

## ABSTRACT

STYERS, MARY KOENIG. Maintaining a Positive Outlook: Developmental Differences in the Use of Subjective Temporal Distance. (Under the direction of Lynne Baker-Ward).

Adults' use of subjective temporal distance, defined as a psychological distancing mechanism that allows individuals to maintain positive self-views by perceiving threatening events as being farther away in time and affirming events as being closer in time, has been the subject of extensive research attention in recent years. No research to date, however, has examined how children and adolescents utilize subjective temporal distance. This study investigated the extent to which older elementary and middle school students utilize subjective temporal distance as they remember positive and negative academic experiences. One hundred 4th/5th graders and 90 7th/8th graders provided ratings of their recollections and personal experiences concerning two academic events, receiving a satisfying and a disappointing grade or test score. The participants at both age levels reported that the positive event seemed closer in time than the disappointing event, an effect not explained by the reported actual time since the events. In contrast to expectations, no effects of grade or gender on subjective distance were observed. Further, contrary to prior investigations with adults, there was no relation between global self-worth and subjective distancing. Both the reported emotional intensity of the event and the amount of reported co-rumination with peers influenced subjective distancing. The findings are interpreted as indicating that subjective temporal distance in childhood reflects a different process than the internal, individual coping mechanism observed in adulthood. Further research should examine the role of interactions with adults and peers in children's use of subjective distancing.

Maintaining a Positive Outlook: Developmental Differences in the Use of Subjective Temporal  
Distance

by:

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## **BIOGRAPHY**

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## Maintaining a Positive Outlook: Developmental Differences in the Use of Subjective Temporal Distance

Who we are influences what we attend to, encode, and store about our everyday experiences. As well, who we are influences what we retrieve at the time of remembering these autobiographical events. (Howe, 2004, p. 45)

Every day our memories are continually being reconstructed. Part of this reconstruction may be due to the characteristics of the rememberer. Do we see ourselves very positively or in a lesser light? Our high or low self-conceptions may influence the way we see the world and may aid in positively biasing the past (Ross & McFarland, 1988). Hence, how we remember the past may ultimately depend on how we see ourselves in the present. What type of mechanism provides individuals with the ability to reconstruct the past? Are all individuals developmentally capable of doing so?

This thesis will first address the different mechanisms for self-esteem maintenance, followed by a focus on one mechanism, subjective temporal distance (Wilson & Ross, 1998, 2000, 2001, 2003; Ross & Wilson, 2002, 2003), which may aid in maintaining a positive bias in autobiographical memory. Next, research that examines constructs similar to subjective distance will be examined. This will be followed by an overview of the current research on children's coping with events. After learning about children's coping, I ask the question, what must be in place before being children are able to utilize subjective temporal distance? This analysis culminates in hypotheses to be addressed in the current research. Next, a research design to test the developmental ability to use subjective distance will be examined, followed by tests of hypotheses. Finally, there is a discussion of the findings and limitations, with suggestions for future directions.

## The Self & Self-Esteem Maintenance

The *self* involves who we are and all that we call “me” (James, 1890). There are many different components of the self, such as self-esteem and self-worth. *Self-esteem* has been defined as, “how much value people place on themselves” (Baumeister et al., 2003, p. 2). Our sense of *self-worth* involves not only how we see ourselves, but also represents how we feel and think about our selves and how we perceive our self to be (Harter, 1985). Several theorists use self-esteem and self-worth interchangeably (Pelham & Swann, 1989; Crocker & Wolfe, 2001; Crocker & Knight, 2005) and for the purposes of this paper, both of these terms will be considered synonymous.

When considering the nature of self-esteem, Baumeister et al. (2003) note that it is largely based on personal beliefs rather than social reality. A child may be very intelligent in mathematics, but may not believe this to be true. In fact, the individual may believe that he or she is not competent in that domain. As a result, the child would have low self-esteem when it comes to mathematics. Similarly, Pelham and Swann (1989) note that individuals can have distinct self-views in multiple areas that influence self-esteem. Crocker and Wolfe (2001) refer to this as the domain-specific nature of self-worth. For instance, an individual’s self-view on how he or she performs in math may be different from his or her self-view in athletics. What matters is whether the individual perceives that self-view as important, and whether he or she believes that they possess the ability. The subjective experience of self-esteem is highlighted by the following example:

Although the proverbial 98 lb weakling might be unable to convince others that he is the next Mr. Olympia, he is completely free to decide that an Olympian

physique is of little importance to him. In this way, he may concede his wimpiness without experiencing any damage to his self-esteem. (Pelham & Swann, 1989, p. 678)

In other words, individuals choose what is relevant when determining their levels of self-esteem across different areas. James (1890) suggested it first, that we must consider all of our possible selves and decide on those attributes on which to base our global self-worth. Crocker and Wolfe (2001) refer to this as contingencies of self-worth. According to this perspective, a person's global self-view is largely dependent upon perceptions of success or failure within domains that one believes are important. Additionally, Crocker and Wolfe (2001) argue that it is important to consider that both self-esteem and the domain-specific aspects of self-esteem are composed of traits and states. Trait self-esteem is generally stable over time and a function of whether or not the individual is able to satisfy the contingent domains. State self-esteem fluctuates around the trait level and is due to perceived failures or successes within the contingent domains. When studying self-esteem, many researchers only consider trait self-esteem; however, in doing so, they are missing a large part of the picture. One needs to take a closer look at those contingent domain-specific aspects in order to better understand the individual.

Is it better to have high self-esteem or low self-esteem? It all depends on who you talk to. Steele, Spencer and Lynch (1993) suggest that both high self-esteem and low self-esteem individuals are motivated to maintain positive self-views, but those with low self-esteem are constrained in this ability since they have less favorable self-views upon which to rely. Steele, Spencer and Lynch (1993) found that low self-esteem subjects were more likely to rationalize their choices on a record choice task than those with high self-esteem, especially when these

individuals were primed for their level of self-esteem at the beginning of the task. In other words, individuals with low self-esteem try to maintain a positive self-image, but may not always be able to do so effectively. Baumeister, Campbell, Krueger and Vohs (2003) in their review of the literature, found that individuals with low self-esteem were more likely to feel depressed than were those with high self-esteem. Additionally, those with high self-esteem seemed to bounce back from negative events better than did individuals with low self-esteem. They reasoned that this was true because, “The general pattern of being happier and less depressed indicates a readiness to feel good. People with low self-esteem lack this stock of good feelings and as a result are more vulnerable” (p. 37). Both articles emphasize a greater stockpile of resources for those individuals with high self-esteem compared to low self-esteem individuals. Perhaps those with high self-esteem fare better in negative situations because they have more resources to utilize.

Now that we have established that both high and low self-esteem individuals strive to maintain or raise their levels of self-esteem, the question becomes how do individuals cope with situations threatening self-esteem? Several specific strategies for maintaining self-worth following a threat may include: social comparison theory, cognitive consistency theory, value expression and subjective temporal distance.

Social comparison theory involves the self-esteem maintenance model (Tesser & Paulhus, 1983), which suggests that being outperformed by a social other may have positive or negative consequences. Positive implications are likely when the domain of interest is of low importance to the individual. The individual then is able to “bask” in the glory of another. Negative implications are likely when the domain of interest is valued by individual. Threats can be reduced in several ways: changing the importance of the domain, changing the perceived

closeness to peer, or changing the specific gap in question (Tesser et al., 2000). This type of threat is largely interpersonal, as behavior is brought to the level of awareness by another individual (Tesser, 2000).

Cognitive consistency theory states that, “self-esteem is threatened by any inconsistency” (Tesser et al., 2000, p. 1477). For instance, an individual is asked to argue for tuition increases in a class setting, when doing so goes against their own personal views. As a result, the individual may reduce the inconsistency through attitude change, for example, by changing their perspective on tuition increases. The perceived threat is intrapersonal, as behavior is brought to the level of awareness by the self (Tesser, 2000).

