	17
Development of functionalities and situations over time	21
<i>Development in the letters</i>	21
<i>Development of the evaluation of the letters</i>	23
Participants journeys	25
Catherine: using the future for orientation and organization	26
Erik: looking to the future for motivation and enjoyment	27
Millie: the future as a mindfulness adventure	28
Sophia: a hesitant look into an ideal future	30
Joost: words of wisdom from an unclear future	31
Conclusions and Discussion	32
Strengths, Limitations and Recommendations	36
References	41
Appendices	45
Appendix A	45
Appendix B	46
Appendix C	47
Appendix D	48

## Abstract

**Background.** The aim of this thesis was to explore the functionalities of imagining the future and the situations in which people imagine their future self in university students. Actively imagining the future can have several benefits, such as guiding the present self, to increase motivation or evaluating past or present events.

**Aim.** This exploratory research aims to investigate whether there are other functionalities of imagining the future, which have not been discovered yet and in which situations of everyday life students imagine their future self. Also, it is not clear how these functionalities and situations relate to the temporal distance between the present and future self.

**Methods.** This was explored by using *Letters from the Future*, a method which is used to practice imagining the desired future and to actively construct a future self. Five participants completed the study. They wrote letters to their present self each week for three weeks. Each week, the temporal distance between present and future self changed. After writing their letters, a questionnaire was given to the participants to examine the likelihood to engage in futuring, the perceived helpfulness and the perceived difficulty of imagining the future in the different weeks.

**Results.** It was discovered that another function of imagining the future was to take care of oneself and that imagining the future can be used to increase wellbeing in different ways. Imagining the future occurs in several personal and social situations in which participants which are perceived as important. Participants perceived imagining their future self as more challenging when it was perceived as far away but outcomes suggest that they did not have more difficulties imagining their future self in these cases. Interestingly, there was a general trend toward a decrease in the number of functionalities and situations in the midterm time span, which could be due to a lack of motivation from the participants or because they have not thought about the midterm time span before.

**Conclusion.** In general, practicing imagining the future can help the participants to imagine the future self with more ease and to help them use the future self in a productive way. However, this requires that the *Letters from the Future* instrument is adjusted to the needs of the individual participants. It can be recommended to carry out further research using *Letters from the Future*, including different time spans to explore the midterm time span in more depths and to find out more about the benefits if imagining the future on a regular basis.

## **Introduction**

*Dear present-self, I'm in your desired future. I'm at the university. I received the bachelor's diploma. I'm relieved that all the stress of the last weeks and months have gone. I'm happy to finally finished the thesis. I'm proud of myself, that I did it. However, I'm also concerned about the next steps to take. I'm curious to start with the master and also a bit nervous about the next time. Overall, everything went well, so keep going. I believe in you, you can do it. Don't worry too much and take some time to rest, the next time will be stressful and very hard, but it will be worth it. Sincerely, Your future-self*

The letter shown above is an example for how a person imagines the future. Imagining one's future can manifest in many forms, such as talking to a friend about future plans, daydreaming or writing a letter to the future or present self. Imagining the future may be a source of enjoyment or motivation for some individuals but it may lead to worries and distress for others. Likewise, some people have a clear idea about their future, while others prefer to live in the present.

In this qualitative and longitudinal study, five university students were invited on a journey into their desired future and to use their imagination to picture their future self. Subsequently, they were asked to write letters from the viewpoint of their future self to their present self, such as the one shown above. Furthermore, it was investigated why people imagine their future and in which situations they do so.

## **How individuals construct their future selves**

Imagining oneself in the future offers countless possibilities. An individual may imagine herself either in a desired future, which she would like to reach, or in an undesired future, which she dislikes. Since imagination is almost unlimited, the number of versions of the future self are endless and the possible versions of the future self may be realistic or very abstract. In order to understand the functionalities of imagining the future, it is necessary to understand how possible selves, the possible versions of oneself in the future, are constructed.

Erikson (2007) defines possible selves in two ways. Firstly, they “include an experience of what it would be like to be in the future state in question” (Erikson, 2007). Secondly, he describes them as a “theoretical construct” that constitutes a part of the self (Erikson, 2007). Furthermore, Erikson highlights the distinction between possible selves and intentions or cognitive schemata because “we can have intentions without possible selves and indeed can have possible selves without corresponding intentions” (Erikson, 2007). This means that possible selves can be imagined with the idea of being in that depicted future someday, but they can also be imagined without a further purpose.

According to Markus and Nurius (1989), the possible selves arise from the way the self was represented in the past and usually have a social component because they often result from

one's comparison to other people and their lives. Possible selves are based on self-knowledge, which helps the individual make sense of its own past and future (Markus & Nurius, 1989). In addition to that, they are influenced by the social, political and historical context of a person (Markus & Nurius, 1989). However, they are "often quite private and not shared with others" and thus can be revised without being evaluated by others (Cross & Markus, 1991). This implies that possible selves are a relevant field to explore in research since they are influenced by the environment a person lives in and the relationships an individual has to other persons in her life. Nonetheless, the details of this form of self-construction can be evaluated by the individual only and thus generate unique information about how a person makes sense of herself and the world around her.

A challenge for the creation of future selves might be the increasing speed and complexity of modern society (Sools & Mooren, 2012). According to Bohlmeijer (2007) this is a two-edged sword, since it does not only offer more possibilities to imagine a future self but also it also means having a seemingly endless amount of choices.

Thus, when an individual imagines her future, it can give information about how a person sees herself and to frame her ideas about herself in the future. Possible selves can be imagined with an intention, so that they can be used in a productive way to get a clearer picture of one's future, but they can also be imagined without any intention. When imagining a possible self, a person can express ideas, visions and emotions coming directly from themselves, which gives valuable insights on what a person thinks. However, it can feel overwhelming to imagine possible selves since there are many options in modern life. Because they give a unique type of information about individuals, possible selves are explored in this research using a narrative approach.

### **The functionality of imagining the future: What is thinking about the future useful for?**

Imagining the future or futuring, can be beneficial for the writer in several ways. Consulting the future self can serve various functions, such as orienting oneself, dealing with emotions, becoming clearer of future goals, evaluating the situation of the present self or enhancing the self-esteem with positive remarks about oneself.

To start with, imagining the future is connected to orienting oneself, which means to identify future aspirations that have not been reached yet (Sools, Tromp & Mooren, 2015). These can include descriptions on how these goals can be reached, as well as the exploration of possible goals (Sools, Tromp & Mooren, 2015).

Furthermore, imagining a future self can help to organize and make sense of incoming information, which facilitates achieving one's goals (Cross & Markus, 1991). Markus and Nurius (1989) also describe imagining possible selves as a motivation to adapt a person's own behaviour in order to achieve goals and avoid setbacks. Thus, they can help to shed light on the self-image of a person and what motivates a person (Markus & Nurius, 1989). Likewise, Baird, Smallwood and Schooler (2011) describe that a functionality of futuring or mind-wandering is to think about future goals, and "enable the anticipation and planning of personally relevant future goals, a process referred to as autobiographical planning". This goes in line with the findings of a study by Oettingen and Mayer (2002) who hypothesised that thinking about the future and its influence on motivation and performance can generate important information on the link between engaging in future thinking and well-being.

Another function of envisioning the future is imagining. It is characterized by a narrative which includes "sufficient (sensory) detail and vividness" and thus "gives a sense the atmosphere or colour of the situation and the persons involved" (Sools, Tromp & Mooren, 2015). The individual imagines a future event as if they would experience it in the present (Sools, Tromp & Moore, 2015). These can include narrative descriptions of the future, a recollection of events in the imagined past or characterizations of the present and future self (Sools, Tromp & Moore, 2015).

Depicting the future can also be used to evaluate an imagined situation, experience, activity, feeling or an interaction with another person (Sools, Tromp & Mooren, 2015). The individual may reinterpret situations that have happened, give positive feedback to himself or draw insights from what has happened (Tromp, Sools & Moore, 2015). This function is also described by Markus and Nurius (1989) who point out that the future self is used to evaluate the view a person has on himself at the moment.

Individuals may also engage in imagining the future to express their emotions (Sools, Tromp & Mooren, 2015). The individual can express "regret or sorrow or satisfaction, gratefulness or happiness". Furthermore, imagination can include "a sense of obligation or duty or hopes, dreams and wishes for the future" (Sools, Tromp & Mooren, 2015).

Additionally, it has been found that individuals imagine their future to engage in a dialogue with themselves or another (imagined) person (Sools, Tromp & Mooren, 2015). These dialogues can include expressing empathy or providing emotional support to the present self, expressing negative emotions, give advice to the present self or to make promises to oneself. They are used to encourage or empower the present self to achieve his goals, while also serving a calming and comforting function (Sools, Tromp & Mooren, 2015).

Futuring is also beneficial for oneself because it has been connected with resilience (Sools & Moore, 2012). Resilience is defined as “the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress” (American Psychological Association, 2014). Sools and Moore (2012) suggest that individuals can engage in imagining the future in times of distress and adversity and that becoming more skilled in dealing with stressful times may increase resilience.

Moreover, the ability to imagine one’s future is also related to certain avoidance strategies. In a study from 2015, Blouin-Hudon and Pychyl investigated whether the perception of the future self is related to procrastination, which is defined as a “self-defeating behaviour characterized by a failure in self-regulation”. They suggested that the “perceived self-continuity between present and future self” influences the level of procrastination (Blouin-Hudon & Pychyl, 2015). Hershfield et al. (2011) reported that individuals who have low future self-continuity, which means they have difficulties imagining the consequences of present behaviour on their future self, are more likely to engage in such avoidance strategies. Blouin-Hudon and Pychyl (2015) reported that participants who had a greater vividness in their mental imagery and were in a positive affective state, felt more connected to their future self and thus reported a lower inclination for academic procrastination. The authors suggest that this is because a more vivid imagination helps to imagine consequences of present behaviour for the future self (Blouin-Hudon & Pychyl, 2015). Thus, a lack of imagination may be contributing to a “disconnection between present and future self” and to more procrastination (Blouin-Hudon & Pychyl, 2015).

Therefore, it can be assumed that the ability to imagine a positive future with a great vividness is connected to a greater motivation in achieving one’s goals and that the absence of imagination is related to the use of avoidance strategies, such as procrastination. It seems to be relevant to orient oneself in the present, to release emotions, to evaluate past experiences and to get in touch with oneself. All of which are crucial for personal well-being and development. Thus, the present research aims to find out more about the functionality of futuring and to investigate whether there are more functionalities that have not yet been discovered. This is important to find out whether imagining the future can be used in healthcare practice and how individuals can benefit from it.

In sum, imagining the future seems to be relevant for various situations. On one hand, it seems to be relevant in situations which are perceived as challenging by the individual, so that the future self can be used for emotional support, motivation or for orientation. On the other hand, imagining the future can occur without any purpose, which means that it is likely to occur in a

situation in which the individual is relaxed and alone with her thoughts. Nonetheless, there is not much known about when and in which situations of everyday life, futuring is used.

