

# Impact study of futuring on resilience and well-being and the mediating role of positive emotions in adults



Bachelor thesis Psychology  
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## Summary

The narrative approach has been shown to be effective in promoting resilience and well-being. These effects were mostly found in reminiscence [reflecting on the past]. Futuring [reflecting on the future] appeared to have the same potential to promote resilience and well-being, but empirical research on the effects of futuring in relation to these constructs is lacking. This research was conducted to gain more insight in the effects of futuring compared to the effects of reminiscence on resilience and well-being to find new ground for effective interventions that fit the current societal needs.

A randomized controlled trial was conducted over the course of a fortnight. A total of 120 participants was asked to write letters from either the future or the past. The trial consisted of three conditions: Futuring\_4 (writing four future letters), Futuring\_1 (writing one future letter) and reminiscence\_1 (writing one past letters). The trial was preceded and secluded with questionnaires regarding resilience, well-being and positive emotions. The entire trial was set-up in an online environment. Participants received an e-mail with information about the trial and tips for writing the letter(s) when they signed up. ANOVA, correlation and multiple regression analysis were performed to answer research questions. Research questions were: [1] Does futuring have an effect on resilience and how does this effect compare to the effect of reminiscence? [2] Does futuring have an effect on well-being and how does this effect compare to the effect of reminiscence? [3] Are any of these effects mediated by positive emotions?

Results showed no significant increase in means, nor any significant differences between groups. Also, neither futuring nor reminiscence had a predictive value for resilience or well-being. The mediating role of positive emotions could not be tested. However, positive emotions did appear to have a predictive value for both resilience and well-being. Although results were non-significant, they did provide a starting point for further research on how futuring can be used as a tool to promote resilience and well-being. The results of this research might have been affected due to loss of data, high dropout rates and selection bias. Different results might be achieved with a bigger sample size, a more representative sample including both participants with and without psychopathology, with a different intervention design and within different timeframes.

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# 1. Introduction

*“Narration is as much part of human nature as breath and the circulation of blood”*  
(Byatt, 2000, p. 21)

Previous research has shown that life stories can contribute to identity construction (Polkinghorne, 1988), sense of meaning (Bruner, 1990), sense of purpose or direction (Adams, 2009), sense of coherence (Bohlmeijer, 2007a) and mental well-being (Bohlmeijer, 2012). Traditionally, the focus of the narrative approach has been mainly on recollection of the past [reminiscence] (Sools & Mooren, 2012). Reminiscence has been shown to be beneficial to promote resilience and well-being in elderly adults with depression (Bohlmeijer, 2007b). Sools and Mooren (2012) have argued that futuring (imagining the future) could have the same beneficial effects on resilience and well-being as reminiscence. If so, this could fuel new interventions but the effects of futuring on resilience and well-being have yet to be empirically researched. Current research is therefore designed to investigate the effects of futuring on resilience and well-being compared to the effects of reminiscence and to provide further research ground for the use of futuring as a tool to promote resilience and well-being.

## 1.1 Resilience

Human resilience first emerged in epidemiological studies. Hinkle (1974) found that individuals could live through problems in relationships, deprivation, isolation and dislocation yet show little if any signs of psychological reaction and/or physical illness. They seemed to be “*psychoimmun*” or “*invulnerable*” (Hinkle, 1974). These findings coincided with early psychological and psychiatric literature about children who grew up in the face of adversities like genetic disposition, poverty, neglect, [sexual-] violence, or parents with substance abuse, or mental- and/or physical illness yet still developed well (Anthony, 1974; Garmezy, 1971; Murphy, 1974). Psychological and psychiatric researchers argued that these “*invulnerable*” or “*invincible*” children held the potential to be a guide in interventions and policies regarding psychopathology (Masten, 2001).

This concept of “*invulnerability*” or “*invincibility*” added a new branch in psychopathology research which focused on good outcomes and understanding positive developmental pathways in the context of adversity as fundamentally important for preventing and treating psychopathology (Masten, 2001, 2007). The terms “*invulnerability*” or “*invincibility*” have later been replaced with “*resilience*” (Earvolino-Ramirez, 2007). In the past three decades resiliency research has advanced

in four major waves, which all took their own approach to and understanding of resilience (Masten, 2007). These different waves have led to a multitude of definitions of the concept “resilience” (Hoijsink, Te Brake & Dücker, 2011; Luthar, Cicchetti & Becker, 2000; Masten, 2007).

There are three common factors in these definitions. First is the mental and physical ability to withstand or quickly bounce back from adversity (Block & Block, 1980; Connor & Davidson, 2003; Lazarus, 1993; Masten, 2007). Second is the moderation of negative effects during/after adversity (Ahmed, Seedat, Van Niekerk & Bulbulia, 2004; Masten, 2007; Colten, Kates & Laska, 2008). Third is positive outcome and/or positive goal orientated action (Ahmed et al., 2004; Bonanno & Mancini, 2008; Wagnild, 2003). Because it encompasses both psychological and physiological implications of resilience and combines the three most common factors, the following definition of resilience will be used in current research: “*the ability to bounce back from negative emotional experiences and by flexible adaptation to the changing demands of stressful experiences*” (Block & Block, 1980; Block & Kremen, 1996; Lazarus, 1993).

There is also an ongoing discussion among researchers on whether resilience is a personality trait or a process. Block (1950) and Block (1951) introduced the term “ego-resilience” based on the observation that some people seem to be more resilient than others. According to them, ego-resilience is a personality trait because effective adaptation is contingent on and characterized by individual qualities like impulse-control, flexibility, self- and emotion regulation, self-efficacy and a broad repertoire in problem-solving. This view is supported by researcher like Beardslee (1989), Caplan (1990), Rutter (1985) and Wagnild & Young (1990, 1993). In contrast, researchers like Werner (1984), Luthar, Cicchetti & Becker (2000), Masten & Garmezy (1985), Masten (1994, 2004) and Bonanno & Mancini (2008) view resilience as a dynamic process which can be promoted by child variables, demographic variables and sociocontextual variables. This current research holds the position of resilience being a dynamic process which can be promoted. This view encompasses personality factors, as the observation that some people are more resilient than others appears to be valid, but also the intricate interaction between personality factors, social factors and environmental factors, which makes intuitive and scientific sense as people can only exist, learn and develop in interaction with their environment.