Value expression theory involves the desire of the individual to see the self as whole, competent and stable. In order to reduce threats to the self, the individual may self-affirm as a means of maintaining the integrity of the self and may not necessarily resolve the particular threat in question (Steele, 1988; Tesser et al., 2000). In other words, when faced with threatening situations, individuals do not seek to resolve the actual threats but rather their perceptions of themselves as whole and competent human beings. In this case, the dissonance that arises is due to the perception that one is not “morally adequate” (Steele, 1988, p. 278). This type of threat is also likely to be interpersonal (Tesser, 2000). An example of this type of threat was provided by Cohen, Aronson and Steele (2000). In this study, participants who were for or against the death penalty were shown passages that were contradictory to their own beliefs. After reading these passages, half of the participants were placed in an affirmation condition, where they could write about one of their most valued attributes. Those individuals who were given a chance to self-affirm another aspect of their identity were less threatened by the death penalty arguments than were those individuals not given the chance to self-affirm.

Ultimately, Tesser et al. (2001) refer to these self-enhancement strategies as being part of a confluence model, as any one of these can be substituted for another. For instance, they found that individuals who experienced a negative threat within the social comparison realm were more likely to self-affirm following this threat by writing about a valued trait. Similar results were found when students were asked to write an argument for a senior thesis that went against their own values. These same participants were then given the opportunity to write about a close colleague outperforming them in a valued domain (negative comparison) or outperforming them in an unimportant domain (reflection condition). When given the chance to bask in the glory of another, through the reflection condition, there was a tendency for these participants to show more agreement with the senior thesis idea at the end of the study. As these studies illustrate, individuals may try to protect themselves from threatening situations in different ways. What matters most is that the self is protected from threat, and not necessarily the specific self-enhancement strategy.

Another possibility for maintaining self-worth and current positive feelings following a threat involves the utilization of subjective temporal distance, the focus of the present research.

### **Subjective Temporal Distance**

Sometimes individuals try to forget things that could be potentially threatening to their sense of self. For instance, they may only select memories that confirm consistency over time and deny a change. People can be seen as cognitive conservatives, who manipulate their memories in order to maintain positive views of their selves (Ross & McFarland, 1988). Biasing recollection of the past may be one mechanism by which a type of positive bias may be maintained in the present. The individual may look back and think, "Well, the past wasn't really that bad." Changing memories in some fashion may thus serve a protective function.

In addition to modifying the content of their memories, individuals may protect the self by changing their perceptions of the time that has passed since some experiences have transpired. The theory of temporal self-appraisal suggests that individuals are motivated to think of past failures as distant from the present and past successes as close. By removing the potential threat of negative experiences and keeping close those positive experiences that enhance the sense of self, individuals can maintain positive feelings in the present (Ross & Wilson, 2002). The past is thought of as a social comparison timeline. Individuals use social comparison between their present and past selves in order to maintain positive regard. By perceiving past selves that are negative as farther away, and past selves that are positive as close, the individual maintains feelings of personal growth. The individual thinks, "I'm no longer that person," and their positive self-view is protected (Wilson & Ross, 2001). In temporal self-appraisal, time is considered a psychological, dependent variable. Past events can feel close or distant regardless of actual calendar time. How one feels about the event, depends on how far away or close that event feels to the present. Does the event belong to the present self or to some past inferior self? (Ross & Wilson, 2002; Wilson & Ross, 2001).

In order to remove the threat of some experience or to keep positive experiences close, individuals use subjective temporal distance. Subjective temporal distance can be viewed as a psychological distancing mechanism that allows individuals to maintain positive self-views by perceiving threatening events as being farther away in time and affirming events as being closer in time (Ross & Wilson, 2003). For instance, with regard to calendar time, the event may have occurred several years ago, yet psychologically the event "feels" close. Whether the event was positive or negative has different implications for the self. Perceiving positive events as closer in time affirms the sense of self, by helping to maintain a positive self-view. However, perceiving

negative events as closer in time harms the sense of self, as it threatens the current self-view. In order to maintain a positive self-view, positive events should be kept psychologically closer to the present and negative events should be pushed farther away (Ross & Wilson, 2003).

Subjective temporal distance methods ask the individual to rate how far away the event feels. Does it feel far away or does it feel close? The only potential problem in applying subjective temporal distance to negative events is that any personal experience that is reminiscent of the past threat may cause negative thoughts to reoccur (Ross & Wilson, 2003). For instance, a child whose home was destroyed in a hurricane tries to distance him- or herself from the event, but then sees the entire city being re-built each day. In the presence of such tangible reminders of the trauma, the ability to subjectively distance disappears.

Ross and Wilson (2002) did several studies to investigate the phenomenon of subjective distancing in an adult population. In their first study, college students were given a self-esteem measure and asked about their level of social success during high school. Participants rated their level of success using several 7-point scales. After providing ratings, participants rated how far away they felt from their high school selves using two 190 mm timelines that were averaged to provide subjective distance scores. The endpoints of the timelines were labeled "feels very close to my past self/feels very distant" and "my past self feels very near/my past self feels very far away." The participants selected a point on the line that corresponded to their perceptions of the timing of the experience. Those participants with high levels of self-esteem were found to be more likely to judge socially successful past selves as closer than socially unsuccessful past selves. In other words, among high self-esteem participants, those with negative past selves were more likely to distance their high school social experiences than were those with positive past selves. Those individuals with low self-esteem showed similar levels of distancing to both an

unsuccessful past self and a successful past self. These participants felt as far away from an unsuccessful experience as they did from a successful one. It may be that these individuals did not feel the need to boost their current sense of self, so they did not preoccupy themselves with making a more successful self feel closer. Low self-esteem individuals may not need to distance themselves from threatening information, because this information is not harmful to their sense of self. For them, their self views are already quite low, and there is no need to maintain low levels. However, among high self-esteem individuals, there is a greater need to maintain high levels.

In the second study by Ross and Wilson (2002), college students were randomly assigned to record either their worst grade during the last term or their best grade. Participants were asked to record their level of subjective distance from the event by using a 10-point Likert scale. A score of 1 indicated the event "feels like yesterday" and a score of 10 corresponded to the assessment that the event "feels far away." The students were also given a self-esteem measure as well as questions regarding how much they thought about the grade and their level of satisfaction with the final grade. When controlling for the amount of calendar time that had passed, participants were found to feel farther away from courses with the poorer grade. Also, the more often participants reported thinking about the grade (either good or poor) the more recent the event felt with regard to distance. With reference to the impact of self-esteem on distancing, a pattern similar to that observed in study 1 was reported. High self-esteem in comparison with low self-esteem individuals were more likely to increase distance for a threatening experience and decrease distance for a affirming experience.

In the third study by Ross and Wilson (2002), college students were asked to write about an event that occurred since the end of high school. Participants were randomly assigned to

groups and given instructions to write about either an event that happened to themselves or to their friends. They were also randomly assigned to write about either an experience that involved feeling proud or an event that evoked embarrassment. Both writing about self vs. friend and an embarrassing vs. proud experience were between-participant variables. After providing a written narrative, participants were also asked to provide estimates of subjective temporal distance, the difficulty they experienced in remembering the event, and their perceptions of the importance of the event at the time it occurred and at the present time. In this particular experiment, subjective temporal distance was assessed using two timelines that were averaged to determine one subjective distance score. Participants were asked to place a mark on the timeline that best indicated how far away the event felt to the individual. The endpoints of two 190 mm timelines were labeled "feels very close/feels very distant" and "feels very near/feels very far away" (Ross & Wilson, 2002). Estimates of distance were calculated by averaging the distance marked on each timeline. In analyzing the narratives and estimates of distance, the researchers found that individuals felt closer to proud events versus embarrassing events, but only for the self condition. Embarrassing events were also considered significantly farther away for the self than for the friend. For personal experiences, subjective distance was not related to actual calendar time. Hence, the event may have occurred a short time ago, but felt far away. Additionally, events that were difficult to recall felt more distant, and individuals felt farther away from self-events that decreased in importance over time.