### **Difference in time span between present and future self**

When imagining the future, the time span between present and future self can vary. It can be argued that the difference of the time span can influence the way a person imagines the future. Previous research has explored the difference in time spans and has made a number of findings.

To start with, research suggests that people care more about present outcomes than about future outcomes which is a phenomenon called temporal discounting (Chapman, 1996; Lynch & Zauberman, 2006). This implies, that with growing time spans between present and future self, people might have growing difficulties imagining the consequences of their behaviour and probably feel less connected to the outcomes of their imagined behaviour. This goes in line with the findings of Schelling (1982) and Frederick, et al. (2002), who found that individuals are not capable to anticipate their thoughts and emotions in a future that is far away from their present self. This implies that, as the timespan between the present self and the future self grows, it will become increasingly problematic for the writer of a letter to imagine how the future self will think and feel about a specific situation.

Similarly, Atance and O'Neill (2001) found that the accuracy with which individuals can anticipate future events is influenced by "the temporal proximity of the target event." This means that the accuracy decreases when the time span between present and future self increases (Atance & O'Neill, 2001). Likewise, Trope and Liberman (2003) state that the mental representation of future events changes when their proximity changes. The authors suggest that the greater the distance between present and imagined self, the more abstract the imagined events become. They describe these imaginations as "simple, decontextualized representations", which only show the "general, superordinate, and essential features of events" (Trope & Liberman, 2003). Imagined events which are closer to the present self are described as more concrete, contextual and more detailed but also less organised (Trope & Liberman, 2003).

Additionally, Gilbert et al. (1998), there is a tendency of people to overestimate the emotional impact of a future event, because they do not take situational factors into account, that could also have an influence on their feelings. This idea is based on what Ross (1977) named the "fundamental attribution error", a type of error in which leads a person to overestimate personality-related factors on his behaviour and underestimate situational factors (Ross, 1977). This can lead people to make erroneous estimates about the consequences of their present behaviour for their future self (Hershfield, 2011). Since individuals tend to feel less connected to



themselves, when their future self is perceived as being very far in the future (Blouin-Hudon & Pychyl, 2015), it can be assumed that the emotional impact of a future situation is overestimated more often when the future self is in the distant future as when the future self is in the near future.

To sum up, previous research has addressed the distance between the present and future self. However, the focus of the studies was mostly on the difference between either the near future or the faraway future. Research on midterm time spans is lacking.

### **Research questions**

Previous research has indicated that imagining the future serves multiple functions that can be beneficial for mental health, wellbeing, resilience and performance. The relationship between functions and effects of future imagination appear to be, at least partially, dependent on how close or distant the imagined future is. However, the question, what the functionalities of imagining the future are, has been addressed but it is unclear whether there are more functions that have not been discovered yet. Additionally, it is not yet clear in which situations of everyday life individuals engage in imagining their future.

Furthermore, previous research has shown that imagining one's future is indeed influenced by the temporal distance between the present and the imagined future. However, a closer examination may show whether there is a difference between the near, midterm and distant future. Additionally, it is unclear how the distinction in different time spans influences the functionality of imagining the future. Therefore, the main research question is:

*How do functionalities of imagining the future relate to the time span between present and future self as imagined by university students in daily life?* This question will be divided into the following sub questions:

1. What are the functionalities of imagining the future?
2. In which future and present situations in daily life are these functions used?
3. What are the commonalities and differences in the depicted situations and functions in near, midterm and distant futures?

## **Methods**

### **Participants**

A broad sample was aimed for, including participants of any (adult) age group, gender or social status. To ensure that participants were able to understand the informed consent and the

assignment, a sufficient understanding of the English language was required, as well as the capability to understand how to utilize the application that was used for this research. The informed consent is displayed in Appendix A.

Participants were recruited using purposive sampling. The researchers approached friends and family as well as fellow students. Even though participants of all ages, genders, nationalities and backgrounds were allowed in this study, the final sample consisted of friends of the researcher who were all university students. Before starting with the data collection, it was decided together with the supervisor of this research, that the sample should contain at least four participants, so that enough data could be collected.

A total of seven participants agreed to take part in the research. However, one participant dropped out after the screening questions and another participant dropped out after writing one letter, leaving a sample of five participants who completed the intervention. Of the remaining five participants, three were female, and two were male. The age ranged from 19 to 29 years, with a mean of 23. Three of the participants were German, one was Dutch and one Singaporean. The names of the participants have been changed for this research to ensure their privacy, and in the following, the participants will be addressed as Catherine, Erik, Millie, Sophia and Joost.

## **Materials**

The research was carried out over three weeks to investigate the change in the letters over time. The research design was selected because the qualitative longitudinal approach can be used when the focus is on the process rather than the outcome only (Thomson, 2007). Also, is it suitable because it concentrates on the individual and it helps to understand change over time (Thomson, 2007). The web-based survey was designed using TIIM (the incredible intervention machine) in collaboration with the University of Twente BMS Lab. TIIM is an application for online interventions, which can be used on devices with an iOS or Android operating system. To start with and participate in the study, participants were asked to download the TIIM application to their mobile device from Google Play or the AppStore.

The survey was planned for three weeks. In the first week, the difference between the present self and future self was less than one month, in the second week it was less than one year, and in the third week participants were asked to write their letter from a distance of more than ten years. Each week, participants were asked to write two *Letters from their Future Self* to their current self and subsequently answer a short questionnaire. The *Letters from the future* instrument (Sools & Mooren, 2012; Sools, 2020), is a health promotion instrument originally used for adults with less severe depressive symptoms in the Netherlands (Bohlmeijer et al.,

2007), which was adapted for research purposes by Sools and Mooren (2012). A guided meditation was designed to facilitate imagining the future for the participants (Sools, 2020), which for the current study was designed as a video, including an audio recording. The video featured calming piano music and pictures, such as sunflowers, clouds or a lake. The videos were created using the Software AquaSoft, a program designed to generate and cut videos for the broadcasting platform YouTube. Consequently, the videos were published on YouTube and a link (Future Now Experience, 2019a; Future Now Experience, 2019b; Future Now Experience, 2019c) to them was placed in the TIIM App for the participants. There were three different videos; one for each timespan. An example for the modules in the survey is displayed in Appendix B.

The procedure was the same each week, but the time span between the present self and future self, changed each week. In the first week, the timespan between the current and possible self was less than one month. In the second week, the timespan was less than five years and in the third week participants were asked to focus on a larger timespan of more than five years.

The aim of the guided meditation was to help participants relax and prepare themselves for their journey into their future. Participants were instructed to seek a calm and relaxing spot, close their eyes and imagine they were transported into the future with a time machine. Using techniques from Mindfulness exercises, they were invited to imagine their future in detail, to explore the situation they found themselves in. After watching the video, participants were directed to the following exercise the *Letters from the Future*.

Taking their experience from the guided meditation a step further, participants were instructed to write down what they imagined during the guided meditations in the form of a letter from their future self to their present self. The content of the letter was the choice of the participants. However, the length of the letter was limited to 1000 characters due to limitations of the TIIM App. Each week, the distance between the present self and future self changed, in line with the content of the guided meditation.

Next to the intervention, a short questionnaire was used after each letter. The questionnaire included ten items in total. Four items were open questions, five items were to be answered using a five-point Likert-scale and one item was to be answered with “Yes” or “No”. The idea was to understand whether participants enjoyed their journey into their future and whether they found imagining their future self helpful for their present life. Participants were asked whether they enjoyed imagining their future self and whether they enjoyed writing the letter. Also, they were asked to indicate whether they thought imagining their future self was difficult. Lastly, the participants were invited to think about a situation in which they had

consulted their future self for advice or to specify in which situation they would consult their future self. All items of the questionnaire and instructions for the letter are presented in Appendix C.

### **Procedure**

In order to start with the study, participants were asked to download the TIIM App on their mobile device. Subsequently, participants were asked to fill in their personal data, i.e. age, gender and nationality before they began the intervention. Next to those screening questions, they were provided with an informed consent, as well as an introduction describing the purpose of the research, in line with the guidelines of the Ethics Committee of the Faculty of Behavioural Management and Social Sciences. After giving their consent, participants were assigned to the study by the researchers.

The procedure for each session was the same: First participants were asked to watch the video with the guided meditation, and consequently write the *Letters from the future* as described above. After having submitted the letter, participants were instructed to fill in the ten items of the questionnaire. This procedure was used two times each week, for three weeks in total. Initially, participants were instructed to write two letters each week, however, if participants reported difficulties taking the time for the study, they were asked to write one letter per week and to fill in the questionnaire.

After finishing the study, the participants received a debriefing from the researchers, including a note thanking them for their efforts, as well as a reminder to contact the researchers with any questions or concerns or to receive the final report of this research.

For this research, data collection started on the 4<sup>th</sup> November 2019. In the initial timeline it was assumed that the data collection would be completed on the 24<sup>th</sup> of November, but due to technical problems with the TIIM app, data collection had to be prolonged until the 14<sup>th</sup> of December 2019.

### **Data analysis**

After collecting the data from all five participants, the *Letters from the Future* were analysed using Atlas.ti, a coding program to analyse data in qualitative research. The letters and answers were coded in the same way to ensure comparability regarding the frequency of codes used. Codes were assigned to every topic that was introduced in the letters and answers. Every code was used once for every cluster of the text that was written about the same topic. For example, if a participant described her study program and then introduced a paragraph about her friends, the

codes *family/friends related* and *career-related* were used once each, even if the participant mentioned the university or the friends again in the same letter. Likewise, if a participant wrote the entire letter using *narrative imagining*, the code was used once for the letter.

The questionnaire was analysed with SPSS, a statistical software. Descriptive statistics were computed to compare the difference in scores of the items between the weeks.

### **Development of the coding scheme**

For the analysis of the letters and answers to the open questions in the questionnaire, a coding scheme was developed. First, a preliminary coding scheme was developed based on three letters. At the time of the development, only the letters of the short-term time span were written by the participants, which is why not more letters were used. These first letters were coded manually to get an overview of the codes that were important for the letters.

At the end of the intervention, a total of nineteen letters were obtained. After that, all of the letters were coded using the preliminary coding scheme. In this second round of coding, the letters were coded using the program Atlas.ti. However, the coding scheme was revised during the coding process and some codes were added or deleted continuing the method of constant comparison. After the second session of coding, the coding scheme was changed another time in collaboration with the fellow researcher, Jonah Bojer, resulting in the final coding scheme shown in Table 1. In this third round of work, the codes were grouped into different categories, to make the scheme more comprehensive and show commonalities of the codes. Some of the codes were renamed, merged or moved to existing or newly created categories.

During the coding process, some of the initial functions were altered and sub codes were added. Furthermore, next to the functionalities, a category for situations in which participants use futuring was added. The functions *Imagining* and *Orienting* were not changed by the researchers. For the function *Evaluating*, two sub codes were added, namely *distancing oneself* and *accepting*. *Distancing oneself* refers to a process in which the writer of the letter, uses futuring as a way to distance himself mentally from people, events, emotions or other factors that influence the present self, in order to get a different point of view. *Accepting* is about the acceptance of things that are perceived as outside of the control of the present of future self, for instance to accept the process of ageing as a part of life.