## **1.2 Positive emotions**

Negative emotions were successfully connected to specific action tendencies that physically and mentally prepare and enable an individual to fight or flight when facing an immediate threat (Folkman & Lazarus, 1985; Frijda, 1986; Levenson, 1994). It has long been unclear why positive emotions were present during times of stress or hardship and how these positive emotions are evolutionary adaptive (Fredrickson, 2001). A lot of research has been done on how positive and

negative emotions and affects relate to another in times of adversity (Reich & Zautra, 1998).

The Dynamic Model of Affect [DMA] (Zautra, Potter & Reich, 1997) states that in regular circumstances positive and negative emotions are relatively independent, but during adversity an inverse correlation between positive and negative emotions increases. The DMA therefore accounts for the presence of positive emotions during adversity and explains the observation that resilient individuals are characterized by positive emotionality (Block & Kremen, 1996; Tugade & Fredrickson, 2004). Not only do resilient individuals experience positive emotions because they are resilient, but they also experience more positive emotions in times of adversity which helps them adapt (Folkman & Moskowitz, 2000). A series of empirical studies by Ong, Bergeman, Bisconti & Wallace (2006) have indeed demonstrated a positive, significant correlation between positive emotions and resilience in three different samples: (1) 45-day study with a sample of 27 elderly adults, (2) 30-day study with a sample of 40 elderly adults and (3) 98-day assessment with a sample of 34 widows.

The broaden-and-built theory (Fredrickson, 2001) offers additional explanation on how positive emotions serve adaptive purposes. According to this theory experiences of positive emotions broaden momentary thought-action repertoires, which in turn serves to fuel and build resilience [enduring personal physical, intellectual, social and psychological resources]. Positive emotions occurring in not life-threatening situations widen the array of thoughts and actions that come to mind and these broadened mind-sets carry indirect and long-term adaptive benefits because they build enduring personal resources which can be drawn upon in times of adversity. These personal resources outlast the temporary emotional states that led to their acquisition, which means that the incidental effect of experiencing positive emotions can lead to an increase in personal resources. Additionally, positive emotions correct or undo the after effects of negative emotions [the “undoing hypothesis”] (Fredrickson & Levenson, 1998). Research by Fredrickson & Levenson (1998) has shown that positive emotions do not only buffer negative emotions and their physiological consequences in the stressful moment itself, but also mediate the relationship between stress and next day negative emotion and allow for faster cardiovascular recovery.

### **1.3 Well-being in relation to resilience and positive emotions**

For decades mental health has been defined as the absence of mental problems and mental health care mainly focused on preventing and treating mental disorders (Westerhof & Keyes, 2008). In 2005 the World Health Organization [WHO] offered a new definition for mental health: “*A state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.*” (WHO, 2005). This definition has three central elements: individual well-being,

effective individual functioning and effective functioning of the individual in society.

These three elements of the WHO definition correspond with the three elements of well-being empirical research has yielded. First, subjective well-being which refers to life satisfaction and positive emotions (Diener, Suh, Lucas & Smith, 1999). Second, psychological well-being which refers to self-acceptance, personal growth, purpose in life, mastery of environment, autonomy and positive relations with others (Ryff, 1989). Third, social well-being which refers to social acceptance, social actualization, social contribution, social coherence and social integration (Keyes, 1998). Individuals with high well-being are “flourishing” and individuals with low well-being are “languishing” (Keyes, 2005; Keyes, 2007). Languishing individuals might not suffer from psychopathology, but do experience some problems in individual or societal functioning and therefore put the same pressure on health care / community programmes and the economy like individuals with psychopathology (Westerhof & Keyes, 2008).

Resilience shows a positive correlation with psychological well-being (Picardi et al., 2012; Sagone & De Caroli, 2013). Souril and Hasanirad (2011) found that resilience is also a positive and significant predictor for psychological well-being and this relationship is mediated by optimism. Furthermore positive emotions predicted increase in both resilience and psychological well-being (Cohn, Fredrickson, Brown, Mikels & Conway, 2009). Due to these empirical findings and changes in laws and regulations surrounding health care and the way health care is funded, promoting mental health through cultivating resilience has become common practice in regard to treatment and prevention in counselling, mental health services, school environments and community programs (AIESG, 2010; Ager, 2013). Promoting mental health by enhancing resilience fits current financial cut backs because it locates resources within the individual and the community rather than in government programs and initiatives (Ager, 2013). Therefore the demand for interventions that promote resilience and well-being is growing, also because the need, want and capacity for resilience and well-being can differ individually. These differences can be due to subjective [experiential varieties], to objective [socioeconomic] varieties or to the extent to which people had been exposed problems or adversity (Sools & Mooren, 2012).

#### **1.4 Writing in relation to resilience and well-being**

People have a natural drive or a fundamental need to make sense of the world and to find a sense of meaning in life, so they interpret daily experiences and construct personal models with spoken or written symbols (Kellogg, 1999). These symbols form personal narratives [life stories].

Csikszentmihalyi (1990) described two crucial elements in the way individuals make meaning: [1] the classic sense of reference fuelled by sensations, perceptions, memories, associations and fantasies and [2] ultimate sense of purpose and significance in life. Both elements form a platform

on which to build our stories with personal symbols that represent a personal world and convey this representation to others. Individuals differ in the number and contents of constructs they invent and the way they relate to them, but can choose to interpret the world differently by building new personal constructs (Kelly, 1955). Writing can help to gain insight, to find meaning and to build new personal constructs, thus to enhance both the classical sense and the ultimate sense. It also broadens vocabulary [personal symbols] and fuels new ideas, imagination and fantasy.