It appears that high self-esteem individuals have more of a need to distance themselves versus others from potentially threatening negative experiences. Those who value the domain are also more motivated to keep positive events closer and negative events farther away. Ross and Wilson (2002) suggest that subjective distancing "may help individuals to de-emphasize the

episode's current significance and put the experience behind them" (p. 802). The past is lessened in importance, and psychologically pushed farther away in time, in order to make the mind less stressed in the present.

On-going research by the present author (Styers & Baker-Ward, 2006) has also investigated young adults' subjective temporal distancing in reporting intensely negative experiences. In the study, college freshman were asked to describe two extremely negative experiences from high school, each of which was selected in response to a list of event categories. One of these events was chosen from among a list of controllable events (e.g., being caught cheating on a significant other) whereas the other was from a list of uncontrollable events (e.g., parents getting a divorce). Participants were asked to describe the experience, and also to include their thoughts and feelings surrounding the event. They were also given a subjective distance scale (Ross & Wilson, 2002) with ratings ranging from 1 (event feels very far away) to 5 (event feels like yesterday), several 7-point Likert scale coping questions, and the Horowitz Impact of Experiences Scale (IES: Horowitz et al., 1979).

Since actual time was found to relate to subjective distance for controllable but not uncontrollable events, actual time was controlled in all of the analyses. Strong correlations were found for the relation between subjective distance and the intensity of the experience as well as ratings of event impact. Those individuals who rated the event as feeling closer to the present reported feeling more intense negative feelings surrounding the event and reported a greater overall impact. As for the relation between subjective distance and Horowitz scores, there was also a strong correlation, but only for uncontrollable events. Those individuals who rated the uncontrollable event as feeling closer also reported experiencing intrusive and avoidant thoughts more frequently. Gender was also found to affect ratings of subjective distance, with females

rating the event as subjectively closer to the present than males did. This effect may be related to gender differences in perceptions of event intensity. Females reported the uncontrollable event to be significantly more intense at the present time than males. This same effect was not found for the controllable event (Styers & Baker-Ward, 2006). The results suggest that simply knowing how far away the event feels may tell us something about coping patterns. In this study, subjective distancing was linked very strongly to a myriad of coping and feelings questions, especially for uncontrollable events. Just by knowing a person's amount of distancing, one could predict a variety of coping outcomes and feelings. Subjective distancing may buffer the individual from the negative effects of threatening events. However, it should be noted that the direction of effects for distancing from events could not be determined. Subjective distancing may be something that the individual does in the coping process and distancing changes the memory. Conversely, subjective distance could occur as a result of the coping process rather than contributing to adjustment.

While it seems difficult to differentiate whether distancing is a unique aspect or an integrated part of the coping process, research has suggested that subjective temporal distance can also be manipulated. Individuals can be encouraged to feel closer to events or farther away through simple manipulations. In several investigations conducted by Ross and Wilson (Ross & Wilson, 2003; Wilson & Ross, 2003; Wilson & Ross, 1998), college students were asked to locate a specific event on a timeline (e.g. a good outcome in high school or a bad one). Individuals were either presented with a timeline that spanned birth to today or one that spanned age 16 to today. The individuals who were given the truncated timeline (age 16 to today) located a target event much closer to the present than did those participants given the extended (birth to today) timeline. This manipulation of timeline span affected reports of subjective distance from

events. Participants felt subjectively closer to those events that were marked as closer to their current self on the timeline. Individuals who were encouraged to feel closer to former failures, evaluated their present self less positively than those who were encouraged to feel distant from the same failure. In contrast, those individuals who were encouraged to feel closer to former successes evaluated their present self more positively than those who were encouraged to feel distant from the success.

Similar results were found in another study that manipulated subjective distance (Wilson & Ross, 2001). Participants were asked to think of their past college selves in a distant or near condition. In the distant condition, participants were asked to, "Think back to another point in time. Think all the way back to the beginning of the term" (p. 580). In the near condition, participants were asked to, "Think of a point in time, in the recent past, the beginning of this term..." (p. 580). When the beginning of the term was prompted as being distant, individuals perceived more change in their self-attributes since the beginning of the term. However, when the beginning of the term was considered near, participants perceived little change between their past and present self (Wilson & Ross, 2001). The results of these investigations thus establish a causal relationship between the process of temporal distancing and the maintenance and enhancement of the self-concept following experiences that could necessitate reappraisal of the self.

### **Other Examples of Distancing**

As is apparent in the review above, much of the work on subjective temporal distance has been conducted by Wilson & Ross (Wilson & Ross, 1998, 2000, 2001, 2003; Ross & Wilson, 2002, 2003; Web of Science search, March 15, 2006). However, other studies that have examined this phenomenon have found similar results in adult populations (Styers & Baker-

Ward, 2006; Sanna, Chang & Carter, 2004). Sanna, Chang & Carter (2004) interviewed college business students about an unsuccessful business partnership. Participants were interviewed two months after the unsuccessful experience and were asked about their thoughts concerning outcomes (what actually happened) versus alternatives (what could have happened instead). Participants who found it easier to list alternatives versus outcomes felt subjectively farther away from the experience than participants who found it easier to list outcomes versus alternatives. It appears that those individuals who dwelled in the past of their negative business outcomes felt the event as subjectively closer, than did those individuals who came up with ways in which the event could have been different. While this study did not observe self-esteem directly, there may have been a difference in the need to maintain a positive outlook. One group of participants essentially said, "This is how the event could have been different," while the other said, "This is what happened and how we messed up." This study augments to the Ross and Wilson (2002) work by incorporating the idea of dwelling on the past versus looking to changing the future with regard to subjective distancing from events.

Although the specific phenomenon of temporal distancing has been examined by a relatively small group of researchers, others have examined concepts similar to distancing. Specifically, other previous research has investigated related concepts of personal growth, time alteration through ego shock, closure and perspective.

Individuals may also work through a traumatic event by perceiving personal growth (McFarland & Alvaro, 2000). Personal growth is similar to the idea of distancing from an event. The individual sees the past self as different and distinct from the present self. A sense of distance is created in the separation of selves, past and present. This positive attitude may then protect the individual from a threat to self. The person is essentially telling himself or herself, "It

happened, but I've changed a lot since then. I've moved on." To date, no study has made a direct link between the use of subjective temporal distancing and feelings of personal growth. A direct examination of these two concepts is needed.

Other theorists have also suggested potential reactions to threats. Campbell, Baumeister, Dhavale and Tice (2003) mention the potential for ego-shock following major threats to self-esteem. Ego-shock occurs when an individual freezes up following a major threat and feels unable to think or act. They also may experience feelings of the environment appearing unreal. In this study, individuals were asked to write about major and minor threats to their self-esteem. These major threats all caused some change in the participants self views (either upward or downward), while minor threats were not cause for change. There was also a trend for positive experiences that were major boosts to the self to be reported closer in weeks than were negative experiences. This concept seems similar to subjective temporal distance, whereby positive events are reported to be closer in actual time compared to negative events. The researchers suggest that ultimately, people are resilient, and that major threats serve as a catalyst for growth. Ego shock research appears to illustrate that threatening events may cause a change in self-views depending on the perceived impact, and that time perceptions may be effected in the process.

Also related to subjective temporal distance is the idea of closure for negative events. There are considered to be both open and closed memories. Open memories are "poorly understood and not yet behind you," whereas closed memories are "well understood and behind you" (Beike, Kleinknecht & Wirth-Beaumont, 2004, p. 145). College students were asked whether or not they had experienced any number of ten intensely negative or traumatic events. Some examples of the events on the provided list include: death of parent, rape, and being rejected by a romantic partner. Participants were then asked to rate the closure of their memory

for each experienced event on a 1-10 scale. Memory closure for events was found to be associated with high levels of self-esteem as measured by the Rosenberg (1965) self-esteem scale. Students with open memories for their experiences showed lower self-esteem than those with closure and for those who had never experienced any of the ten provided events (Beike, Kleinknecht, & Wirth-Beaumont, 2004). Applying the concept of distancing, closed memories can be thought of as events that feel far away and open memories as those that still feel close to the present. However, there also may be an additional component of understanding in psychological closure, whereas in distancing individuals may be largely unaware of the process. Additionally, similar to distancing research, individuals with high levels of self-esteem are more likely to show a higher number of closed memories or more distancing from the threatening event than are participants with low levels of self-esteem.