The function *Expressing Emotions* was renamed into *Emotions*, to abandon the notion that participants have to explicitly expressing their emotion and capture situations in which emotions are present but are not specifically mentioned by the writer. Additionally, three sub codes were added. The first sub code is *worries/concerns*, for imagined situations in which the participant

feels worried about their present or future life. Secondly, *uncertainty* was used when participants described feeling insecure about decisions, situations or themselves. *Dissatisfaction* was added, since some participants expressed being unhappy with imagining their future self or writing the letter.

The function *Engaging in dialogue* was renamed into *Attending to oneself* because some participants did not directly address themselves but used functions that were found in this category. Furthermore, *self-motivation/self-empowerment* was added as a new sub code, to capture when participants tried to motivate their self to do something. Originally, *motivation* was another main code, but it was decided to delete it when *Engaging in dialogue* was renamed, because of the similarity to *self-motivation/self-empowerment*. Another sub code that was added was called *reminder* and it was used when participants used the letter as an incentive or reminder to think about their future or to pursue a specific goal that they had described in their letter.

Another main code was called *Self-care and well-being* and it includes the sub codes *mindfulness*, *enjoyment* and *resilience*, which were main codes in the previous version of the coding scheme. *Mindfulness* was created after a participant mentioned that he used the letter as a way of letting his thoughts flow freely and without being afraid that others would judge him. The sub code *enjoyment* was added for participants who used the letter for pure enjoyment and fun and without any other purpose. Lastly, *resilience* was used when participants reported that they felt more prepared for stressful situations or that futuring helped them to overcome obstacles.

The main code *Avoidance strategy* was mostly designed for the open questions of the questionnaire, because some participants reported that they used futuring as a means to avoid dealing with unpleasant tasks or duties or when they wanted to escape their current situation for some other reasons. Initially, this code was not part of any category, but was later added to *Attending to oneself*, because an avoidance strategy can be seen as a way to react to one's needs and emotions.

The last section that was added to the functionality-codes was *Contra futuring*, to include reasons why participants disliked the task or did not find it helpful. This was also used for the open questions of the questionnaire. This main code entails four sub codes. *Overload of possibilities* means that the participant feel overwhelmed by imagining his or her future because of the seemingly endless possible futures he or she can imagine. *Too far away* describes the situation when the future self is perceived as so far away that the participant has difficulties imagining it. *Unachievable future* was used when the participant imagined his future as an ideal version of his life and is thus afraid of not fulfilling his own ideals.

*Perceived inapplicability* was created for participants who stated that the future self is unrelated to the task the present self must face and did not consider futuring helpful.

The codes for situations, in which the participants used futuring or situations that were described in the future, was divided into two categories. The first category was called *social situations*, because it described situations that included other people, imagined or real. This included *family/friend-related*, *romantic relationship-related*, *leisure activity related* and *career-related*. The second category was *personal situation* which entails situations that were not related to other people but focussed on the individual. *Presenting issues* and *presenting solutions* were both part of a pattern that was found several times. First, the participant describes a problem or issue that he faces, and later he describes a solution. An example for this pattern is from a letter by the participant Catherine: “The long-distance relationship is challenging sometimes (*presenting issues*) but at least the time in between is getting shorter (*presenting solutions*), [...]”

Another personal situation is *stressed/depressed situation* which was included because some participants used futuring to feel more hopeful and secure in stressed circumstances. The last situation is *important/decisions tasks*. It was created for participants who use advice from their future self to help with an important issue they encounter.

The final coding scheme is displayed in Table 1 below:

Table 1

*Table of Codes and Subcodes with corresponding citation. Codes marked with \* were obtained from Sools, Tromp and Mooren (2015). Citations marked with ° were obtained from the letters of the research partner.*

Code		
<i>Functionality</i>	Definition	Citation
Imagining *	The participant describes future events, recalls events from the future past, engages in daydreaming, or describes their own characteristics.	“Now everyone is sitting next to the christmas tree on the couch in the living room.” °
1. Narrative imagining of the future *		“I am fine despite some initial anxieties with meeting new people and going to new countries.”
2. Anticipated reminiscence *		
3. Characterising oneself *		

<p>Orienting *</p> <ol style="list-style-type: none"> <li>1. purpose/value orientation *</li> <li>2. goal setting *</li> <li>3. monitoring goal-directed behaviour *</li> <li>4. exploring options *</li> </ol>	<p>The participant identifies future goals or values that have not been reached yet, which can include material or immaterial goals, or discovers different options for his behaviour.</p>	<p>“I want to concentrate more on local social causes and activism, I have applied for a few causes and volunteering.”</p>
<p>Evaluating*</p> <ol style="list-style-type: none"> <li>1. positive reinterpretation *</li> <li>2. praising oneself/self-enhancing *</li> <li>3. blaming oneself *</li> <li>4. learning of lesson *</li> <li>5. distancing oneself</li> <li>6. accepting</li> </ol>	<p>The participant may assign value to own past and future experiences, to use them in a productive way. The participant may also praise or blame himself for successes and failures or distance himself from past or present events and experiences.</p>	<p>“I am fine despite some initial anxieties with meeting new people and going to new countries.”</p>
<p>Emotions*</p> <ol style="list-style-type: none"> <li>1. regret/ sorrow *</li> <li>2. obligation/ duty *</li> <li>3. hopes/ dreams/ wishes *</li> <li>4. satisfaction/ gratefulness *</li> <li>5. excitement *</li> <li>6. worries/concerns</li> <li>7. uncertainty</li> <li>8. dissatisfaction</li> </ol>	<p>The participant writes about his emotional reaction on future or past events or situations.</p>	<p>“I am very excited; the course starts tomorrow.”</p>
<p>Attending to oneself</p> <ol style="list-style-type: none"> <li>1. emotional support/empathy *</li> <li>2. disclaiming *</li> <li>3. moral advice*</li> <li>4. worldly wisdom *</li> <li>5. practical advice *</li> <li>6. promise *</li> </ol>	<p>The future self directly addresses the current self and gives advice, tries to motivate or provides emotional support for the present self.</p> <p>8. The participant uses future lettering as an initiative to think about his or her future.</p>	<p>“Enjoy your time, this semester seems relaxed but also study for the exams before Christmas.” °</p> <p>8. “The letter could be a "reminder" for [thinking about my future].” °</p>



<p>7. self-motivation, self-empowerment</p> <p>8. reminder</p> <p>9. avoidance strategy</p>	<p>9. The participant reported that he or she used futuring as means to procrastinate or avoid dealing with difficulties.</p>	<p>9. "Daydreaming, when I wanted to escape work or current obligations."</p>
<p>Self-care and well-being</p>	<p>1. The participant uses thinking about the future self as a mindfulness-practice.</p> <p>2. The participant uses futuring for personal enjoyment and without any further purpose.</p> <p>3. The participant perceives futuring as increasing resilience toward issues he might encounter.</p>	<p>1. "Writing was helpful because it felt like I could let myself and my thoughts flow and be myself without possible judgement by others."</p> <p>2. "Imagine your future me being happy and the people around me as well gives you a good feeling. It shows that there is a future to look forward to." °</p> <p>3. "I think it could be helpful in situations when you are stressed or depressed. So, you remember that there is something to look forward to." °</p>
<p>Contra futuring</p> <p>1. Overload of possibilities</p> <p>2. Too far away</p> <p>3. Unachievable future</p> <p>4. Perceived inapplicability</p>	<p>1. Participant perceives the amount of options for his or her future as overwhelming</p> <p>2. Participant perceives the time span between present self and future self as too large</p> <p>3. Participant is concerned not to achieve his own expectations about his future</p> <p>4. The participant perceives futuring as not productive to solve current problems</p>	<p>1. "I find it hard to imagine how my future could look like because there are so much possibilities." °</p> <p>2. "It is not very helpful, because I don't know if this imagination will happen in this way because it's so far away and I don't even know if I want it to happen when I am in this situation." °</p> <p>3. "It's difficult to take a realistic future perspective, without risking to get disappointed later."</p> <p>4. "I already answered this question." °</p>

Code		
<i>Situations</i>	Definition	Citation
Social situations	1. The participant mentions situations that involve his friends or family.	1. "In the morning, I had breakfast with my family." °
1. Family/friends-related	2. The participant mentions activities, events or emotions involving his or her partner.	2. "I finished the second trip to Europe with [my partner] and enjoyed Christmas celebrations with his family and the anniversary getaway."
2. Romantic relationship-related	3. The participant describes free time activities such as hanging out with friends or doing sports.	3. "Now we are sitting in a bar, drinking a beer and I am writing this letter." °
3. Leisure activity-related	4. The participant writes about job or study related topics such as exams, applications or graduation.	4. "I want to concentrate more on local social causes and activism, I have applied for a few causes and volunteering."
4. Career-related		
Personal situations		1. "Otherwise, you can't enjoy the days between Christmas and New Year as much as you would like." °
1. Presenting issues	1. The participant introduces a problem that she encounters.	
2. Presenting solutions	2. The participant presents a solution for a problem he encountered.	2. "Study for the exams before Christmas." °
3. Stressed/depressed situations	3. The participant mentions situations in which he/she feels bad (stressed, depressed, scared) as fitting to consult his/her future self	3. "I think it could be helpful in situations when you are stressed or depressed. So, you remember that there is something to look forward to." °
4. Important decisions/tasks	4. The participant mentions situations in which he/she needs to make an important decision or needs to face a complicated task as fitting for consulting his/her future self.	4. "When you have to make a decision for your future. For example, what You want to study." °

## Results

The letters and answers to the questionnaire were analysed regarding their content in order to find out which functionalities and situations appeared. This also showed if all the functions and situations that were discovered before, are applicable to this sample. After that it was explored if and how the functionalities and situations related to the different time spans and to assess commonalities and differences in all the letters and open answers. Subsequently, the closed questions of the questionnaire are assessed using descriptive statistics. To highlight the individual personality of each participant and to show their specific approach to the *Letters from the Future*, a characterisation of each participant is provided.

### Frequencies of functionalities and situations

The codes and sub codes described above were applied to the letters of the participants and their answers to the open questions of the questionnaire.

The frequencies of the codes used in the letters and the answers are displayed in Table 2. To create a comprehensive overview all letters of week one are shown in the column “Week 1 Letters”, which includes the letters from the two participants who wrote two letters this week. Likewise, in “Week 3 Letters” all letters of week three are considered as well as one letter written by one participant who wrote two letters in week three.