Narrative psychology is dedicated to the study of life stories [narratives] and the role that narratives play in peoples life. In January 2012 Anneke Sools, Ernst Bohlmeijer and Gerben Westerhof founded the Life-Story Lab at University Twente in Enschede (Sools & Mooren, 2012). It was founded to contribute to research on how the narrative approach in the form of written reminiscence (imagining the past) and futuring (imagining the future) can contribute to resilience and well-being. The focus of the narrative approach has been mainly reminiscence and life-review (Sools & Mooren, 2012). Reminiscence and life-review have been shown to be an effective method to enhance psychological well-being in elderly adults with depression (Bohlmeijer, 2007b) and to adapt to critical life events (Korte, Bohlmeijer & Westerhof, 2011). The lack of attention for the future could be due to the idea that imagining the future in a narrative way is almost impossible because there are no concrete events available to recount (Sools, Tromp & Mooren, 2015). Our stories are about the past in context of a valued ending (Gergen, 1994). The future is an empty space which has yet to acquire meaning; something which we often await (Freeman, 2009).

In their analysis, Sools and Mooren (2012) show that the future has a central role in almost every psychological concept and construct, as they imply development and evolution. In order for something to develop or evolve, there must be something ahead [future]. They argue that the narrative approach lends itself perfectly for exploring future possibilities and that the exploration of these possibilities can contribute to psychological flexibility and therefore resilience and well-being. Sools, Tromp & Mooren (2015) acknowledge that projecting the future might require narrative strategies and capacities, but that people can become better at projecting the future by simply doing it more often. The Life-Story Lab is currently researching how futuring in the form of letters from the future can serve as a prospective tool to promote mental health and resilience. This research has so far shown that futuring seems to invite implicit goal setting and the letters fulfil multiple roles [e.g. emotional, social, educational and behavioural]. Taken together this can be considered a way of anticipating crisis and change [resilience]. Although futuring has a potential to be beneficial for promoting well-being through enhancing resilience (Sools & Mooren, 2012) futuring has not yet been empirically researched. If a distinction could be made between the effectiveness of reminiscence and the effectiveness of futuring in regard to promoting mental health, this could have implications for current policy and practice [interventions].

## **1.5 The scope of current research**

This current research is designed to empirically research the effect of futuring on resilience and well-being compared to reminiscence. Positive emotions are taken into account as a mediator on the effect of futuring on both resilience and well-being, because research has shown that positive emotions have an important function in [the promotion of] resilience and well-being (Fredrickson, 2011; Ong et al., 2006). The following questions will be addressed: [1] Does futuring have an effect on resilience and how does this effect compare to the effect of reminiscence on resilience? [2] Does futuring have an effect on well-being and how does this effect compare to the effect of reminiscence on well-being? [3] Are any of these effects mediated by positive emotions?

## **2. Method**

### **2.1 Design**

This research was conducted as a part of a larger research conducted by 4 bachelor students in context of the bachelor thesis. All students conducted research comparing futuring and reminiscence in their effects on resilience and well-being with different possible mediating or moderating constructs on these effects. For this purpose, the participants and their anonymized data was shared among the student researchers. A randomized controlled trial [RCT] consisting of three conditions was conducted over the course of a fortnight [14 days]. Participants were asked to write letters regarding either the future or the past. Online surveys were conducted on day 1 [T0] and day 14 [T0]. Online surveys consisted of questionnaires regarding resilience, well-being, emotions, hope, optimism, personality and coping. All questionnaires were included in both preceding and secluding survey, with exception of the questionnaire regarding personality [only included in the preceding survey] and the questionnaire regarding coping [only included in the preceding survey]. This research only used the questionnaires regarding resilience, well-being and emotions.

### **2.2 Conditions**

Experimental condition 1 [Futuring\_4] was asked to write four letters regarding the future, one on every third day of the RCT [day 3, 6, 9 and 12]. Experimental condition 2 [Futuring\_1] was asked to write one letter regarding the future on the eighth day of the RCT. The control group [Reminiscence\_1] was asked to write one letter regarding a past event, also on the eighth day of the RCT. According to design, each condition needed 40 participants to have relevant power for research.

## 2.3 Sampling

Participants were recruited over the course of 11 days through snowball sampling [personal network, social media and tell-a-friend]. Inclusion criteria were age [18 and over], origin [Dutch or German] and language [able to read and understand written Dutch texts/questionnaires]. For this research 134 unique cases were recorded, of which 83 successfully finished the preceding survey with the relevant questionnaires [T0\_before\_selection]. Analysis of missing cases after the trial had ended left 29 useful cases for analysis at [T0\_after\_selection]; meaning they had successfully completed T0, randomly assigned condition and T1. Participant selection is reflected in figure 1.

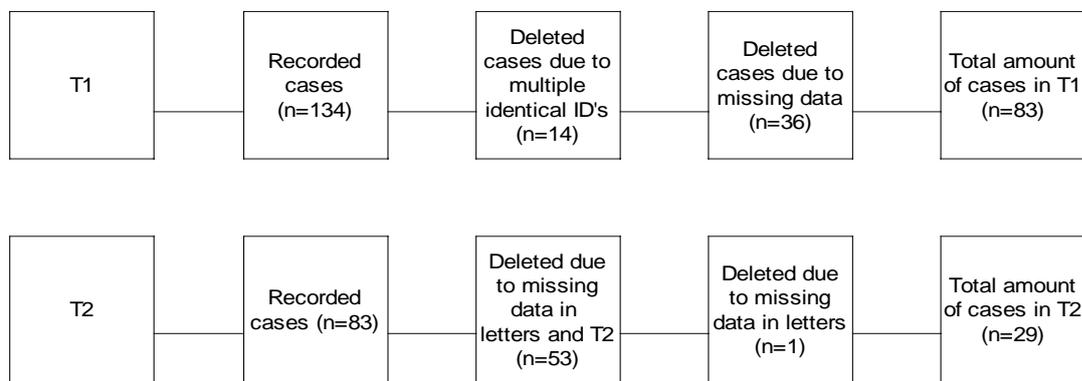


Figure 1 – *Selection relevant data for current research*

## 2.4 Participants

T0\_before\_selection had a total of 83 participants who had finished the relevant questionnaires for this research. Even though these participants only finished T0 and their data were not included in the actual analysis to answer research questions, their data was scanned for differences with the actual group used for analysis consisting of 29 participants. T0\_after\_selection [and inherently T1\_after selection] consisted of 29 participants who had successfully finished T0, assigned condition and T1. Futuring\_4 had 8 participants, Futuring\_1 had 13 participants and Reminiscence\_1 had 8 participants.