Visualizing events from a third person perspective can also be interpreted as a type of psychological distancing. The third person perspective allows the individual to consider the event in more abstract manner and to perceive higher levels of personal change. However, the influence of a third person perspective can vary based upon the importance of distancing from the event and whether the individual focuses on differences or similarities. If the individual feels it is important to distance him- or herself from a negative event, then the third person perspective works well in creating that distance (Libby, Eibach & Gilovich, 2005). A focus on the similarity versus difference between past and present selves may also have a different effect on the use of a third person perspective. If individuals are encouraged to see similarities between a past and present self, then the third person perspective is less effective than a first person perspective in perceptions of growth. For distancing from negative events, differences between past and present selves should be encouraged in order for the third person perspective to be effective. However, in

using a third person perspective, individuals may also benefit from being motivated to see similarities between a positive past self and the current self. When using a third person perspective, individuals should be encouraged to discuss similarities between a positive past self and differences between a negative past self (Libby, Eibach & Gilovich, 2005).

Research on the third person perspective can also be interpreted as conceptually similar to investigations of temporal self-appraisal. Individuals are motivated to feel close to positive events and farther away from negative events (Ross & Wilson, 2002).

### **Distancing in Adulthood**

What enables adults to subjectively distance themselves from events? As discussed above, adults may distance themselves from events in order to maintain high levels of self-worth. Individuals seek to maintain a positive self-view, and so they bias their memories of the past to protect their current self (Ross & Wilson, 2002; Ross & Wilson, 2003). In that way, threatening events do not feel as close, and are no longer "owned" by the present self.

Part of this ability to distance may also be due to temporal-self comparisons or social comparisons. Adult individuals are more likely than children and adolescents to use temporal-self comparisons (comparing a past self to the present self; understanding of the self through time) in their current self-appraisals as opposed to social comparisons (Harter, 1999; McFarland & Alvaro, 2000; Wilson & Ross, 2000). In research conducted by Wilson and Ross (2000), adults were shown to be more likely to use social comparisons when given some evaluation goal and temporal comparisons when given an enhancement goal. These goals were manipulated implicitly using a word categorization task. In the evaluation condition, words included "scrutinize," "verify" and "precise." In the enhancement condition, words included "flawless," "worthy" and "boast." Self-descriptions changed based on the activated goal (Wilson & Ross,

2000). Hence, individuals do change their memories based on temporal self-appraisals and a need for social comparison. How the memories are ultimately changed may depend on the activated goal.

### **The Development of Distancing**

To date, there has been no research on subjective temporal distance in child populations (Michael Ross, personal communication, January 11, 2006; Web of Science search, March 15, 2006). There has been, however, research on the development of other coping techniques during middle childhood. This research forms a basis for expectations regarding developmental changes in the use of distancing.

With increases in age and grade, variations in coping patterns have been found. In a study by Hampel and Petermann (2005), German children ranging in age from 8 to 14 years old were interviewed about their coping styles in relation to an interpersonal stressor (e.g. rumors by peers) and an academic stressor (e.g. taking a difficult exam). There were no gender or age differences in response to the different stressors; however, participants sought more social support for the academic stressor. Emotion-focused coping strategies, such as distraction (e.g. thinking about something else), were found to decrease from late childhood to middle adolescence. Younger children used distractive techniques more than older children. However, there were developmental increases in rumination (e.g. intrusive thoughts) and aggression (e.g. feelings of anger surrounding the experience) from childhood through adolescence. Older children thought more about stressing experiences and felt more anger surrounding these experiences. There was also a main effect of gender, with female adolescents reporting more maladaptive coping strategies, including rumination, resignation (e.g. feelings of helplessness) and aggression than male adolescents reported.

Whereas children show different patterns developmentally in coping with everyday stressors, there are also different patterns for more extreme cases. Wadsworth et al. (2004) interviewed adolescents in the sixth through eighth grade (as well as college students) about their stress responses following the United States terrorist attacks on September 11, 2001. Overall, females employed more emotional expression and emotional regulation than males, whereas males reported greater feelings of acceptance. Emotion expression and emotion regulation were also found to increase with age. Additionally, young adolescents experienced more rumination surrounding the event than did older participants.

It does appear that with age, children first increase in their use of rumination and then decrease again sometime around the age of 18. Females may be more inclined to use rumination in their coping with negative stressors (Hampel & Petermann, 2005). Whereas rumination may pose a problem for the female adolescent, co-rumination may also be an issue. Co-rumination is thought to be a "social manifestation of rumination" (Rose, 2002, p. 1840). Co-rumination is defined as:

excessively discussing personal problems within a dyadic relationship and is characterized by frequently discussing problems, discussing the same problem repeatedly, mutual encouragement of discussing problems, speculating about problems, and focusing on negative feelings. (Rose, 2002, p. 1830)

In a study with third, fifth, seventh and ninth graders, Rose (2002) asked participants to respond to questionnaires examining the construct of co-rumination and other constructs for everyday problems. Overall, girls reported using co-rumination more than boys. Additionally, adolescent girls used co-rumination more than younger children. This may have been related to the tendency for girls to self-disclose more than boys. This difference in self-disclosure was also

enhanced by an age difference. Older adolescent females self-disclosed more than young adolescent females. It appears that both rumination and co-rumination may both be problematic.

In considering the literature on the development of coping strategies, rumination and co-rumination increase with age, especially for females. This could cause problems in distancing from events. If the individual is constantly thinking about the event, it becomes difficult to perceive the event as farther away in time.

### **Development: What Needs to be in Place?**

It appears that in adulthood, there is a motivation to preserve self-worth levels and one mechanism for doing so involves employing subjective temporal distance (Ross & Wilson, 2001; Wilson & Ross, 2001). Whether or not this is an explicit or implicit process is unclear; however, it appears implicit since it can be manipulated without the participant's awareness (Ross & Wilson, 2003; Wilson & Ross, 2001, 2003; Wilson & Ross, 1998). What needs to be in place developmentally in order for children to understand and utilize the concept of subjective distance? I propose that the following four concepts are necessary: a motivation to preserve self-worth, a basic understanding of calendar time, an understanding of social comparison, and an understanding of the autobiographical self or the self through time.

Self-preservation. First, a motivation to preserve self-worth is necessary to use subjective distancing. Like adults, children must have a need for pushing an event farther away in the first place to utilize subjective temporal distance. There must be some motivation to preserve high levels of self-worth. When do children have this motivation? In one study that considered sibling disputes and arguments, children around the average age of 4.5 years were compared to children around 7 years old. These children were interviewed about a significant conflict with a sibling. Older siblings justified their actions in the conflict more than the younger children did, whereas

the younger children were more likely to deny that the event ever happened. These narratives for the event could reflect a desire to maintain a positive self-image or to appear blameless (Wilson, Smith, Ross & Ross 2004). Based on Wilson et al. (2004), it can be concluded that children even as young as 4.5 evidence some need to preserve their sense of self or to remain blameless.

Children who are somewhat older (around age 7) show a more sophisticated way of preserving self-worth, by either justifying their actions or explaining why something was different. These children are not denying that something occurred, but explaining why this event was different from others.

The results of the Wilson et al. (2004) study on sibling rivalry are similar to those obtained by the present author in research with older children (Koenig & Eaton, 2004). In this investigation, children ages 9 to 11 were interviewed about a season ending soccer tournament. Those children with higher levels of global self-worth who lost the final game used more adversative statements to discount the importance of the event. For instance, the children would say, "We lost but the ref didn't make the right calls," or "This doesn't usually happen." This may have been a way of externalizing the event. The child recognized that her team had lost but utilized adverse phrases to explain why this loss did not mandate a reappraisal of his or her positive evaluation of his or her team's strengths (Koenig & Eaton, 2004). It appears that by age 9, children feel a need to preserve high levels of self-worth, and do so by downplaying the significance of a tournament loss. Exceptions are introduced and threat is lessened.