Table 2

*Codebook with Codes, Sub codes and frequency of codes used per week with number of letters in which the code was used in brackets. Letters and answers are shown separately.*

Code	Sub code	Week 1	Week 1	Week 2	Week 2	Week 3	Week 3
		Letters	Answers	Letters	Answers	Letters	Answers
Imagining (n=5)	1. narrative imagining of the future *	4(3)	0(0)	4(4)	0(0)	6(5)	0(0)
	2. anticipated reminiscence *	1(1)	0(0)	0(0)	0(0)	2(2)	0(0)
	3. characterising oneself *	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
	Totals	5(4)	0(0)	4(4)	0(0)	8(7)	0(0)
Orienting (n=5)	1. purpose/value orientation *	0(0)	1(1)	0(0)	1(1)	1(1)	1(1)
	2. goal setting *	1(1)	2(2)	0(0)	2(2)	1(1)	1(1)
		0(0)	0(0)	0(0)	1(1)	0(0)	0(0)

	3. monitoring goal-directed behaviour *	0(0)	1(1)	0(0)	1(1)	0(0)	1(1)
	4. exploring options *						
	Totals	1(1)	4(4)	0(0)	5(5)	2(2)	3(3)
Evaluating (n=5)	1. positive reinterpretation *	1(1)	0(0)	1(1)	0(0)	1(1)	0(0)
	2. praising oneself/self-enhancing *	5(3)	0(0)	0(0)	0(0)	3(3)	0(0)
	3. blaming oneself *	0(0)	1(1)	0(0)	0(0)	0(0)	2(2)
	4. learning of lesson *	0(0)	0(0)	1(1)	0(0)	1(1)	0(0)
	5. distancing oneself	1(1)	1(1)	1(1)	1(1)	0(0)	0(0)
	6. accepting	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
	Totals	7(5)	2(2)	3(3)	1(1)	5(5)	2(2)
Emotions (n=5)	1. regret/ sorrow *	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
	2. obligation/ duty *	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
	3. hopes/ dreams/ wishes *	1(1)	1(1)	1(1)	3(2)	3(2)	0(0)
	4. satisfaction/ gratefulness *	4(4)	1(1)	4(3)	0(0)	4(3)	3(2)
	5. excitement *	2(2)	0(0)	1(1)	0(0)	1(1)	0(0)
	6. worries/concerns	4(2)	1(1)	0(0)	0(0)	0(0)	1(1)
	7. uncertainty	0(0)	2(2)	0(0)	2(1)	1(1)	3(3)
	8. dissatisfaction	0(0)	2(1)	0(0)	2(1)	0(0)	1(1)
	Totals	11(9)	7(6)	6(5)	7(4)	9(7)	8(7)
Attending to oneself (n=5)	1. emotional support/empathy *	3(3)	0(0)	2(2)	0(0)	0(0)	1(1)
	2. disclaiming *	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
	3. moral advice*	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
	4. worldly wisdom *	3(2)	0(0)	3(2)	0(0)	2(2)	0(0)
	5. practical advice *	2(2)	1(1)	3(2)	0(0)	0(0)	0(0)
	6. promise *	2(2)	0(0)	0(0)	0(0)	0(0)	0(0)
	7. self-motivation, self-empowerment	1(1)	0(0)	3(2)	1(1)	0(0)	0(0)
	8. reminder	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
	9. avoidance strategy	0(0)	0(0)	0(0)	1(1)	0(0)	0(0)
	Totals	11(10)	1(1)	11(8)	2(2)	2(2)	1(1)
Wellbeing and self-care (n=5)	1. Mindfulness	0(0)	2(2)	0(0)	1(1)	0(0)	0(0)
	2. Enjoyment	0(0)	3(3)	0(0)	1(1)	1(1)	1(1)
	3. Resilience	0(0)	0(0)	0(0)	2(2)	1(1)	2(1)
	Totals	0(0)	5(5)	0(0)	4(4)	2(2)	3(2)

Contra futuring (n=5)	1. Overload of possibilities	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
	2. Too far away	0(0)	0(0)	0(0)	1(1)	0(0)	2(2)
	3. Unachievable future	0(0)	2(1)	0(0)	1(1)	0(0)	3(2)
	4. Perceived inapplicability	0(0)	4(2)	0(0)	0(0)	0(0)	0(0)
Totals		0(0)	6(3)	0(0)	2(2)	0(0)	5(4)
Social situations (n=5)	1. Family/friends-related	2(2)	0(0)	2(2)	1(1)	2(2)	2(1)
	2. Romantic relationship-related	2(2)	0(0)	1(1)	0(0)	2(2)	0(0)
	3. Leisure activity-related	0(0)	0(0)	1(1)	0(0)	0(0)	0(0)
	4. Career-related	4(2)	0(0)	2(2)	0(0)	3(3)	0(0)
Totals		8(6)	0(0)	4(4)	1(1)	5(5)	2(1)
Personal situations (n=5)	1. Presenting issues	7(5)	0(0)	3(3)	0(0)	5(4)	1(1)
	2. Presenting solutions	7(5)	0(0)	3(3)	0(0)	5(4)	0(0)
	3. Stressed/depressed situations	0(0)	1(1)	0(0)	1(1)	0(0)	4(2)
	4. Important decisions/tasks	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
Totals		14(10)	1(1)	6(6)	1(1)	10(8)	5(3)

The code *narrative imagining* was used frequently in all three weeks. There were three participants who used this form of narrating in their first letter and they also used it in the following letters. However, there was generally an increase in the use of this code from week one to week three, with a slight decrease in week two. Beginning with three participants, all of the five participants used *narrative imagining* in their last letter(s). This form of imagining was not used in the answers of the questionnaire.

For the *Orienting* function, it can be stated that this function was mostly used for the answers, but rarely for the letters. *Goal setting* was used twice by two participants each. There was no difference in *purpose/value orientation* when comparing the different weeks. *Purpose/value orientation* was used for the letters and the answers. *Goal setting* was used for the letters and the answers. However, in the letters it was used by two participants but in the answers, it was used by one participant only. *Exploring options* was coded in the answers only. When looking at the totals of *Orienting*, the use of this function increased from week one to week two but decreased in week three.

The function *Evaluating* appeared frequently. In week one, sub codes of this function appeared in all of the letters. In week three this function was also coded in all of the letters. In

week two, there was a decrease for this function. Likewise, in the answer, there was also a decrease in its frequency in the midterm time span.

The main code *Emotions* was used often and appeared in every letter and answer at least once. The most used sub code was *satisfaction/gratefulness* which appeared in four letters in week one and in three letters in week two and three each. It was used for the answers as well, but only in week one and three. As before, in this category, there was a decrease in the number of codes used in the midterm time span.

The code *Attending to oneself* was used several times in the letters in the first and second week. In week three the number decreased significantly. *Worldly wisdom* was the only sub code which appeared constant throughout the weeks. It was only used in the letters, not in the answers and was used by the same two participants each week. Other codes used were *emotional support/empathy*, *practical advice*, *self-motivation/self-empowerment* which were used for the letters and the answers. These codes were not used in the letters again after week two. The code *praising oneself*, was in most cases used together with *satisfaction/gratefulness*. This was done because participants tend to describe when they were proud of their own achievements and connected this with a general sense of happiness, wellbeing and an overall level of satisfaction.

The analysis showed that the function *emotional support* often appears together with *self-motivation*, *self-empowerment*. The only code which only appeared once in the answers was *avoidance strategy*. *Promise* was only used twice in the letters of week one. Interestingly, the frequency of codes dropped in week two.

*Well-being and self-care* was mostly used to code the answers to the questionnaire. Overall, there is a decrease in the frequency of this code. Interestingly, the code *resilience* did not appear before week two.

The category *Contra futuring* was created for the answers to the questionnaire, and therefore was not used to code the letters. The sub code *too far away* did not appear before week two, since participants started to report having difficulties imagining their future self when the distance was one year or more. *Unachievable future* was used every week. This sub code seemed mostly unrelated to the time span. Totals show a drop in numbers to which the codes were used in week two.

*Social situation* was used quite consistently over the weeks. However, the code *family/friends-related* was used in the first week for situations in which participants wrote about their own parents as a family, whereas in week three participants wrote about being parents themselves. *Romantic relationship* was used by the same two participants from week one to three. The other participants were mostly focused on their career.

In the category of *personal situations*, the codes *presenting issues* and *presenting solutions* were the most used sub codes. These codes were mostly used in the letters and both codes were used with the same amount of times. There was only one exception, when *presenting issues* was used once in the answers of week three. *Presenting issues* was usually described as a situation, event, feeling or obstacle with negative effects on the participant.

This pattern occurs when an event or situation is described which is supposed to cause difficulties for the writer, but it appears in situations described in the present as well as anticipated situations in the future. Interestingly, it also showed up in Millie's letters, which were very abstract. For instance, she wrote: "A while ago we were stressed out because we had to fight the scary owls in the forest (*presenting issues*), but we made it (*presenting solutions*)." This shows that this pattern is not necessarily related to events or situations based on reality but can also show up in a purely imaginative context. *Presenting solutions* was often double coded with *emotional support* since the participants were looking for a way of reassuring themselves that they can overcome their problems.

The code *stressed/depressed* was entirely used for the answers and increased in week three. However, there was a drop in frequency of all codes used in week two. This code was used for situations in which participants engaged in futuring. It was reported that imagining the future was used as a way to deal with difficult situations in which participants felt uncomfortable or hopeless.

Overall, it can be seen that there is a decrease in the frequency of the codes in week two, which is the midterm time span, in six of the nine categories, which were: *narrative imagining*, *evaluating*, *emotions*, *contra futuring*, *social situations* and *personal situations*.

## **Development of functionalities and situations over time**

### *Development in the letters*

Overall, all five participants were consistent in the content of the letters. Catherine and Erik mostly wrote about career-related situations and their relationship to their partner, which, in the last week was also connected to the wish of starting a family with their partner. Joost and Sophia were mostly focused on their career, and this stayed the same for all the weeks. Family and friends were mentioned, but the career seemed to be most important to them. Unlike the other participants, Millie wrote remarkably abstract letters; however, the two most prominent topics were friendship and personal development, which featured the emotions and the well-being of the participant.

Furthermore, it can be stated that the participants focussed on the events in their life that were perceived as most important to them relative to the time span, they were looking at. This means, for the short-term time span, participants regarded the topic as most important that they were occupied with at the moment. For instance, their relationship or their upcoming graduation. However, as the time span grew, participants anticipated which topic would be most important to their future self. For example, Erik was focussed on meeting his girlfriend on a vacation in the first letter but imagined himself having a family together with her in the last letter.

Out of five participants, four were focused on their career. Therefore, the participants were not only occupied with their study program itself but also with the question which job they would like to have after they graduate.

The youngest participants, Joost and Sophia reported having difficulties imagining their future self in the long-term time span. They were also the ones to report that they disliked and/or did not find the exercise helpful. Additionally, they had the most difficulties with the long-term time span, since they did not think about their faraway future before and were not sure what they wanted to do after they graduate. Therefore, the age of the participant seems to be an important factor. Interestingly, they both liked to use *worldly wisdom* in their letters.

In contrast to them, Catherine, who was also quite young did not report those difficulties even though she was only slightly older than Joost and Sophia. Catherine had a clearer idea for her future and reported planning her future regularly. This suggests that age might be an important factor but that it is not the only explanation why some participants have more difficulties imagining their long-term future than others.