Table 1 – *Participant data*

	T0_before_selection	T0_after_selection
<i>Gender</i>		
man	28 [33.7%]	7 [24.1%]
woman	55 [66.3%]	22 [75.9%]
<i>Age</i>		
youngest	18	19
oldest	65	60
mean	27.8	27.48
standard deviation	11.21	12.50
<i>Day activity</i>		
student	55 [68.7%]	22 [75.9%]
job	19 [22.9%]	4 [13.8%]
looking for job	1 [1.2%]	1 [3.4%]
pension	1 [1.2%]	0 [0%]
other	3 [3.6%]	2 [6.9%]

## 2.5 Procedure

Because this research was conducted in name of University of Twente, ethical consent was requested with and granted by the Ethics Committee connected to the department of Behavioural Sciences [BSC]. Subsequently the randomized controlled trial, as well as the preceding and secluding survey were set up in Qualtrics; an online research tool that enables not only informed consent on the starting page of the online environment, online surveys and room for writing the letters, but also randomization and configuration of conditions.

All participants received written information about the nature and the purpose of this research as well as tips for writing the letters. In addition, the Informed Consent option was used on the starting page of the online environment. Study participants were asked to complete the preceding online survey on day 1. After completing the preceding survey, participants were randomly assigned to conditions. In the online environment the tips for writing the letters were repeated and the requested writing dates were revealed. The trial ended with the secluding survey on day 14. Participating student could leave their SONA-number in the preceding survey to collect SONA-points [reward for participating in research fellow students].

## 2.6 Measures

The preceding survey consisted of 8 demographic questions: e-mail, SONA-no, age, sex, highest education, daytime activity, previous experience futuring, if so amount of futuring letters already written. Demographic questions were followed by 6 questionnaires with a total of 86 items, namely: Dutch Brief Resilience Scale [BRS-NL] (Smith et al., 2008), Mental Health Continuum Short Form

[MHC-SF] (Lamers, Westerhof, Ten Klooster & Keyes, 2011), NEO-FFI-NL (Hoekstra, Ormel & De Fruyt, 2003), Positive and Negative Affect Scale [PANAS] (Watson et al., 1988), Dutch Hope Herth Index [HHI Dutch] (Van Gestel-Timmermans, 2011) and Life Orientation Test Revised [LOT-R] (Scheier, Carver & Bridges, 1994). The secluding survey also entailed 6 questionnaires.

Questionnaires were the same as in the preceding survey, except for the NEO-FFI which has been replaced with the Utrechtse Coping Lijst [UCL] (Schreurs, Van de Willige, Brosschot, Tellegen & Graus, 1993). The secluding survey therefore had a total of 109 items.

**Well-being** - For the purpose of this research the MHC-SF (Lamers et al., 2011) was used to measure well-being. The MHC-SF consists of 14 items. Participants are asked to rate on a 6-point Likert scale [0=never, 5=every day] how often they felt as stated during the last month. Mean scores are computed for a total “positive mental well-being” and for three subscales [emotional well-being, social well-being and psychological well-being]. The scale “Emotional well-being” [items 1-3] is about life satisfaction and positive affects like happiness, interest and joy in life [e.g. *In the last month, how often did you feel happy?*] (Diener, Suh, Lucas & Smith, 1999). Psychological well-being [items 4-8] is about optimal personal functioning and entails aspects like autonomy and self-acceptance [e.g. *In the last month, how often did you feel that you contributed something important to society?*] (Ryff, 1989). Social well-being [items 9-14] is focusses on optimal functioning in society, like social contribution and integration [e.g. *In the last month, how often did you feel that you liked most aspects of your personality?*] (Keyes, 1998). The MHC-SF shows satisfactory reliability [Cronbach’s alpha]; total score .89, social well-being .74, emotional and psychological well-being both .83 (Lamers et al., 2011). Test-retest reliability for emotional well-being was .52 [3 months] and .46 [9 months], for social well-being .49 [3 months] and .47 [9 months], and for psychological well-being .45 [3 months] and .53 [9 months].

**Resilience** - The BRS-NL (Smith et al., 2008) was used to measure resilience. BRS-NL consists of 6 items, rated on a 5-point Likert scale [1=strongly disagree, 5=strongly agree]. Participants are asked to rate to what extent they agree with the give statements [e.g. I tend to bounce back quickly after hard times]. Items 2, 4 and 6 need to be recoded after which a total resilience score is obtained through computing a mean score. The BRS-NL shows a good internal consistency with Cronbach's Alpha's ranging from .80 - .91 across samples (Smith et al., 2008). Test-retest reliability [ICC] was .69 for one month [48 participants] and .62 for three months [61 participants].

**Positive emotions** – The PANAS-NL (Watson et al., 1988) was used to measure positive emotions. PANAS-NL consists of 20 items rated on a 5-point Likert scale [1=seldom/never, 5=all the time]. Participants are asked to rate to what extent they experience stated positive and negative emotions in general. The scale Positive Affect [items 1, 3, 5, 9, 10, 12, 14, 16, 17 and 19] reflects

the level of positive affect [e.g. Interested]. The scale Negative Affect [items 2, 4, 6, 7, 8, 11, 13, 15, 18 and 20] reflects the level of negative affect. Watson et al. (1988) reported Cronbach's alpha ranging from .86 - .90 across samples for the Positive Affect scale and .84 - .87 across samples for the Negative Affect scale. Test-retest correlations for an 8-week period ranged from .47 - .68 for Positive Affect and from .39 - .71 for Negative Affect.

## **2.7 Analysis**

First the scores for the BRS-NL, MHC-SF and PANAS-NL were calculated for a quick glance at differences due to the data loss and drop out. Mean score were also tested on distribution. Then reliability [Cronbach's Alpha] (Cronbach, 1951), means and standard deviations for every (sub-)scale were computed. Since the data used for analysis proved to be normally distributed, one-way ANOVA with Bonferroni post-hoc was used to test if either futuring [IV] or reminiscence [IV] had an effect on well-being [DV] and/or resilience [DV] and to analyse if there are any significant differences between groups. In this analysis a distinction was made between reminiscence and futuring, no further distinction was made between Futuring\_1 and Futuring\_4. To test whether positive emotions [DV] mediated the effects of futuring and/or reminiscence on well-being and/or resilience a regression analysis was performed.