In another study by Cassidy, Ziv, Mehta and Feeney (2003), children were asked what kind of feedback they would like to receive about themselves from an unknown peer at another school. Participants were given the option of choosing which questions they would like the unknown peer to answer. The questions available to select from either represented the

participant's desire to receive positive or negative feedback. An example of a positive feedback question is, "Why should this person have great confidence in their ability to do well in school?" and a negative feedback question, "Why do you think this person might get a poor report card?" Children ages 12-17 with high levels of self-worth were more likely to seek positive feedback from unknown peers than those participants with low levels of self-worth. Those children with low levels of self-worth sought out either less positive feedback or more negative feedback. In this case, feedback seeking can be seen as a way to preserve the view of oneself (Cassidy, Ziv, Mehta & Feeney, 2003). These children were seeking out information that preserved their current self-view. Those with high self-worth felt a need to protect their high level and did so by requesting more positive feedback.

What do young adolescents have to say about high self-esteem individuals? DuBois et al. (2003) did research with a focus group of adolescents, and found that adolescents see their peers who have high self-esteem as being better able to cope than those with low self-esteem. Those adolescents who have high self-esteem are thought by participants to cope with negative events by avoiding negative comments from others. For instance, the adolescent who experiences a negative social occurrence may be better able to deal with this experience if they ignore the negative comments of others. They can be seen as distancing themselves from the potential threat. It appears that the need to preserve self-worth is present in middle childhood and this need continues through adolescence. Once around the age of nine, children with high self-worth act in a way that protects their current conceptions, either by providing exceptions, seeking positive feedback or avoiding negative feedback.

Temporal understanding. A basic understanding of calendar time is also a necessary prerequisite for the use of distancing. Before understanding the concept of psychological or

subjective time, it seems absolutely necessary that the child at least understand some basic time concepts, such as the ordering of events. Individuals first begin to understand time as occurring in a verbal list and then transition to understanding it through image systems. Verbal lists are helpful in understanding sequences of events, such as the ordering of days of the week and months of the year. Images become helpful in determining the true nature and relation of events, such as the fact that the year occurs in a cycle (Friedman, 1986). Being able to understand verbal lists could be considered beneficial in understanding forward ordering of events. A child who understands forward ordering could answer the question, "If you go forward through the year...does January or September come next after May?" Being able to understand time through an image system is considered helpful in the understanding of the backward order of events. A child who understands backward ordering could answer the question, "If you go backward through the year...does February or October come next after May?" It is not until 4th grade, or around 9-10 years old, that children can accurately judge the forward ordering of events. The ability to backward order events comes even later, not until around 10th grade, or 15 years old (Friedman, 1986).

When there is a large distance between two events, children as young as 4 or 5 are quite accurate in determining which event is more recent. Children were asked whether Christmas or their birthday was closer. If their birthday was in the past 2 months, most children were quite accurate. Children older than 9 years of age were twice as likely than younger children to refer to the understanding of calendar time in their decision on which event was closer (Friedman, Gardner & Zubin, 1995).

Short distances between similar events show a different pattern. Children from about 6 years old (first grade) are quite accurate in judging the temporal order of two similar events.

Children were able to judge the order of two experimental events (an egg demonstration) and a box demonstration conducted by the experimenter. These events were conducted by the same individual, and when the second experiment was conducted, children may have related the two events in time (Friedman & Lyons, 2005). Between 6 to 8 years of age, there is also another shift in the ability of children to explain their judgment and understanding of temporal information. This ability to provide information about the reconstruction of their memories makes the plausibility of time dating for an event more believable. While children from about 4 years of age say they are aware of temporal information that would be useful in dating an event, it is not until about age 6 that they are correct in dating this information (Friedman & Lyons, 2005). It appears that children are most adept at understanding the concept of calendar time during some point in middle childhood. At this point in life, children are able to order information as long as there is some distance between events, and to provide accurate reasoning as to their understanding of time concepts.

Social comparison. An understanding of social comparison appears critical. Adults show this social comparison when determining their own self-conceptions (McFarland & Alvaro, 2000; Wilson & Ross, 2000). The most prominent research on the self-concept in children was conducted by Harter (1999). According to Harter, children must be able to compare their selves with others, and as a result, feel the need to preserve their own sense of self-worth. As we age, the self-concept becomes more differentiated. Before age 8, the child does not have a distinct concept for social acceptance and understanding. It is not until around age 8-9 that this becomes a separate competence within the self-concept. Additionally, at this age, children begin to give socially desirable responses, presumably due to the increased importance of the social group (Harter, 1999).

Other research also supports this idea of social comparison. From first through twelfth grade there is a decrease in self-competence beliefs across all domains. In first grade we see the most positive self-conceptions and then these drop off to more realistic beliefs. This initial optimism may be due to the fact that before the age of 8, the child's perceptions are overly optimistic since they are not yet using social comparison as a reference for their selves (Jacobs et al., 2002). The need for social comparison drops off some as we age, however this need can be re-activated in new settings. For instance, in the transition to middle school or high school, the individual may seek out more social feedback in order to figure out expectations and opinions for their own sense of self (Harter & Whitesell, 2003). Social comparison does not appear to arise until middle childhood, and while this need for comparison may decrease some, it may also increase in new stressful situations.

Autobiographical self. An understanding of autobiographical time or the concept of the self through time is also important. In adulthood, adults use temporal comparisons, comparing their current self to some past self in time, in order to maintain high levels of self-worth. They compare their current self to some past self and see themselves as being different than that past self. They have improved since then (McFarland & Alvaro, 2000).

In order to subjectively distance, children must be capable of organizing their past autobiographical experiences, and realizing that they have both a past and a present self. Our sense of self is constructed and developed through childhood and adolescence. In adolescence, some teens show fluctuations in levels of self-concept. Whether or not these fluctuations occur depends on a variety of life experiences, such as dependence on others for social feedback, and failure in a domain judged as important (Harter & Whitesell, 2003). Some argue that this potential fluctuation in self-concept may have an impact on memory. Skowronski, Walker and

Betz (2004) argue that individuals have a timekeeping self as well. This timekeeping self is tied to our ability to understand the passage of time. They propose that reminiscing about some event may cause a shift in the current self-concept. For instance, thinking about a good grade you received in a class may make you feel like a better student. In adolescence, teens are more subject to a changing self-concept (Harter & Whitesell, 2003), and so reminiscing about some event may make the event feel closer in time, because it no longer belongs to your past self but to your present self. As a result, subjective temporal distance may not be effective until later in life, when levels of the self-concept are more stable. It is also a possibility that the increase in rumination during adolescence (Hampel & Petermann, 2005) may cause problems as well. Negative events may feel closer to the present due to high levels of intrusive thoughts. The individual would be quite proficient at keeping positive events close, but still may have trouble keeping negative events farther away.

### **Rationale for the Present Research**

Previous research in the area of subjective distance has linked this type of distancing to a myriad of outcomes and coping patterns. However, previous research has only dealt with adult populations, and ignored the understanding of distancing in childhood and adolescence. The development of subjective temporal distance is an interesting question, for several reasons, including: If children are able to subjectively distance, could this help in their maintaining a positive outlook? At what age do children begin to understand the concept of subjective distance and use it in similar ways to adults? Is the ability to subjectively distance different based upon the selected event? The answer to all these questions is simply, we do not know yet.

This thesis begins to address the questions indicated above. A cross sectional design was used, with male and female participants at each of the grades. Adapting Ross and Wilson's

(2002) comparison of high and low grades, participants were questioned about their best (positive event) and worst grades or test scores (negative event) from the previous six months. Academic competence scores were also calculated in order to determine the relative importance of distancing for each group. Children in 4<sup>th</sup>/5<sup>th</sup> grade were recruited as well as early adolescents in 7<sup>th</sup>/8<sup>th</sup> grade. The 4<sup>th</sup>/5<sup>th</sup> grade age group was chosen based on the proposed developmental milestones necessary to utilize subjectively distance. The comparison group of 7<sup>th</sup>/8<sup>th</sup> graders was chosen due to the myriad of coping problems (e.g. rumination, co-rumination) present during this period of early adolescence.