However, all of the participants reported that they found it more difficult to imagine their future self in more than ten years difference but except for Joost and Sophia they did not dislike it. The bigger the timespan between present self and future self, the more insecure, the participants became about their future. It was also described that there were difficulties to imagine the long-term future in great detail. This was interesting, considering that the code *narrative imagining* was used more often in week three. Furthermore, two of the participants stressed that they imagined an ideal version of themselves in the future, and that they were afraid that they could not live up to their own expectations. Interestingly, they reported different approaches to their ideal self. While Sophia felt pressured to imagine a positive future because of her understanding of the guided meditation, participant Erik reported that he enjoyed picturing a “wholesome” future, which he liked so much that he was afraid reality could never be as good.

While most of the participants reported that they enjoyed imagining their future self, even though not all of them found it particularly useful, participant Sophia reported during the weekly



questionnaires that she disliked the exercises and that she did not find it helpful. Furthermore, she declared that this was mostly due to the fact that she dislikes imagining her future in general. This is because when she thinks about the future, she imagines an ideal version of it and she is afraid that she cannot reach this ideal.

#### *Development of the evaluation of the letters*

The aim of the questionnaire was to receive a total of six responses since participants were asked to write two letters each week. However, most participants only completed the study once each week, leading to an incomplete dataset. In week one, two participants completed the questionnaire twice and in week three one participant replied twice. In week two, none of the participants filled in the questionnaire a second time.

First the item “How difficult was it for you to imagine your future self?” was investigated. The item could be answered using a five-point Likert scale ranging from “very easy” to “very difficult”. Week one ( $M=2.4$ ,  $SD=1.52$ ), week two ( $M=2.4$ ,  $SD=1.14$ ) and week three ( $M=2.6$ ,  $SD=1.34$ ) were compared. This shows that there is a significant increase of the means from week one to week three, showing that imagining the future self became more difficult for the participants, however, it was still perceived as quite easy.

In the second part of week one ( $M=3.00$ ,  $SD=.00$ ), only two participants wrote a letter and answered to the questionnaire. Both participants perceived imagining their future self as neither difficult nor easy. In week three, one participant filled in the questionnaire a second time. Since there was only one score, a mean could not be computed. However, the participant answered this item with “easy”.

Subsequently, the item “How much did you enjoy imagining your future self?” was analysed for week one ( $M=2.2$ ,  $SD= 1.10$ ), week two ( $M=1.8$ ,  $SD=.84$ ) and week three ( $M=1.8$ ,  $.45$ ). This item was also answered with a five-point Likert scale ranging from “I enjoyed it a lot” to “I strongly disliked it”. Mean scores showed an overall decrease in enjoyment to imagine the future self. In the second part of week two ( $M=3.00$ ,  $SD=1.41$ ), the participants neither enjoyed nor disliked it. In the second part of week three, the only respondent answered this item with “I enjoyed it a lot”.

The next item “To what extent has imagining your future self been helpful to you?” was also to be answered using a five-point Likert scale ranging from “very helpful” to “not helpful at all.” Week one ( $M=2.6$ ,  $SD=.55$ ), week two ( $M=2.8$ ,  $SD=1.10$ ) and week three ( $M=2.6$ ,  $SD=.55$ ), were compared showing that week one and three had the same mean and standard deviation. In week two, there was an increase in mean scores, showing that participants perceived the exercise

as less helpful than in week one and three. The two participants who filled in the questionnaire twice in week one ( $M=2.00$ ,  $SD=.00$ ) had a lower mean score, which means they might find it more helpful than other participants. In week three, part two, the participant answered this item with “helpful”.

The item “How much did you enjoy writing the letter from the future?” was analysed in week one ( $M=2.4$ ,  $SD=1.14$ ), week two ( $M=2.00$ ,  $SD=1.00$ ) and week three ( $M=2.2$ ,  $SD=.45$ ). The answers could be indicated on a five-point Likert scale ranging from “I enjoyed it a lot” to “I strongly disliked it”. Overall, participants enjoyed writing the letter the most in week two, leaving week one with the highest mean score and week three with a slightly lower score. In the second questionnaire of week one ( $M=2.5$ ,  $SD=.71$ ), the mean score was higher than before, indicating that participants did enjoy it slightly less than in week one, two and three. In the last week, the only respondent indicated “I enjoyed it a lot” on the scale.

The last Likert-type item compared for week one ( $M=2.4$ ,  $SD=.55$ ), week two ( $M=2.4$ ,  $SD=1.14$ ) and week three ( $M=2.6$ ,  $SD=.55$ ) was “To what extent has writing the letter from the future been helpful to you?”. Answers ranged from “very helpful” to “not helpful at all” on a five-point Likert scale. Mean scores display a slight increase, meaning the perceived helpfulness decreased from week one and two to week three. In the second part of week one ( $M=2.00$ ,  $SD=.00$ ), participants indicated that they did find writing the letter helpful. In the second part of week three, the participant replied with “very helpful” to this question.

The last closed question in this questionnaire was “Did you spontaneously consult your future self in the last few days?”, which could be answered with “Yes” or “No”. In week one, four participants answered with “No”, while one participant answered “Yes”. In week two, scores changed and four participants answered “Yes”, while only one answered “No”. In week three, three out of five participants stated that they did not consult their future self, whereas two indicated that they did. In the second part of week one, both respondents answered this item with “No” and in the second part of week three, the participant replied with “Yes”.

Overall, these descriptive statistics show that participants seemed to be satisfied with the *Letters from the Future* exercise regarding its perceived helpfulness, level of difficulty and the degree to which they enjoyed imagining their future self. However, the positive answers from the questionnaire were partly contrasting what participants reported in the open questions. There were two participants, Sophia and Joost who did not particularly like the exercise and did report finding it unhelpful. Apparently, their scores were balanced out by the other three participants, who found it more helpful and enjoyed it more.

## Participants journeys

In order to investigate which functions the letters from the future had, and whether the difference in time spans had an influence on the functions, the letters of the participants were analysed in depth. The letters of the five participants who completed the intervention differed from each other. All the participants had their own approach to the letters. Table 3 provides an overview of the participants and their characteristics, followed by a description of the participants in detail and their journey into the future as well as a letter from each participant. The names of all participants were changed to protect their privacy.

Table 3

*Table with demographic data of the participants, letters delivered, most used codes per participant with number of codes used in brackets, and essential characteristics of the participants.*

Participant	Catherine	Sophia	Millie	Erik	Joost
Nationality	Singaporean	German	German	German	Dutch
Age	22	21	25	29	19
Gender	Female	Female	Female	Male	Male
Week 1	2 letters	2 letters	1 letter	1 letter	2 letters
Week 2	1 letter	1 letter	1 letter	1 letter	1 letter
Week 3	1 letter	1 letter	2 letters	1 letter	1 letter
Most used codes in letters	Orienting: goal setting (5), Imagining: narrative imagining (4), Situation: career-related (4)	Evaluating: praising oneself (4), Emotions: worries, concerns (3), Attending to oneself: worldly wisdom (3), Imagining: narrative imagining (3)	Imagining: narrative imagining (4), Emotions: satisfaction, gratefulness (3), Personal situation: issues (3), Personal situation: solution (3)	Emotions: satisfaction, gratefulness (3), Emotions: hopes, dreams, wishes (3), Situation: romantic-relationship-related (3)	Emotions: self-motivation, self-empowerment (3), Personal situation: issues (3), Personal situation: solution (3)
Most used codes in answers	Orienting: goal setting (3), Orienting: exploring options (2), Wellbeing: enjoyment (2), Contra: perceived	Emotions: dissatisfaction (5), Contra: unachievable future (4)	Personal situation: stressed, depressed (5)	Attending to oneself: self-motivation, self-empowerment (2), Emotions: hopes, dreams,	Emotions: uncertainty (4), Emotions: hopes, dreams, wishes (2)

	inapplicability (2)			wishes (2), Orienting: goal setting (2), Wellbeing: enjoyment (2)	
Characterisation of participant based on letters and answers	Goal- oriented, likes planning for the short- term, midterm and long-term future, very practical and realistic, focuses on career and romantic relationship	Career- oriented, likes to find solutions to problems she encounters, likes to think about the future as an ideal version of herself, afraid of not achieving this ideal, insecure about the future,	Very creative, likes narrating the future like a fairy tale, letters are very abstract, focus of the letters on personal development and friendship	Very romantic, enjoys imagining the future with his partner, thinks about the future for enjoyment and mindfulness, career is equally important as family	Often feels stressed, but also likes to have fun, focus on personal development, sees future self as a wiser version of present self, has difficulties imagining a future very far away, likes to give moral advice to self

### **Catherine: using the future for orientation and organization**

The first participant to be introduced is Catherine, a 22-year old student from Singapore.

Catherine was a very conscientious participant, who delivered all her letters in time, and needed very little reminders. Due to a lack of time, she was only able to write one letter in week two, and one in week three. Catherine also took care to write her letters in three consecutive weeks. A sample letter from Catherine is shown below:

*By December 2020, I graduated from my university in Singapore and went on a graduation trip with my friends and [my boyfriend] in Japan. I also finished an internship in the UNHCR. In 2021, I started my Masters at the University of Maastricht. [My boyfriend] and I are finally living together in Liege which is near my university and [my boyfriend's] workplace. I managed to get a scholarship from the university, and it is a big financial relief. My friends in Singapore keep in touch with me and we maintain our friendship. Sometimes, [my friends from studying abroad] and I meet up in different parts of Europe. I'm going to start looking for a full-time job as the master's is just one year long.*

Catherine's letters over the three weeks were consistent regarding content and structure. She focussed on her studies at the university and her career after she graduates. It was noticeable that she likes imagining her future step by step, which means one event builds on the previous one. For instance, her goals were to find an internship, then to graduate from university and then to find a job. Her letters gave the impression that she is a highly organized person, who enjoys

planning her future, but also carefully considers which option would be the best for her. For instance, in the questionnaire she reported that she would consult her future self to find the best internship for her.

Another important topic for her is the relationship with her boyfriend. Her relationship also seems to have a big influence on her decision where to move and to work as she described moving to Europe to live with her boyfriend after graduating. The relationship clearly is equally important to her as her career-related goals, and like her career, she seems to take a step-by-step approach in planning her future with her partner. For instance, in her letters, she described going on a vacation together, then moving in with her partner and eventually getting married.

Throughout her letters, it became clear that Catherine has clear goals for her future. She seems to make realistic, practical and achievable goals. The information in her letters and answers suggest that Catherine is a very achievement-oriented person, who knows how she can realize her goals. Her most used codes were *goal setting* and *exploring options*. Her practicality also became visible in her letters, as she abstained from a greeting to her present self like some of the other participants did.

Interestingly, Catherine has had a clear idea about her future about all three different time spans. She did not report difficulties or concerns regarding her future. Also, it seems like Catherine used the letters in a productive way: in the first week she stated that she would only consult her future self if she was instructed to do so, and in the last week she reported that she consulted her future self to make plans for the next year.