## **3. Results**

### **3.1 Data characteristics**

#### **3.1.1 Distribution data**

First the data were tested on distribution by using the Shapiro-Wilk test [ $p > .05$ , BI 95%]. Data in T0\_after\_selection and T1\_after\_selection proved to be normally distributed across all scales with no exceptions, although the non-significance on the MHC-SF "*Emotional Well-being*" scale is marginal (see table 2). Analysis showed that the data in T0\_before\_selection [not shown in table 2] were normally distributed across all scales, except for the MHC-SF "*Emotional Well-being*" scale. Even if all the participants in T0\_before\_selection were included in the actual analysis, this would have made no difference in the statistical analysis techniques used on the data. Since the Central Limit Theorem (Feller, 1945) states that the arrhythmic mean of large enough samples will be approximately normally distributed regardless underlying distribution, the scale "*Emotional Well-being*" could have been considered normally distributed in further analysis.

Table 2 – Results Shapiro-Wilk test

	T0_after		T1_after	
	Shapiro-Wilk df	sig.	Shapiro-Wilk df	sig.
BRS-NL Total	29	.396	29	.347
MHC-SF Total	29	.832	29	.604
MHC-SF Emotional well-being	29	.197	29	.065
MHC-SF Social well-being	29	.480	29	.705
MHC-SF Psychological well-being	29	.898	29	.453
PANAS-NL Positive affect	29	.788	29	.548
PANAS-NL Negative affect	29	.176	29	.141

### 3.1.2 Reliability data

Reliability of the data was determined using Cronbach's Alpha (see table 3). Reliability in T1\_after\_selection appeared to be generally higher than in T0\_after\_selection.

Table 3 – Reliability (Cronbach's Alpha)

	Norm $\alpha$	T0_after_selection $\alpha$	T1_after_selection $\alpha$
BRS-NL Total	.80	.81	.77
MHC-SF Total	.89	.85	.87
MHC-SF Emotional well-being	.83	.64	.86
MHC-SF Social well-being	.74	.68	.76
MHC-SF Psychological well-being	.83	.77	.83
PANAS-NL Positive affect	.86	.80	.80
PANAS-NL Negative affect	.84	.86	.86

### 3.1.3 Means and standard deviations

Means and standard deviations were determined to scan for any noticeable difference between groups (see table 4). Norm scores were taken into consideration to check whether there were any noticeable differences between norm scores and group scores at any time point. For the BRS-NL norm scores were based on sample data of the best comparable group [N=128, M\_age=20.4 and 76% female] in Smith et al. (2008). For the MHC-SF norm scores were based on the mean age across time samples, resulting in the use of norm scores regarding age group 18-29. PANAS-NL had a general set of norm scores with no further distinction. Means appear to be higher across all groups, also means at T1 are higher than at T0. These differences appeared to be non-significant, although the difference on the BRS-NL is marginally non-significant [see table 5].

Table 4 – Means and standard deviations

	Norm		T0_before		T0_after		T1_after	
	M	SD	M	SD	M	SD	M	SD
BRS-NL Total	3.53	.68	3.31	.64	3.37	.71	3.48	.62
MHC-SF Total	3.05	.78	4.23	.60	4.29	.68	4.36	.67
MHC-SF Emotional well-being	3.64	.96	4.72	.66	4.69	.75	4.76	.79
MHC-SF Social well-being	2.32	.99	3.67	.84	3.77	.88	3.91	.94
MHC-SF Psychological well-being	3.37	.90	4.46	.76	4.51	.73	4.55	.73
PANAS-NL Positive affect	33.3	7.20	36.69	4.22	37.00	4.46	37.03	4.45
PANAS-NL Negative affect	17.4	6.20	23.41	6.44	22.79	6.31	22.00	6.33

Table 5 – Differences between means

	n	t	df	p
BRS-NL Total	29	-1.920	28	<b>.065</b>
MHC-SF Total	29	-1.170	28	.252
MHC-SF Emotional well-being	29	0.744	28	.463
MHC-SF Social well-being	29	-1.242	28	.224
MHC-SF Psychological well-being	29	-0.344	28	.734
PANAS-NL Positive affect	29	0.060	28	.952
PANAS-NL Negative affect	29	1.183	28	.247

## 3.2 Research questions

### 3.2.1 Does futuring have an effect on resilience and does this effect differ from the effect of reminiscence?

Results showed *no significant differences* in Resilience between conditions,  $F(df)=.623(2)$ ,  $p= .544$ . Regression analysis showed that the condition [IV] had no significant predictive value regarding resilience [DV],  $F(df)= 1.193(1)$ ,  $p= .284$ . These findings suggest that neither futuring or reminiscence had an effect on resilience. Since both conditions had no effect, there were no significant differences between futuring and reminiscence in effect or predictive value.

### 3.2.2 Does futuring have an effect on well-being and does this effect differ from the effect of reminiscence?

Results showed *no significant differences* in well-being between conditions for positive mental health [F(df)=.159(2), p= .854], nor Emotional Well-being [F(df)=.942(2), p= .403] or Social Well-being [F(df)=.532(2), p= .594] or Psychological Well-being [F(df)=.623(2), p= .544]. Regression analysis showed that the condition [IV] had no significant predictive value regarding positive mental health [DV], F(df)= .305, p= .586. These findings suggest that neither futuring or reminiscence had an effect on positive mental health within this sample. Since both conditions had no effect, there were no significant differences between futuring and reminiscence in effect or predictive value.