### **Main Hypotheses:**

The following outcomes were predicted:

- (1) A gender by event interaction, with female participants feeling subjectively closer to the negative event than male participants.
- (2) A grade by gender by event interaction, with female participants in the 7<sup>th</sup>/8<sup>th</sup> grades showing less distancing from the event than either female and male participants in 4<sup>th</sup>/5<sup>th</sup> grade, but only for the negative event.
- (3) A gender by competence by event interaction with female participants feeling closer to events, with this difference from males modified by self-competence scores, and with different patterns observed for the negative versus positive events.
- (4) An age x gender x self competence x event interaction. Differences in subjective distancing by age were expected, and these differences were further expected to be qualified by gender and further modified by self competence scores, with this pattern only occurring for the negative event.

**Ancillary Hypotheses:**

(5) Intensity change as well as impact change scores were predicted to be related to subjective distance from the event. If the event has a greater impact over time or has greater intensity ratings, it was expected that less psychological distance from the event would be observed.

(6) Rumination and co-rumination were expected to be inversely related to subjective temporal distance from the event. That is, the greater the amount of rumination surrounding the event, the less distancing from the event. Similarly, greater amounts of co-rumination about the event were predicted to be related to less distancing from the event.

(7) Feelings of personal growth were expected to be related to subjective distance from the event, with greater perceived personal growth related to greater distancing from the event.

**Method***Participants*

Participants were recruited from several locations across the Southeast, with participants obtained from one of the following four groups: Boys & Girls' Clubs, Christian private schools, personal connections, and summer camps. Parents of all 4<sup>th</sup>, 5<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade students at these locations received letters describing the research and requesting written consent for their child or adolescent's participation (see Appendix A). Informed consent for participation was obtained for 192 children and adolescents; representing approximately 52% of the 4<sup>th</sup>/5<sup>th</sup> graders and 26% of the 7<sup>th</sup>/8<sup>th</sup> graders from whom consent was requested. A total of 100 4<sup>th</sup>/5<sup>th</sup> graders (45 males and 55 females) and 90 7<sup>th</sup>/8<sup>th</sup> graders (61 females and 29 males) participated in the study and are

used for all subsequent analyses. Data for one participant were not included because a teacher disclosed that the child was diagnosed with a learning disability. Additionally, one participant who did not report gender is not represented in the raw counts listed above. Participants as a group were recruited from facilities serving middle income families, with the exception of the Boys & Girls Club which served low/middle income families. Approximately 67% self-classified as European American, 7% as African American, 3% as Hispanic, 5% as Asian, 8% as other (e.g. Native American, American, Italian), and 9% did not self-classify. As a token of appreciation, all participants were given a small gift (e.g., NCSU pencil) for their participation in this study.

### *Materials*

Participants were administered questionnaires (See Appendices C-H) concerning their responses to their best and worst grades from the past six months and their self-perceptions, as described below. Demographic data on the participants' grades, age, gender, location, and ethnicity was also collected.

A subjective distancing measure based on the one used by Ross and Wilson (2002) was administered. This measure assessed subjective time through a 10-point Likert scale. A score of 1 indicates the event feels like yesterday, while a score of 10 indicates the event feels very far away. Assessment of basic coping and thoughts about the event were also assessed through several separate 7-point likert scale questions.

The Harter self-perception profile for children (1985) was used for the younger age group (see Appendix D). This first scale is used to assess levels of self-worth or self-competence in different domains of life. This version of the scale is specifically for children ages 8-12 years old. As a result, this scale was only given to the youngest age group, since they were all under the age of 12. The Harter Self-Competence Scale for Children has six distinct domains. Two of these

domains (global self-worth & scholastic competence) were used in this study. The reliability for the domains of scholastic competence and global self-worth ranges from .78 to .85. The importance of academic competence was assessed through importance ratings originally designed by Harter. Importance ratings were used to calculate a discrepancy score between importance and competence. This discrepancy score aids in determining overall levels of self-worth.

In reading the questionnaire, the participant is first asked to decide which type of child is more like them, and then to say whether the statement is 'Sort of true' for the child or 'Really true.' The child then marks the appropriate box. Each question is worth anywhere from 1 to 4 points. A score of 4 indicates high self-competence in that area, and a score of 1 indicates low self-competence. Since there are 6 questions within each domain, the scores on these questions are added and then averaged to obtain a level of self-competence score for the child within that domain. For instance, if a child receives an average score of 3.5 in the domain of scholastic competence, then this would indicate that they have a fairly high level of competence in academics.

The Harter self-perception profile for adolescents (1988) is also used to assess levels of self-worth, but this scale is specifically for children who are in adolescence (see Appendix C). As a result, this scale was only being given to the older group, since they all were around age 13 or older. The Harter Self-Perception Profile for Adolescents has nine specific domains. In order to mirror the competence domains collected for the younger group, the following domains were used in this study: Scholastic competence and Global Self-worth. The reliability for the domains of scholastic competence and global self-worth ranges from .77 to .91. Importance ratings and discrepancy scores will also be calculated for this sample of teens. Two Harter scales were used

in order to provide developmentally appropriate scales for the children and adolescents in the sample. However, it should also be noted that the two scales are very similar to one another; the main difference between the two is that the child scale refers to “children” whereas the adolescent scale refers to “teenagers.”

In reading the questionnaire, the participant was first asked to decide which type of teenager is more like him- or herself, and then to say whether the statement is 'Sort of true' for the teen or 'Really true.' The participant then marks the appropriate box. Each question is worth anywhere from 1 to 4 points. A score of 4 indicates high self-competence in that area, and a score of 1 indicates low self-competence. Since there are 5 questions within each domain, the scores on these questions are added and then averaged to obtain a level of self-competence score for the child within that domain.

Both the child and teen questionnaires contain two questions concerning the importance of academics. Each question is worth anywhere from 1 to 4 points. A score of 4 indicates high academic importance and a score of 1 indicates low academic importance. The scores on these questions are then averaged to create an academic importance score. According to the classifications presented by Harter (1985, 1988), participants are classified into one of four groups based on the relationship between their averaged academic competence and average academic importance scores. Participants who averaged below a 3 on academic competence were placed into the low academic competence group. The remaining participants, scoring between a 3 and a 4, were placed into one of three high academic competence groups. The first group, academic competence > importance, indicated that there was a positive discrepancy, such that these participants viewed themselves as good students but it is not very important to them. The second group, academic competence is = importance, indicated that there was no discrepancy,

such that these participants viewed themselves as good students and also saw this as being important. The third group, academic competence < importance, indicated that there was a negative discrepancy, such that these participants viewed themselves as good students but they wished they could be better students. In other words, these participants are still striving to reach their potential.

### *Procedure*

The method of this study was similar to the approach of Ross and Wilson (2002). However, there were some differences in this study. These differences included: additional questions on changes in coping, as well as differential coping, a change from the Rosenberg (1965) self esteem scale to the academic self-competence and global self-worth version of the Harter self-perception profile for the children (1985) and the Harter self-perception profile for adolescents (1988). In addition, a within-subjects comparison of best and worst grades was used, in contrast to the between-groups design employed by Ross and Wilson (2002).

In addition, there were some differences in data collection across sites. At the Boys & Girls club, participants were given the questionnaire with the presence of an interviewer, in order to ensure compliance with instructions. Three trained graduate interviewers were present along with two trained undergraduates for these interviews. Data was collected over a span of a month at the Boys & Girls club.

After determining that participants did not need much help with the questionnaire, the subsequent questionnaires were constructed to be filled out solely by the participant. Participants at the Christian private schools filled out their questionnaires in the classroom, while participants who were personal connections or in summer camps took home the questionnaires to fill out on their own time. Data collection at these sites lasted approximately 1.5 to 2 weeks, from the time

that parent consent letters were sent home to the time that questionnaires were returned and completed. Since there was a difference in data collection across sites, results will be closely examined for any effects of data collection location.