### **Erik: looking to the future for motivation and enjoyment**

Erik is a 29-year-old student from Germany, who currently studies in Denmark for his Master's. Like Catherine, Erik was a very reliable participant, who needed no reminders to finish the intervention. He genuinely enjoyed the exercise and had so much fun writing his letters, that he completed the entire intervention in one day.

A sample letter from Erik is shown below:

*Hello present self, Today it's me your future self from ten years in the future. A lot has happened in the past decade and you made a lot of progress. First of all you achieved your dream of not living in Europe or the Global North anymore. A couple of years ago you have moved with your now married partner to Thailand in South East Asia. You're living in the outer districts of Bangkok in a nice apartment and by now, both of you actually aren't alone anymore. You have adopted children and have a real family. To support the idea of equality and because you like the life at home a lot you're the stay at home dad and take care of the household and the kids. You feel proud about your own achievement of having made it so*

*far of obtaining the ability to have a happy and stable family around yourself. Past troubles with your partner or other people look like small blimps by now and you can laugh about them. You're hopeful about your future and the future of your loving family.*

In his letters, Erik mostly focussed on his studies and his relationship to his girlfriend Catherine. Erik enjoys imagining his future with a great amount of detail. The letters suggested that he likes planning, but in a more playful and less concrete way than Catherine. The romantic relationship was already addressed by him in the first letter, but at the present time it seems to be equally important to him than his career. Later, in week three, it became clear that he sees having a loving relationship and a family as more fulfilling than an occupational career.

Stability seems to be very important to Erik since he repeatedly mentioned that he would like to provide stability to his partner and future family. Also, he described a sense of stability and safety in his romantic relationship. The notion of stability and safety in the relationship was consistent in every letter. Furthermore, Erik likes to take care of others with personal attendance and taking time for others, which became obvious in his third letter in which he described taking care of his future family.

He liked to address himself in his letters, as if his future self was talking to his present self. Also, he was very consistent in praising himself for achieving things that are important to him, such as graduating from university or being able to have a stable relationship. According to Erik, imagining his future self achieving these goals “felt like a power boost for really achieving them”.

Erik is the only participant who reported that he imagined his future self before. Firstly, he stated that he engaged in futuring as an avoidance strategy, because he wanted to escape duties and obligations. Secondly, he used futuring in stressful situations to feel more hopeful, and thirdly, he reported that he uses futuring for fun and without any further purpose. Also, Erik was one of only two participants who enjoyed writing the letter because he thought it was “helpful because it felt like I could let myself and my thoughts flow and be myself without possible judgement by others.”

### **Millie: the future as a mindfulness adventure**

Millie is a 25-year old student from Germany, who is currently studying in the Netherlands. Millie was slightly hesitant in the beginning of the intervention, also because she had trouble opening the TIIM App. However, once she started writing her first letter, she reported that she felt inspired and enjoyed writing her letters so much that she delivered four letters in two days.

Millie's letters were unlike those of the other four participants. A sample letter of Millie shows her approach to the task:

*I imagine myself visiting a place which is hidden in a forest. This time I have a little more luggage than before. The more I move into the forest, the more luggage I leave behind. It feels refreshing and with every step I feel better. I see a woman below a tree. She is reading a book about horses with hats and laughs so much, that her nose vibrates like a little bee. I am curious and brave enough to sit next to her. She observes me carefully but does not hold back. I feel strangely comfortable around her and stronger than ever. She also has a little baggage with her and without talking we decide to distribute it. She laughs at my cat stickers and I laugh at her fox plushies. We wander through the forest together and with every step we take, we grow more and more together. I feel accepted, free and as if I found someone special. I like being alone but since I met her, I think differently.*

Millie's letters read like she is narrating a fairy tale. In her first letter, she described distancing herself from outside influence and focusing on herself and her feelings. In the second letter, which is shown above, Millie introduced her friend, who also appeared in the two letters she wrote in the second week. In the second, third and fourth letter, she described a journey through a magical forest she imagined she and her friend are going on. In the last letter, she described herself and her friend visiting Tokyo and a castle with foxes.

Looking at her letters, it looks like Millie is a very creative person, who likes describing her narrative with a lot of details. The focus of her letters is her personal development and the relationship with her friend. For instance, in the first week, she describes how she can accept herself, even though it felt uncomfortable at first. In the second week, she links her personal development with the friendship, and explains how having her friend around makes her feel safe, accepted and free. In the third and fourth letter, she mentions how she and her friend had to overcome many obstacles, but that they could manage it together and she expresses gratitude and happiness for going on many adventures with her friend.

Millie stated in the questionnaire that "It was a nice experience to write down my current feelings and release them by writing." Furthermore, in her letters, she liked reassuring herself that she can overcome difficulties and, in the end, will become a strong and happy person. Interestingly, Millie's letters were consistent in their format, just like those of Erik and Catherine. Since her letters connect to each other and are all part of one coherent narrative (except for the first one), she abstained from greeting or addressing her present self directly, thereby breaking up the traditional form of a letter.

### **Sophia: a hesitant look into an ideal future**

Sophia is a 21-year old student from Germany, who is doing a bachelor program in the Netherlands. Sophia was a motivated participant, who started off with a lot of enthusiasm, but soon discovered that imagining her future is not her favourite activity. Nonetheless, Sophia was determined to finish the study, and delivered two letters in week one, one letter in week two and one letter in week three. Her last letter is shown below:

*Dear present self, It's around 10 years from now. I am in a big hall and there are a lot of people sitting in front of a stage, all poshly dressed. I am also wearing a nice dress. I am very excited. Can't wait for the moment I am allowed to enter the stage. Today I am getting a price for the book I published about a year ago. It was a lot of effort and work, it cost me a lot of nerves and needed a lot of support from friends, family and colleagues. However, I was never so proud in my life. I would have never expected it to actually happen. Therefore, I want to remind you to always belief in your dreams and never give up, no matter how difficult and frustrating it gets, keep going, someday it will all work out as you wanted it to. Your Future self*

All of Sophia's letters were about her studies and her future career after graduating from university. In the first week, she focussed on her bachelor thesis, and directly addressed her present self with the advice to work on it. In the second week, Sophia focussed on the master program she wants to enrol in and in the third week, she described herself as an accomplished author, who received a price for her book. Even though, she reported in the questionnaire that she did not like imagining her future self, she reported that thinking about her future self helped her to solve a problem with her bachelor thesis. Unlike the letters of the other four participants, did not mention personal information or relationships to other people.

Sophia seems does have an idea for her future but does not enjoy imagining all the details that will lead her to her future goals. For example, in the second letter she described doing a master program. There is not much information about her situation but she mentioned several times that it is a challenging and she told her present self: "I can tell you that it's of course a lot of work and you have to keep up with everything to not lose track."

What was also noteworthy about Sophia's letters was that she liked to describe a goal she accomplished but rarely mentioned how she got there. For instance, in the letter shown above, she finds herself in the situation of being an author but there is no information on how it happened. Instead, in the questionnaire she mentioned that she rather likes to focus on the present and work on the tasks at hand and does not (want) to know what will happen after those. Therefore, she described her short-term goals like working on her thesis more detailed than the goals that were more far away.



The main issue with futuring Sophia encountered and mentioned in the questionnaire, was that she imagined her future self as an ideal version of her life and was afraid that she could not live up to her own expectations. In the questionnaire, she described the exercise as not helpful “because I am basically forced to imagine a positive future” and “that it is very unlikely that everything will just work out as perfectly as you should imagine”. This was because she interpreted the assignment of imagining her “desired future” as imagining her ideal future.

Because of these issues, the researcher decided to talk to Sophia about the study. After reading the answers to the questionnaire, the researcher approached the participant and reminded her that she might terminate the intervention at any given time without further notice, if she thinks the lettering is not useful to her. Sophia replied that she would like to continue with the research. Therefore, the researcher suggested that the participant might try to look at the futuring in a different way and to imagine her future in a more open way and not only see this exercise as an ideal version of herself that must become true. However, in week three Sophia remarked that she liked her future self in her imagination but again was afraid that it would not become reality.

### **Joost: words of wisdom from an unclear future**

Joost is a 19-year old Dutch student, who also studies in the Netherlands. Joost was the only participant who needed a lot of reminders from the researcher to finish the study. He was very motivated in the beginning, but soon was quite demotivated due to technical problems with the TIIM app. A letter from Joost is shown below:

*Today is my, or actually our, 30<sup>th</sup> birthday. Kind of a milestone for you, because you see it as “old”, however I now think that it’s not that old ;). It’s weird to look back to when I was your age. Thinking, that I already learned some skills, while you were actually still not even close to the ending of your learning curve haha. You still have a lot to learn, but I do try to have the same view on life as I had when I was your age. Having fun but being serious when necessary. I now work for a 3D animation company. I provide them with ideas, while I also learn how to use programs to create the ideas I provide. It’s a lot of fun and kind of what I silently always wanted to do, maybe? I’m not sure, but I know I have definitely thought about it before. Maybe I could have switched studies, or chosen a different study from the beginning, but I’m glad how everything worked out in the way it did. IDE learned me a different way of thinking, and I met a lot of wonderful people and learned a lot in general. I would not change a thing! Or at least not a lot :P. Make sure to make your own choices, based on your heart! And keep the right mindset, please :)*

Joost wrote his letters in a very casual way, using emojis and talking to himself the way he would probably speak to a friend. In his letters, he liked addressing his life at the university including his study program but also leisure activities with his study association. In the first letter,

he wrote about his family and about his study program. His letters became increasingly casual each week. While the first letter was quite formal, his last letter (which is shown above) was informal.

In his letters, Joost did not only become increasingly informal but also more and more vague about his future, which according to him, was because he does not know what his future will be like after he graduates from university. Overall, he did have fewer clear ideas for his future in the long-term than some of the other participants, perhaps because he was the youngest participant.

However, in the first two letters he reported feeling very stressed, but it did not become entirely clear why. It seemed like studying and becoming a board member of his study association made him feel somewhat stressed and pressured. For instance, in the first letter he wrote: “Before I finish this letter, I just want to make sure that you do not stress too much present Joost!!” There seemed to be a connection between his level of stress and the time span between the present self and future self. The closer his future self was to his present self the more stressed he felt. In his last letter, he did not mention feeling stressed at all.

Throughout all the letters, Joost presented his future self as a wiser and smarter version of himself. In the last letters, he described his future self as a smart and happy person who is satisfied with himself and the path he chose. In the role of the future self Joost liked to give his present self vague advice on how to live a good life but did not include specific recommendations for his course of action. However, Joost also reported that imagining the long-term future was quite challenging to him and he was insecure if it was very helpful for his present self.

Participant Joost wrote two letters in the first week, but it was decided that his second letter would not be included in the data analysis. This was done because Joost’s second letter was very short, since he did not find it useful to write two letters per week. He answered the questions in the questionnaire very briefly after handing in the second letter. Therefore, both the letter and his answers were not suitable for the data analysis.