### 3.2.3 Do positive emotions mediate the effects of futuring and reminiscence on resilience and well-being?

In regard to **resilience** the condition [IV] showed no predictive value resilience. Nor did it show predictive value for positive emotion [DV], F(df)= .006(1), p= .937. Positive emotions [IV] did however show predictive value for resilience [DV]. Adjusted R<sup>2</sup> = .162, F(df)= 6.413(1), p= .017. These findings suggest that positive emotions can not mediate the effect of futuring and reminiscence on resilience, since there is none. But positive emotions do form a significant predictor for resilience. In regard to **well-being** the condition [IV] showed no predictive value regarding positive mental health. Nor did it show predictive value for positive emotion [DV], F(df)= .006, p= 937. Positive emotions [IV] did however show predictive value for positive mental health [DV]. Adjusted R<sup>2</sup> = .452, F(df)= 24.06(1) and p= .000. These findings suggest that positive emotions can not mediate the effect of futuring and reminiscence on well-being, since there is none. Positive emotions did form a significant predictor for resilience.

## 4. Discussion

### 4.1 Conclusion

This research was conducted to empirically test the effect of futuring on resilience and well-being compared to reminiscence and set out to answer three questions. [1] *Does futuring have an effect on resilience and does this effect differ from the effect of reminiscence on resilience?* Analysis showed a non-significant elevation in means. This implies that neither futuring nor reminiscence had an effect on resilience. Further analysis showed there were no significant differences between conditions [either futuring or reminiscence] in regard to resilience and that the condition had no

predictive value. Based on the literature it was expected that the conditions would have significant effects on resilience. The fact that current research yielded no significant effects might be due to sample characteristics. Current sample consisted of mainly university students. The results of Korte, Bohlmeijer & Westerhof (2011) were achieved in a sample of elderly adults who suffered from depression. Literature shows that in order to be or become resilient, one must face or have faced adversity. One could argue that students have experienced less adversity than depressed adults and therefore show less [growth in] resilience. Also the reminiscence intervention “Stories we live by” (Bohlmeijer, 2007b) has three phases with specific instructions. [1] Focus on difficult life events and integrating both positive and negative feelings, [2] developing a new meaningful, agentic life-story and to set new goals and [3] retrieval of specific positive memories which can serve as cornerstones of a new, more positive life story. Current research only had one phase [writing of one or more letters regarding a specific future or past] and no instructions, just some non-committal guidelines for writing the letters. This current research therefore did not offer direction on integrating both positive and negative feelings or how to develop a new meaningful and agentic life story nor to set new goals. Better than expected outcomes and positive goal orientation are an important part of resilience. Directions on emotion integration, how to form new agentic life stories and new goals may improve the effect of futuring on resilience.

(2) *Does futuring have an effect on well-being and does this effect differ from the effect of reminiscence on well-being?* Analysis showed a non-significant elevation in means. This implies that neither futuring or reminiscence has an effect on well-being. Also, results showed no significant differences between conditions in any of the MHC-SF Well-being scales. Based on the literature it was expected that the conditions would have significant effects on well-being. The fact that current research yielded no significant effects might be due to sample characteristics. The results of Bohlmeijer (2007b) were achieved in a sample of elderly adults who suffered from depression. This implies room for growth in well-being. Current sample consisted of mainly university students with a relatively high mean score across all well-being scales at both T0\_after\_selection and T1\_after\_selection. This implies little room for growth. Another factor that could have influenced the results in current research is time. The studies of Sools & Mooren (2012), Bohlmeijer (2007) and Korte, Bohlmeijer & Westerhof (2011) were conducted over the course of several months. Current research was conducted over the course of two weeks. This left the participants with little time to familiarize themselves with what was asked of them or to acquire skill. Maybe the trial already ended before participants could reap the seeds of the intervention. As Ager (2013) shows, current changes in health care cause financial cut backs and increases the need for short yet effective interventions. Research, either with or without added instructions regarding emotion integration and goal setting, over the course of different time frames could determine if there is a

difference in results between the timeframes (and maybe even conditions: with and without added instructions) and what timeframe is both most short and most effective.

(3) *Do positive emotions mediate the effect of futuring and/or reminiscence on resilience and/or well-being?* In current research, neither futuring or reminiscence had a significant effect on resilience and/or well-being. Because no significant effects were found, the role of positive emotions on these effects could not be explored. Current research did show that positive emotions are a predictor for both resilience and well-being. This is in line with previous research which led to believe that if futuring or reminiscence had an effect on either resilience or well-being, this effect would be mediated by positive emotions (Ong et al., 2006; Cohn et al., 2009). The fact that this result is the only significant among non-significant results might also shed a different light on the use of futuring to promote resilience and well-being. If positive emotions are a predictor for both resilience and well-being, focussing on enhancing positive emotions might yield different results in enhancing resilience and well-being.

## **4.2 Limitations and recommendations**

Although current research did not yield any significant results, this does not mean futuring should not be studied further. The results of current research were not compelling enough to either accept or reject the null-hypothesis. This might be due to the fact that current research was faced with certain limitations. Current research lacked power because none of the conditions had the required 40 participants. A lot of participants either dropped out or their data was lost due to malfunctions in the online environment. This may have caused a selection bias. Due to a lack of sample representability and power in current research results could not be generalized. It is recommended that future research regarding futuring not only ensures enough participants, but also a more diverse sample to avoid any sample bias and to be able to accept or reject research hypothesis and to be able to generalize results. Also, current research implies that the effects of either futuring or reminiscence might be contingent on the need for resilience and/or well-being (Sools & Mooren, 2012) and/or the presence of psychopathology [e.g. anxiety or depression] (Bohlmeijer, 2007b; Korte et al., 2011). Bohlmeijer (2007) and Korte et al. (2011) achieved their significant results with samples of elderly adults suffering from depression. Participants of current research were never asked about any [previous] psychopathology. For future research it might be recommendable to include both participants with and without psychopathology and to compare the effects of futuring and reminiscence for both groups.