The children's assent was obtained first through an assent form (Appendix B) and participants were informed that they could quit at any time. Participants were informed that they would fill out some forms about their understanding and coping with their best and worst grades. After filling out the questionnaires and Harter self-perception profiles (Harter, 1985; Harter, 1988), participants also filled out demographic information (Appendix H). The entire packet took approximately 20-25 minutes.

In filling out the questionnaire, participants were asked to think about receiving their best and worst grades from the past six months. The order of the report and ratings of the experiences were counterbalanced across participants, such that equal numbers of each version were printed, assorted, and handed out randomly by teachers, in such a way that every fifth child received the same version. A description of counterbalancing is presented in Table 1. In addition, there were two distracter activities (see appendix E), which were placed in between the Harter and event questionnaire, as well as in between the positive and negative events. These additional activities are designated with an "X" in Table 1.

Both of these activities were designed to be emotionally neutral. The participant was simply asked to list the first three items that came to mind when seeing a specific category (e. g., "fruits"). This task was intended to redirect the child's attention from the emotionally salient prompt (i.e., report of best or worst grade) and hence to return the child to baseline. In this manner, it was hoped that any potential effects of the ordering of the questionnaire would be negated. Order effects are analyzed in the following section.

*Table 1. Description of ordering of events*

	Order of Events
Version 1	Harter questionnaire -X- Disappointing Event -X- Satisfying Event- Demographics
Version 2	Harter questionnaire -X- Satisfying Event -X- Disappointing Event- Demographics
Version 3	Disappointing Event -X- Satisfying Event -X- Harter Questionnaire- Demographics
Version 4	Satisfying Event -X- Disappointing Event -X- Harter Questionnaire- Demographics

The prompt for the events section was as follows:

Everyone gets grades or test scores that they're happy with and grades or test scores that they're not so happy with. Think about your (worst or best) grade (or test score) from the past six months or a grade (or test score) that you were really unhappy with. Was it a grade or a test score? If it was a grade, what letter or number grade was it? What subject was it in? If it was a test score, what kind of test was it? What was the score?

In the next section within the event questionnaire, participants were asked to rate the subjective distance of the event. The prompt for the question on subjective distance is as follows:

Sometimes events feel quite close or far away, regardless of how long ago they actually occurred. When you think about the memory that you just wrote about, how far away does it feel for you? If you take a look at the scale below, where would you mark how far away that memory feels for you? The scale goes from 1, where the event feels like yesterday to 10, where the event feels far away. (adapted from Ross & Wilson, 2002)

After filling out the question on subjective distance, participants were asked to provide ratings of their experience. These include 7-point likert scale ratings that ask about: the intensity

of emotion surrounding the grade at the time and now, the impact of the grade at the time and now, personal growth, recurring thoughts (Ross & Wilson, 2002), co-rumination and satisfaction with the grade (Ross & Wilson, 2002).

Depending on the ordering of the questionnaire, some participants filled out the questions on academic competence and global self-worth at the beginning or at the end. For this section, participants were given the following prompt:

For this first part, we are interested in what each of you is like; what kind of a person you are like. This is a survey, not a test. There are no right or wrong answers. Since kids are very different from one another, each of you will be putting down something different. (Harter, 1988; Harter 1987)

Participants then read example A, and were asked to consider which child or teenager is more like them. Once they decided which statement is more like them, they were asked to consider if that is "Sort of true" or "Really true?" At the end of the questionnaire, children were asked to provide an approximate date for both events and filled out their demographic information. Once this was completed, participants were given their gift and thanked for their participation in the study.

### *Scoring*

Questions relating to subjective distance were recorded (Ross & Wilson 2002), with a '10' representing the greatest amount of psychological distancing, and a '1' representing the least amount of distancing from the event. Change scores were calculated for questions on event impact and intensity, which asked the participant to describe their feelings both at time the event happened, and after the event occurred. Scores on both questions can range from 0 to 6. A downward change (e.g. They thought more about the event at the time than they do now) will be

indicative of better coping than an upward change (e.g. They think more about the event now than before).

Scores were obtained for levels of self-competence in the domains of: scholastic competence and global self-worth based on the classification method described earlier in this section.

## Results

A series of preliminary analyses were completed before the main hypotheses were tested. These initial tests were conducted in order to examine possible violations of assumptions and the presence of confounds, including variations across demographics as well as tests of compliance with instructions. Following these analyses, descriptive analyses of the data are provided, followed by tests of main hypotheses.

*Demographic differences in Subjective Temporal Distance.* Potential differences in demographic characteristics across valence may suggest variables to control for in subsequent analyses. Means for each demographic variable by valence (best versus worst grade) can be found in Table 2. In order to determine if subjective temporal distance differed by demographic characteristics, a mixed between-within analysis of variance was conducted. The between participants factors were location, ethnicity and hometown. The within-participants factor was valence (best versus worst grade). None of the main effects were significant. In addition, none of the interactions between valence and the various demographic characteristics were significant. As a result, demographic characteristics will not be controlled for in subsequent analyses.

*Location differences in key variables.* These analyses examined the effect of location on key variables in the dataset, including academic competence scores, academic importance, global self-worth, co-rumination with peers, co-rumination with others and rumination. A series of

separate one-way ANOVAs were conducted to assess the effects of location on global self-worth scores, academic competence scores and ratings of academic importance. There was only an effect of location for academic competence scores ( $F_{[3, 182]} = 7.01, p < .001$ ). Tukey post-hoc tests revealed that the participants recruited from the Boys & Girls club had significantly lower academic competence scores ( $M = 2.91, SD = .59$ ) than did the children recruited through either personal connections ( $M = 3.38, SD = .44$ ) or summer camps ( $M = 3.49, SD = .56$ ). In addition, the students at Christian private schools ( $M = 3.07, SD = .61$ ) had significantly lower mean academic scores than did the summer camp attendees ( $M = 3.49, SD = .56$ ). The results suggest the need to consider location differences when analyzing the effects of raw academic competence scores.

A second series of separate repeated measures ANOVAs were conducted to assess the effects of location on reports of co-rumination with peers, co-rumination with others and rumination. The within subjects factor was valence (best versus worst grade) and the between subjects factor was location. No significant effects of location were found for reports of rumination, co-rumination with peers or co-rumination with others. As a result, location was not controlled for in the examination of these variables.

*Table 2. Means and Standard Deviations of Subjective Distance Scores by Valence and Demographic Variables*

Location	Best Grade	SD	Worst Grade	SD	n
Boys & Girls Club	4.76	(3.08)	6.62	(3.28)	38
Christian Private Schools	5.14	(2.61)	5.33	(2.56)	103
Summer Camps	4.97	(2.87)	5.90	(3.02)	35
Personal connections	4.69	(2.40)	7.80	(1.65)	16
<b>Ethnicity</b>					
Caucasian	5.04	(2.71)	5.89	(2.84)	128
African American	3.54	(2.37)	5.62	(3.45)	14
Hispanic	5.00	(2.55)	6.40	(1.52)	6
Asian	4.44	(1.94)	6.78	(2.39)	9
Other	5.78	(2.90)	5.66	(3.08)	16
<b>Hometown</b>					
Rural	5.06	(2.59)	5.89	(2.86)	32
Suburban	5.03	(2.70)	6.00	(2.83)	134
Urban	4.39	(2.96)	4.96	(2.91)	15

Note. Subjective Distance was assessed on a 1 to 10 point scale, with 1 indicating that the event “feels like yesterday” and 10 indicating that the event “feels very far away.”

*Order of Questionnaire.* As discussed in the method, participants completed the questionnaires in one of four different orders. Table 3 presents the mean subjective distance scores by valence for each order.