## **Conclusions and Discussion**

The aim of the research was to find out more about the relationship between the temporal distance between present and future self and the functionalities of imagining the future in the daily life of university students.

To give an overview of the results of this research, next to the already known functions of imagining the future, it was discovered that another function was to take care of oneself and that futuring can be used to increase wellbeing in different ways. Additionally, it was found that futuring is not productive when participants do not feel connected to their future self or when they feel overwhelmed by the possibilities their possible self offers. This study has shown that imagining the future can become more productive when participants practice the exercise and when the instructions are tailored towards their needs.

Participants engaged in futuring in a variety of situations. In general, imagining the future self occurs in situations which are important to a person, they can be related to their private life or their career and they can involve other people or only the individual herself. The participants in this research mostly consulted their future self when they felt stressed, depressed or overwhelmed and further research can show if futuring can be helpful to overcome these difficult situations.

The further away the future self is, the more challenging it is perceived by participants, even though results suggest that participants did not have more difficulties imagining their future self than in the near and midterm time span. The bigger the difference between the present self and the future self, the harder it is for participants to imagine details of their future life and the less likely it is that they would turn to the future self for advice when it is perceived as very far away. The younger participants seemed to have more difficulties with the exercise, but this does not seem to be only related to their age but also whether they have practiced futuring before and their sociological age. There was a general trend toward a decrease in the number of functionalities and situations in the midterm time span, which is an important finding.

When studying the functionalities in more detail, there were some functionalities that stood out in comparison to others. To begin with, it was found that *emotional support* often appears together with *self-motivation*, *self-empowerment*. This shows that an important part of giving emotional support is not only to give the present self encouragement and care, but also to give the present self the strength to pursue a desired outcome and to deal with difficulties.

The functionality *praising oneself*, was in most cases used together with *satisfaction/gratefulness*. This was done because participants tend to describe when they were proud of their own achievements and connected this with a general sense of happiness, wellbeing and an overall level of satisfaction. However, it could also be possible that an increased level of wellbeing leads to more positive comments about oneself. Neff (2011) argues that being kind and compassionate toward oneself is related to wellbeing and emotional resilience. It increases the motivation to become happy and free from suffering (Neff, 2011). Being self-compassionate also

means having a positive self-image and making positive evaluations of the self and thus engage more in self-enhancement than individuals without a sense of self-compassion (Neff, 2011).

As reported in the results section, the function *narrative imagining* was increasingly used from the first week to the last week. In the last letters, all participants engaged in narrative imagining, suggesting that the bigger the time span between the present and future self, the more likely this form of imagining may become. However, this could also be due to practice since the participants already did this exercise at least twice before moving to the long-term future. Also, some participants, like Millie used *narrative imagining* unrelated to the temporal distance. Millie's letters were narrated in as part of one story and did not include any cues that were related to a specific time horizon. This means that some participants have an idea about the time span in mind but do not write it down in their letters. Therefore, the use of this form of imagining seems to give little information about the time span.

Overall, there was a decrease in the functionality *Emotions* from the short term to the long term time span which is in line with the findings of Schelling (1982) and Frederick et al. (2002), who stated that it becomes more difficult to anticipate emotions in a future that is far away from the present.

Moreover, several personal and social situations were discovered in which participants engaged in imagining the future. An interesting finding regarding the personal situations was that when participants wrote about issues and solutions it was unrelated to the time span. Therefore, it can be seen as a recurring pattern which is not connected to specific events throughout the lifetime. It can be hypothesized that this pattern is related to the psychological concept "need for cognitive closure" which describes a person's "desire for predictability, preference for order and structure, discomfort with ambiguity, decisiveness" (Webster & Kruglanski, 1994). According to Webster and Kruglanski (1994) the "need for closure may arise where predictability or action seem important" and when achieving closure seems beneficial for the individual. This means, when encountering a situation or an event which is perceived as difficult it seems desirable to find a solution for it.

Another important finding was that the number of functionalities and situations in the letters and answers to the questionnaire decreased from week one to week two and then increased again in week three. These functionalities were *narrative imagining*, *evaluating*, *emotions*, *contra futuring*, *social situations* and *personal situations*. A possible explanation for this finding could be that participants were less motivated in week two. Catherine, Sophia and Joost wrote two letters in week one and did not find writing the second letter useful, which was also the reason why Joost's second letter was not included in the data analysis. Because of that it is possible that

those participants were less motivated in the second week and did put less “codable” information in their letters. Another potential explanation is that the participants have not thought much about the midterm time span before and therefore included less relevant information in the letters. Nonetheless, this could also be due to the coding procedure. It is possible that there were fewer codes used than in week one once the coding became easier for the researcher.

Furthermore, results of this research suggest that age might play a role in how participants imagine their future in the different time spans. The youngest participants in this study, Sophia and Joost had the most difficulties imagining their future, especially in the long term time span. Therefore, it seemed like age had an influence on the level difficulty when imagining the future. Also, they both liked to use worldly wisdom in their letters. This concept is often used when participants have vague ideas about their future. Therefore, it might be possible that engaging in dialogue with the present self to give advice in this form, is both an identifying feature when participants feel insecure about their future and a way of coping with uncertainty regarding their own future. However, Catherine who was also quite young did not experience difficulties imagining her future in any of the time spans. This could be due to the fact that the questionnaire showed that Catherine had imagined her future before participating in this study, whereas Sophia and Joost indicated that they did not do so. In general, Catherine seemed more inclined to think about her future oftentimes and even reported that she talks with her friends about future plans. Thus, it can be assumed that thinking about the future on a regular basis can facilitate writing the *Letter from the Future* and make it appear more helpful to the writer. Another explanation for this finding could be a difference in sociological and chronological age between the participants. Laz (1998) argues that age has often been treated as an “objective chronological fact” (Laz, 1998) but highlights that age also includes a social and cultural component. Thus, age does not only include the number of years a person has lived but also their sociological and cultural background (Laz, 1998). Sophia and Joost both come from a Western culture, whereas Catherine is from Asia. Hence, it is likely that their educational, social and cultural backgrounds differ and that the societal expectations about their age are different as well, i.e. what they should have achieved or done at a certain age

Lastly, the answers to the questionnaire suggest that it was harder for some participants to imagine their future self than for others. A possible explanation on why some participants perceive futuring as more difficult than others, could be their state of mind when writing the letters. As mentioned in the introduction, a positive emotional state is connected to future self-continuity (Blouin-Hudon & Pychyl, 2015). This means that being in a positive state of mind can facilitate connecting to the future self and imagining the future self becomes easier.. Since Sophia

said " I don't like to imagine my future" it can be assumed that her negative expectation about this exercise made imagining her future self more difficult. However, other participants such as Erik, had a positive expectation and could thus imagine their future easier and with more vividness. Hence, it seems like futuring is more useful in cases in which the participants feel a sense of connection to their future self than when they have no connection to their future self.

### **Strengths, Limitations and Recommendations**

A strength of this study is the development of an extensive coding scheme, which expands the original coding scheme of Tromp, Sools and Mooren (2015) and includes a number of additional functionalities. The coding scheme was developed on the basis of the original list of functionalities, the content of the letters and the answers from the questionnaire. Furthermore, the study considers the answers to the questionnaire which include situations in which participants imagine their future and when they consulted their future self. Thus, the answers to the questionnaire and the *Letters from the Future* together are more comprehensive than both materials alone. Criticism of a mixed methods approach include, that it makes a study longer and more complex for the reader (Malina, Norreklit & Selto, 2011). Advocates of quantitative studies may contend that their results are more reliable, valid and less subjective than qualitative methods but advocates of qualitative studies prefer a deeper look into “explore more complex aspects and relations of the human and social world” (Malina, Norreklit & Selto, 2011). Eventually, it can be argued that a mixed methods approach can be beneficial to yield more complete information that one approach alone could not provide (Malina, Norreklit & Selto, 2011).

Another strength is the fact that the study includes a midterm temporal distance between the present self. The distinction between short term, midterm and long-term time span provides a more granular approach than a binary distinction between near and distant future. On one hand, this made the data collection more extensive which required the participants to spend more time on it. On the other hand, it addresses a gap in previous research, which mainly focussed on the near and distant future and thus gives more insight into how the functions change over time. Also, when comparing the data between the three weeks, it turned out that the number of codings decreased in the second week for most main codes. Therefore, more research including a midterm time span should be carried out.

The *Letters from the Future* proved to be a valuable instrument, which allowed participants to be creative in the content of their imagined future. Previous research has demonstrated the successful use of this method in exploring the functionalities of imagining the future and to make suggestions on how the instruments can be an addition to healthcare practice

(Bohlmeijer et al., 2007; Sools & Mooren, 2012; Tromp, Sools & Mooren, 2015). In the current study, participants generally reported enjoying imagining their future and writing the letters, as well as perceiving both as useful. Erik and Millie especially liked to release their emotions by writing the letters, whereas Catherine enjoyed using the letters to plan her future. This shows that *Letters from the Future* can be a suitable addition to mental health practices. This can be done by using the instrument in the context of an intervention. As mentioned before, it seemed like performing the exercise more often facilitated the imagination of a future self. It was also hypothesized that it can increase resilience. To find out more about the possible benefits of futuring for health and well-being, a longitudinal intervention using *Letters from the Future* could be used in therapy or counselling, so that clients could practice imagining the future self and give feedback about if and how they think it was helpful for them.

Furthermore, it can be noted that Sophia misunderstood the instruction to imagine her desired future with imagining her ideal future. This caused her to feel pressured because she was afraid that she could not reach this ideal future in reality. Even though her answers to the questionnaire were quite negative, she successfully consulted her future self in week one to solve a problem she encountered with her bachelor thesis. This shows that this exercise can be a useful tool for participants who do not regularly imagine their future if they find a way to engage with their future in a different way. Therefore, it can be recommended to give more specific instructions or additional written aid to clarify the instructions, to avoid a misunderstanding. Furthermore, it might be helpful to provide a version of the meditation in the mother language of the participants. This would also be a useful idea when using the instrument in an intervention.

A concern regarding this research is reliability and validity in qualitative research. Noble and Smith (2015) argue that reliability, validity and generalizability are not ideal concepts to assess the quality of qualitative research. Instead, the authors suggest that the credibility of qualitative studies can better be assessed with truth value, neutrality and consistency and applicability (Noble & Smith, 2015). These terms entail acknowledging the participants perspective and regularly checking for methodological bias, a clear, accurate and transparent documentation of the research process and decision-making, peer-reviews and the deliberation of whether the findings can be applied in other settings (Noble & Smith, 2015). In the present research, the coding procedure is subjective, since all the letters were coded by the same person. The coding process is not only influenced by the subjective perspective of the coder but also outside influences, such as the mood of the coder or distractions from outside sources during the coding process may influence the results. The letters in this study were coded three times by the same researcher but the coding differed slightly in every round of coding. An effort was made by

the researchers to enhance credibility, by clear definitions of the codes and a shared coding scheme, which was used by both researchers. Furthermore, triangulation, which means the application of different methods, can be used to enhance credibility of qualitative research (Golafshani, 2003). This was done in this research by combining the *Letters from the Future* method, evaluated with a content analysis and with the questionnaire, analyzed with descriptive statistics. However, for future research, it can be advised to take these considerations into account and to test for the applicability of the coding scheme and questionnaire in a different setting.