The mean scores for resilience and well-being in current sample at both T0 and T1 were relatively high in comparison to the norm scores. This could imply that there was little room for growth. On the other hand, this might also imply that there was no or little need for resilience and

well-being in this sample. For future research it is recommendable to take the “need for resilience and well-being” into account by using the scale for perceived stress, the scale for daily hassles or to construct an entirely new scale for this purpose. It is argued that the way the trial in current research was built up in regard to intervention phases and instructions, but also the available time to finish the trial might have influenced the results. Future research could concentrate on how to reconstruct the futuring intervention in order to have a significant effect on resilience and well-being, but also on experimenting with different timeframes for the intervention in order to pinpoint most effective duration of the intervention. Despite the limitations of this research, positive emotions have shown to be a significant predictor for resilience and well-being. Future research could focus solely on how futuring can be used as a tool to enhance positive emotions and with that, resilience and well-being on the long run. In a sense, we all imagine the future daily in a greater or lesser extent to prepare ourselves for the upcoming day or maybe even the upcoming week. If research can find a way to use this daily mechanism such that it enhances our resilience and well-being, this could yield short and effective interventions that fit current societal changes. This would mean gains on both a personal level and a societal level.

## 5. References

- Ager, A. (2013). Annual Research Review: Resilience and child well-being – Public policy implications. *Journal of Child Psychology and Psychiatry*, 54(4), 488-500
- Ahmed, R., Seedat, M., Van Niekerk, A. & Bulbulia, S. (2004). Discerning Community Resilience in Disadvantaged Communities in the context of violence and injury prevention. *South African Journal of Psychology*, 34(3), 386-408
- AIESG (2010). The politics of resilience. Adaptiveness and innovation in Earth System Governance. Verkregen op 13 januari 2010 via <http://adaptiveness.wordpress.com/2010/01/13/special-issue-the-politics-of-resilience/>
- Anthony, E.J. (1974). *Introduction: The syndrome of the psychologically vulnerable child*. In: Anthony, E.J., Koupernik, C., (edt.). *The child in his family: Children at Psychiatric Risk*. New York: Wiley
- Beardslee, W.R. (1989). The role of self-understanding in resilient individuals: The development of a perspective. *American Journal of Orthopsychiatry*, 59, 266-278
- Block, J. (1950). *An experimental investigation of the construct of ego-control*. Stanford (CA): Stanford University
- Block, J. H. (1951). *An experimental study of a topological representation of ego-structure*. Stanford (CA): Stanford University Unpublished Doctoral Dissertation
- Block, J.H. & Block, J., (1980). The role of ego-control and ego-resiliency in the origination of behavior. *The Minnesota Symposia on Child Psychology*, 13, 39-101.
- Block, J. & Kremen, A.M. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology*, 70, 349–361.
- Bohlmeijer, E. T. (2007a). *The stories we live by, narrative psychology as a method*. Amsterdam: Uitgeverij Boom.
- Bohlmeijer, E.T (2007b). *Reminiscence and depression in later life (Dissertation)*. Amsterdam: Faculty of Psychology and education, Vrije Universiteit.
- Bohlmeijer, E.T. (2012). *Eudaimonia. Voer voor psychologen. Pleidooi voor een herorientatie van de geestelijke gezondheidszorg*. Enschede: Universiteit Twente
- Bonanno, G. A. (2004). Loss, Trauma and Human Resilience: have we underestimated the human capacity to thrive after extremely aversive events. *American Psychologist*, 59, 20-28
- Bonnano, G.A. & Mancini, A.D. (2008). The human capacity to thrive in the face of potential trauma. *American Association of Pediatrics*, 121(2),
- Bruner, J.S. (1990). *Acts of meaning*. Cambridge (MA): Harvard University Press

- Caplan, G. (1990). Loss, stress and mental health. *Community Mental Health Journal*, 26, 27-48
- Cohn, M.A., Fredrickson, B.L., Brown, S.L., Mikels, J.A. & Conway, A.M. (2009). Happiness Unpacked\_Positive emotions increase life satisfaction by building resilience. *Emotion*, 9(3), 361-368
- Connor, K.M. & Davidson, J.R.T. (2003). The Development of a New Resilience Scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, 18, 76-82
- Colten, C.E., Kates, R.W. & Laska, S.B. (2008). *Community resilience: lessons from New Orleans and Hurricane Katrina*. gevonden op 8 maart 2016 via [www.resilientus.org/library/FINAL\\_COLTEN\\_9-25-08\\_1223482263.pdf](http://www.resilientus.org/library/FINAL_COLTEN_9-25-08_1223482263.pdf)
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334
- Csikszentmihalyi, M. (1990). The domain of creativity. *Theories of creativity. Sage focus editions*, 115, 190-212
- Diener, E., Suh, E.M., Lucas, R., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125(2), 276-302
- Earvolino-Ramirez, M. (2007). Resilience: A Concept Analysis. *Nursing Forum*, 42(2), 73-82
- Feller, W. (1945). The fundamental limit theorems in probability. *Bulletin of the American Mathematical Society*, 51(11), 800-832.
- Folkman, S., & Lazarus, R.S. (1985). If it changes it must be a process: study of emotion and coping during three stages of a college examination. *Journal of personality and social psychology*, 48(1), 150
- Folkman, S. & Moskowitz, J.T. (2000). Positive affect and the other side of coping. *American Psychologist*, 55(6), 647-654
- Fredrickson, B.L. (2001). The Role of Positive Emotions in Positive Psychology\_The broaden-and-build theory of positive emotions. *American Psychology*, 56(3), 218-226
- Fredrickson, B.L. & Levenson, R.W. (1998). Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. *Cognition and Emotion*, 12, 191-220
- Freeman, M. (2009). *Hindsight. The promise and Peril of Looking Backward*. Oxford: Oxford University Press
- Frijda, N. H. (1986). *The emotions: Studies in emotion and social interaction*. Cambridge: Cambridge University Press
- Garnezy, N. (1971). Vulnerability research and the issue of primary prevention. *American Journal of Orthopsychiatry*, 41, 101-116
- Gergen, K.J. (1994). *Realities and relationships. Soundings in Social Construction*. Cambridge (MA): Harvard University Press