Furthermore, this research was also influenced by the choice of participants. All of them were university students, therefore there was not much variation in the sample. This also influenced the topic of the letters, since almost all of them wrote about their life at the university and their graduation. Further research with a bigger variety in the sample would be useful to find out, whether individuals from different backgrounds and states in life would show different functionalities in their letters. Additionally, the age range of the participants was quite narrow, since there was only a difference of ten years between the youngest and the oldest participant. It is advisable to carry out more research including younger and older participants. It can be assumed that especially participants older than 30 years old, might describe the long-term time discrepancy in a different way than younger participants.

Regarding the design of the study, it should be noted that the idea of asking participants to complete the study twice a week was not successful. The initial idea of the intervention was that participants would complete it twice a week, but most participants did not see the point of doing the exact same exercise twice a week. This was done to gather more data and to give participants the opportunity to write about different topics in their letters. However, due to a lack of time, motivation among the participants and because of the general delay in the data collection it was decided that one letter per week would be sufficient. Another reason was that the researcher was concerned that sticking strictly to the model with two letters per week would result in a high dropout rate among the participants. Therefore, two solutions are possible for future research. The first solution would be to collect data once a week. The second solution would be to aim for two letters each week. This would require more detailed instructions for the participants to explain why two measurements are necessary and possibly more incentives for the participants, such as a monetary reward or human research credits.

Another limitation to this study is the choice of the materials. The TIIM app used to create this intervention was still under construction and therefore, it showed some serious technical flaws which delayed the data collection and made the use inconvenient for the participants. These included technical problems, such as error messages when logging in or being unable to submit



their data. Additionally, participants reported that they could not skip items that were not applicable to them and that they could not use the application on their laptop or computer, which also excludes participants who do not use a smartphone.

Because of these design flaws, data collection took four weeks longer than intended, and the burden for the participants was bigger than expected. Furthermore, data of the questionnaire could not be exported to SPSS, which would have been more convenient for its analysis. Therefore, the use of the App cannot be recommended at this point. It is advisable to use a similar program, such as Qualtrics, an online survey tool, until a more reliable version of the TIIM software is developed. Ideally, participants should be able to complete the intervention on their computer or laptop, which is more convenient for writing the letters and includes participants who do not use a smartphone.

Additionally, the length of the letters was limited to 1000 characters, which turned out to be quite limited for some participants. After completing the intervention, both Erik and Millie remarked that they would have written more if there would have been this option. Especially for participants who enjoy this exercise, 1000 characters can be too restricting, therefore a larger word limit is advisable.

## **Conclusion**

This was the first study to investigate the functionalities and situations related to imagining the future and how they are related to different temporal distances between the present and future self. Despite its limitations, this research has made some findings which add new information to the research about imagining the future using a narrative approach. Even though the functionalities of imagining the future have been explored before, several new functions have been found. Two types of situations have been discovered in which individuals engage in futuring, which are personal or involve a social setting. To fill a gap in previous research, which mainly focussed on a difference between near- and long-term future, a midterm time span was added. It was found that there was a decrease in all functionalities and situations in the mid term time span. Further exploratory research should be carried out to find out more about functionalities and situations in the midterm time span to add to this study and to find out why this phenomenon occurred. *Letters from the Future* has been a suitable instrument for this research, and its use in further research can be recommended once instructions have been tailored to the specific needs of participants. This shows that exercises involving futuring can be an addition in the field of healthcare because they can be used by participants in a productive way for their personal development. Furthermore, more longitudinal research, such as an intervention,

is advisable which involves a regular practice in imagining the future to find out more about long term benefits for participants.

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## Appendices

### Appendix A

#### *Informed consent form for participants in the study*

Thank you for your interest in our research. This study is about the function of imagining the future in everyday life, when compared between different time spans between the future self and the present self.

Participants of any age group are welcome to partake in this study. Participants under 18 are required to obtain parental consent. For a parental consent form, please contact the researchers. There are no health risks involved.

Your participation in this research is strictly voluntary. You may withdraw from the research at any time without further notice or providing any reasons. Please note that Human Research Credits cannot be awarded when the study is not completed by the participant.

Names and other personal information, that can be traced back, will be anonymized. However, your letters will be, partially or completely, added to the research report. The data will be used for this research and publication purposes. Data may be used for future research.

Your data will be handled in compliance with the EU General Data Protection Regulation GDPR. For information about the GDPR, please visit this link: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679>.

The intervention will have an approximate duration of about 180 min over the course of three weeks. This time is divided into two sessions per week that take about 10-30 minutes each. In each of the sessions, you will be asked to write a letter from your future self back to the present. Afterwards, you are asked to answer four short open questions.

This research is carried out by Valerie Kissel (v.m.kissel@student.utwente.nl) and Jonah Bojer (j.bojer@student.utwente.nl). For further questions or concerns about this intervention please do not hesitate to contact the researchers.

## **Appendix B**

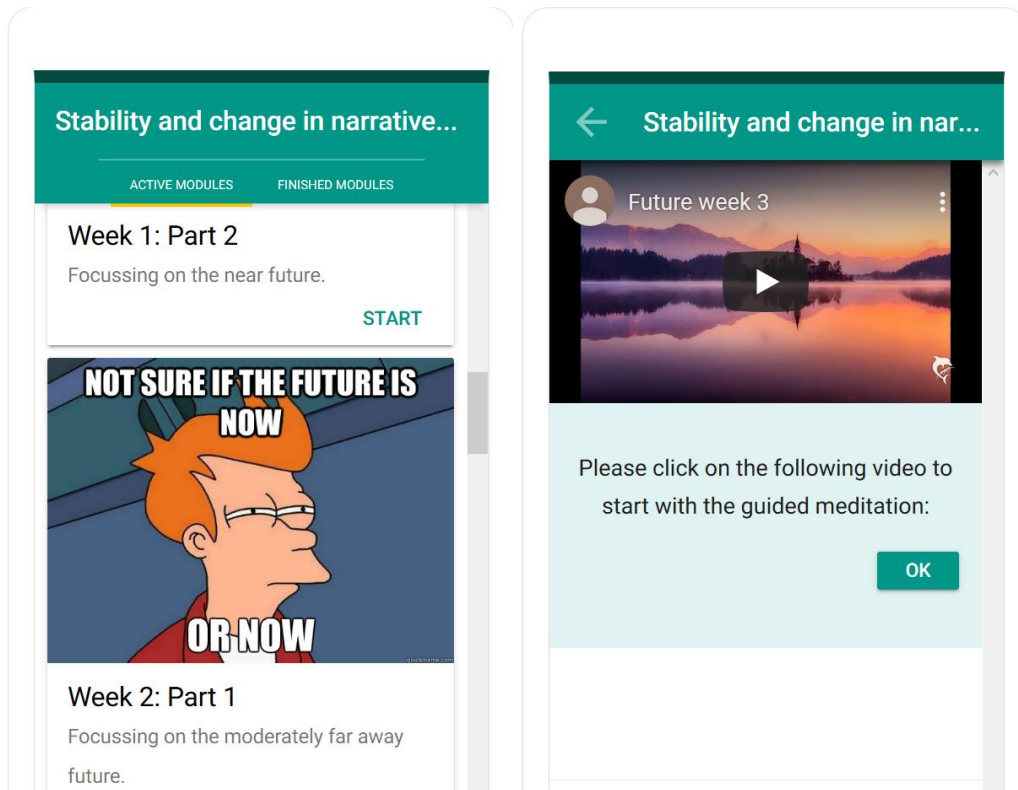
*Transcript of the guided meditation from the audio recording of Dr. A.M. Sools.*

Welcome to the future now experience. Thank you for joining us. The future now experience is a creative exercise where you will be transported to the future with a time machine. It will take about 20 minutes to write a letter from the future. For this experience to work optimally we invite you to relax yourself, sit in your chair comfortably. Before starting the exercise, you will receive a guided meditation that will help you travel to the future and relax as much as possible. It is important that you can release your mind, relax a bit, breathe and don't think too much. Have fun. That is the idea. Okay, are you ready? Let's begin. So, sit comfortably in your chair, with your feet on the ground. Take a moment to relax your body. Feel how your feet touch the ground. Maybe wiggle a bit with your toes. Then go up with your attention. Move up to your legs, up to your belly. And relax. Now feel how you sit in the chair, how your body touches the seat. And now take three deep breaths. And with each breath you release tension that you may have. Release all thoughts, just focus on the here and now, on the breathing and then smile to yourself. Welcome yourself in the present moment. Now imagine that you are travelling with a time machine to the future. The future can be any moment from now until one month from now/ between one and five years from now/ more than ten years from now. You go to a desired situation, event or think about any issue that is important to you. You go to a desired situation. A situation where you have accomplished something you desire, where you have learned to deal with some difficulties you may be experiencing right now. Focus on one situation you would like to be in. You look around where you are. Your surroundings. Are there people? Is there nature? Buildings? What does it look like? What do you look like? What are you wearing? How are you feeling? What are you doing? And now you start describing the situation you are in and you write a letter about this situation. This letter will go back with the time machine to the present, to yourself an audience in the present. It is your present self that you are writing to. So, imagine that you write this letter to your present self. Describe where you are, what you are doing, and you also describe the path that led you to this desired future. And then you close the letter with a message to the present. When you are ready you can now open your eyes and start writing.



## Appendix C

Picture of participant view of the TIIM app, with an overview of the different weeks (left) and the video for the guided meditation (right)



## **Appendix D**

*Instructions for the letters and items of questionnaire to be filled in after writing the Letter from the Future with answer options in brackets*

1. Please click on the video to start with the guided meditation.
2. After you have watched the guided meditation, please write your letter here.
3. How difficult was it for you to imagine yourself in the future? (Very easy; Easy; Neither easy nor difficult; Quite difficult; Very difficult)
4. How much did you enjoy imagining your future self? (I enjoyed it a lot; I enjoyed it; I neither enjoyed nor disliked it; I disliked it; I strongly disliked it)
5. To what extent has imagining your future self been helpful for you? (Very helpful; Helpful; I am not sure; Not very helpful; Not helpful at all)
6. Please explain why you think so.
7. How much did you enjoy writing the Letter from the future? (I enjoyed it a lot; I enjoyed it; I neither enjoyed nor disliked it; I disliked it; I strongly disliked it)
8. To what extent has writing the Letter from the future been helpful for you? (Very helpful; Helpful; I am not sure; Not very helpful; Not helpful at all)
9. Please explain why you think so.
10. Did you spontaneously consult your future self in the last few days? (Yes/No)
11. If yes, in which situation did you consult your future self?
12. If no, can you think about a situation in which it would have been useful to consult your future self? Please explain why.