- Hinkle, L.E. (1974). The effect of exposure to cultural change, social change and changes in interpersonal relationships on health. In B.S. Dohrenwend & B.P. Dohrenwend (Eds.), *Stressful life events*. New York: Wiley
- Hoekstra, H.A., Ormel, J. & De Fruyt, F. (2003). *NEO-FFI-NL*. Lisse: Swets test publicaties
- Hoijtink, L.M., Te Brake, J.H.M. & Dückers, M.L.A. (2011). Veerkracht monitor. Ontwikkeling van een meetinstrument voor psychosociale veerkracht. verkregen op 7 maart via [www.impact-kenniscentrum.nl](http://www.impact-kenniscentrum.nl)
- Kellogg, R.T. (1999). *The Psychology of Writing*. New York: Oxford University Press
- Kelly, G.A. (1955). The nature of personal constructs. *The psychology of personal constructs, 1*, 105-183
- Keyes, C.L.M. (1998). Social well-being. *Social Psychology Quarterly*, *61*(2), 121-140
- Keyes, C.L.M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, *73*(3), 539-548
- Keyes, C.L.M. (2007). Promoting and protecting mental health as flourishing: a complementary strategy for improving national mental health. *American Psychologist*, *62*(2), 95-108
- Korte, J., Bohlmeijer, E. T., Cappeliez, P., Smit, F., & Westerhof, G. J. (2012). Life review therapy for older adults with moderate depressive symptomatology: a pragmatic randomized controlled trial. *Psychological medicine*, *42*(6), 1163-1173.
- Lamers, S.M.A., Westerhof, G.J., Bohlmeijer, E.T., ten Klooster, P.M., & Keyes, C.L.M. (2011). Evaluating the psychometric properties of the Mental Health Continuum-Short Form (MHC-SF). *Journal of Clinical Psychology*, *67*(1), 99-110.
- Lazarus, R.S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology*, *44*, 1-21
- Levenson, R.W. (1994). Human emotions: A functional view. In: Ekman, P., Davidson, R. (Eds.), *The nature of emotion: Fundamental questions*. New York: Oxford University Press
- Luthar, S.S., Cicchetti, D. & Becker, B. (2000). The Construct of Resilience: A Critical Evaluation and Guidelines for future work. *Child Development*, *71*(3), 543-562
- Masten, A.S. (1994). *Resilience in individual development: Successful adaptation despite risk and adversity*. In: Wang MC, Gordon EW, editors. *Educational resilience in inner-city America: Challenges and prospects*. Hillsdale: Erlbaum
- Masten, A.S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, *56*(3), 227-238. DOI: 10.1037/0003-066X.56.3.227
- Masten, A.S. (2007). Resilience in developing systems progress and promise as the fourth

wave rises. *Development and Psychopathology*, 19, 921-930

- Masten, A.S. & Garmezy, N. (1985). Risk, vulnerability, and protective factors in developmental psychopathology. In: Lahey, B., Kazdin, A. (Eds.), *Advances in clinical child psychology*, 8, 1-52
- Murphy, L.B. (1974). *Coping, vulnerability, and resilience in childhood*. In G. V. Coelho, G.V. Hamburg, D.A. & Adams, J.E. (Eds.), *Coping and adaptation*. New York: Basic Books
- Ong, A.D., Bergeman, C.S., Bisconti, T.L. & Wallace, K.A. (2006). Psychological Resilience, Positive Emotions and Successful Adaptation to Stress in Later Life. *Journal of Personality and Social Psychology*, 91(4), 730-749
- Picardi, A., Bartone, P.T., Querci, R. (2012). Development and validation of the Italian version of the 15-item Dispositional Resilience Scale. *Rivista di psichiatria*, 47(3), 231-237
- Polkinghorne, D.E. (1988). *Narrative knowing and the human sciences*. New York: State University Press
- Rutter, M. (1985). Resilience in the face of adversity. *British Journal of Psychiatry*, 147, 598-611
- Ryff, C.D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081
- Sagone, E. & De Caroli, M.E. (2013). Relationships between resilience, self-efficacy and thinking styles in Italian middle adolescents. *Procedia – Socil and Behavioral Sciences*, 92, 838-845
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the Life Orientation Test. *Journal of personality and social psychology*, 67(6), 1063.
- Schreurs, P. J. G., Van de Willige, G., Brosschot, J. F., Tellegen, B., & Graus, G. M. H. (1993). De Utrechtse coping lijst: UCL. *Handleiding*. Lisse: Swets en Zeitlinger.
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine*, 15(3), 194-200.
- Sools, A. & Mooren, H.J. (2012). Towards Narrative Futuring in Psychology: Becoming Resilient by Imagining the Future. *Graduate Journal of Social Science*, 9(2), 203-226
- Sools, A. M., Tromp, T., & Mooren, J. H. (2015). Mapping letters from the future: Exploring narrative processes of imagining the future. *Journal of health psychology*, 20(3), 350-364
- Souri, H. & Hasanirad, T. (2011). Relationship between Resilience, Optimism and Psychological Well-being in Students of Medicine. *Procedia – Socil and Behavioral*

- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*, 320–333
- Van Gestel-Timmermans, H. (2011). *Recovery is up to you: Evaluation of a peer-run course* (Doctoral dissertation, doctoral dissertation). The Netherlands: Tilburg University).
- Wagnild, G. & Young, H.M. (1990). Resilience among older woman. *Journal of Nursing Scholarship, 22*, 252-255
- Wagnild, G. & Young, H.M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement, 1*(2), pp
- Wagnild, G. (2003). Resilience and Successful Ageing: Comparison among low and high income older adults. *Journal of Gerontological Nurses, 29*(12), pp.42-49
- Watson, D., Clark, L.A. & Tellegen, A. (1988). Development and validation o brief measures of positive and negative affect: the PANAS scale. *Journal of Pesonality and Social Psychology, 54*, 1063-1070
- Werner, E.E. (1984). Resilient Children. *Young Children, 40*, 68-72
- Westerhof, G.J. & Keyes, C.L.M. (2008). Geestelijke gezondheid is meer dan de afwezigheid van geestelijke ziekte. *Maandblad geestelijke volksgezondheid, 63*(10), 808-820
- World Health Organization [WHO], (2005). *Promoting mental health: concepts, emerging evidence, practice*. Geneva: WHO
- Zautra, A.J., Potter, P.T. & Reich, J.W. (1997). The independence of affect is context-dependent: An integrative model of relationship between positive and negative affect. *Annual Review of Gerontology and Geriatrics, 17*,