*Table 3. Means and Standard Deviations of Subjective Distance Scores by Valence and Order of Questionnaire*

Order	Best Grade	SD	Worst Grade	SD	n
1	5.34	(2.89)	6.41	(2.60)	47
2	5.28	(2.33)	5.36	(3.00)	47
3	4.45	(2.74)	6.06	(2.63)	50
4	4.81	(2.71)	5.81	(3.08)	48

Note. Subjective Distance was assessed on a 1 to 10 point scale, with 1 indicating that the event “feels like yesterday” and 10 indicating that the event “feels very far away.”

Two separate one-way ANOVAs indicated that participants’ perceptions of elapsed time did not differ by the order in which the questionnaires were presented in their reports of distance for either best or worst grades. In addition, because Ross and Wilson (2002) found an effect of the ordering of the events on Global Self-Worth scores, a one-way ANOVA was conducted to assess

whether there were differences in Harter scores by questionnaire order. No significant differences were found for either Global Self-Worth scores or Academic Competence scores. Because ordering of the questionnaire did not have an effect on Global Self-Worth or Academic Competence scores, it will not be controlled for in subsequent analyses.

*Manipulation check for different types of events.* Analyses of satisfaction ratings, intensity ratings and impact ratings were conducted to insure that participants complied with instructions for providing both a disappointing and satisfying event of equal intensity. As a manipulation check, a mixed between-within analysis of variance was conducted to analyze differences in ratings of satisfaction with grades. The between-participants factors were gender and age group (4<sup>th</sup>/5<sup>th</sup> grade or 7<sup>th</sup>/8<sup>th</sup> grade). The within-participants factor was valence (best versus worst grade). Table 4 presents the mean ratings on the 0-6 point scale by grade level, gender, and valence.

*Table 4. Means and Standard Deviations of Satisfaction Scores by Valence, Gender and Grade Level*

		Best Grade	SD	Worst Grade	SD
Male	4th/5th	4.68	(1.86)	1.45	(1.86)
	7th/8th	4.67	(1.59)	0.48	(1.22)
Female	4th/5th	4.89	(1.67)	1.20	(1.70)
	7th/8th	5.36	(1.04)	0.91	(1.52)

Note. Satisfaction scores were assessed on a 0 to 6 point scale, with 0 indicating “not at all satisfied” to 6 indicating “very satisfied.”

As expected, there was a main effect of valence ( $F_{[1, 180]} = 489.24, p < .001, \eta^2 = .73$ ), such that participants were significantly more satisfied with their best grades ( $M = 4.96, SD = 1.55$ ) compared to their worst grades ( $M = 1.07, SD = 1.62$ ). Although a significant grade by valence interaction indicates that older students were less satisfied with their worst grade than were younger students, ( $F_{[1, 180]} = 6.00, p < .05, \eta^2 = .03$ ), the younger as well as the older

participants are still less satisfied with their worst grade compared to their best grade. Hence, there is no need to control for this interaction in subsequent analyses. The main effects of gender and grade level were not significant, and there was no three-way interaction. Inspection of the satisfaction ratings thus confirmed that all groups of participants complied with the instructions.

In order to insure that participants provided events of equal emotional intensity (e.g. both grades discussed were of equal emotional intensity), mean intensity ratings were also examined. Tables 5 and 6 display the mean intensity ratings at the time of the event and mean intensity ratings in the present. These ratings were on a 0-6 point scale.

*Table 5. Means and Standard Deviations of Emotional Intensity Ratings at the Time of the Event*

		Satisfying	SD	Disappointing	SD
Male	4th/5th	4.66	(1.52)	3.59	(1.83)
	7th/8th	5.09	(1.35)	4.00	(1.54)
Female	4th/5th	5.24	(1.29)	4.07	(1.85)
	7th/8th	5.13	(1.20)	4.03	(1.52)

*Table 6. Means and Standard Deviations of Emotional Intensity Ratings in the Present*

		Satisfying	SD	Disappointing	SD
Male	4th/5th	3.93	(1.86)	2.56	(1.91)
	7th/8th	4.00	(1.66)	2.55	(1.89)
Female	4th/5th	4.20	(1.74)	2.63	(1.85)
	7th/8th	4.16	(1.57)	2.71	(1.68)

Note. Emotional intensity scores were assessed on a 0 to 6 point scale, with 0 indicating “not at all intense” to 6 indicating “extremely intense.”

In order to determine if mean intensity ratings statistically differed by grade level, gender or valence, a separate mixed between-within analysis of variance was conducted on the data from each reported time point. The between-participants factors were gender and grade level (4<sup>th</sup>/5<sup>th</sup> grade or 7<sup>th</sup>/8<sup>th</sup> grade). The within-participants factor was valence (disappointing or

satisfying). Contrary to expectations, there was a main effect of valence for emotional intensity at the time of the event ( $F_{[1, 180]} = 48.84, p < .001, \eta^2 = .21$ ), such that participants reported having a higher emotional intensity for their best grade compared to their worst grade at the time that the event happened. In other words, participants were more likely to say that they felt really positive about their best grade at the time of the event whereas they felt moderately negative about their worst grade, in terms of the emotional intensity. None of the interaction terms were significant.

For the intensity ratings in the present, there was an unexpected main effect of valence ( $F_{[1, 179]} = 67.91, p < .001, \eta^2 = .28$ ), such that participants reported having a higher emotional intensity for their best grade compared to their worst grade in the present time. In other words, participants were more likely to say that their best grades still feel very positive and that their worst grades were more moderately negative in intensity in the present time. None of the interaction terms were significant. Since participants did not report positive and negative experiences of comparable emotional intensity, further analyses examined the relation between emotional intensity scores and subjective temporal distance ratings, as this could be a potential moderator or mediator in the use of subjective temporal distance. (See results presented on pages 59-61).

In order to insure that participants provided events of equal emotional impact (e.g. both grades discussed affected their lives equally), mean impact ratings were examined. Tables 7 and 8 display the mean impact ratings at the time of the event and mean impact ratings in the present. These ratings were on a 0-6 point scale.

*Table 7. Means and Standard Deviations of Event Impact Ratings at the Time of the Event*

		Satisfying	SD	Disappointing	SD
Male	4th/5th	3.00	(1.94)	2.73	(2.01)
	7th/8th	2.59	(1.65)	2.25	(1.83)
Female	4th/5th	3.00	(1.92)	3.00	(1.87)
	7th/8th	2.81	(1.65)	2.65	(1.68)

*Table 8. Means and Standard Deviations of Event Impact Ratings in the Present*

		Satisfying	SD	Disappointing	SD
Male	4th/5th	2.47	(1.74)	1.79	(1.86)
	7th/8th	1.54	(1.53)	1.34	(1.60)
Female	4th/5th	2.46	(1.95)	2.06	(1.88)
	7th/8th	1.97	(1.63)	1.58	(1.74)

Note. Impact scores were assessed on a 0 to 6 point scale, with 0 indicating “no impact” to 6 indicating “extreme impact.”

In order to determine if mean impact ratings differed by grade level, gender or valence, a separate mixed between-within analysis of variance was conducted on the data from each reported time point. The between-participants factors were gender and grade level (4<sup>th</sup>/5<sup>th</sup> grade or 7<sup>th</sup>/8<sup>th</sup> grade). The within-participants factor was valence (worst versus best grade). Contrary to expectations, there were no significant main effects or interactions for the impact at the time of the event. The impact of the event was in the moderate level across grade and gender at the time of the event.

For the impact ratings in the present, there was an unexpected main effect of valence ( $F_{[1, 180]} = 8.11, p < .01, \eta^2 = .04$ ), such that participants reported that the impact of the event was greater for best grades compared to worst grades, in the present time. In other words, participants were more likely to say that their best grades have a greater impact on them in the present than their worst grades. There was also an anticipated main effect of grade level ( $F_{[1, 180]} = 6.66, p < .05, \eta^2 = .04$ ), such that participants in the 4<sup>th</sup>/5<sup>th</sup> grades reported that all grades had a greater

impact in the present time compared to 7<sup>th</sup>/8<sup>th</sup> graders. None of the interaction terms were significant. Since participants did not report positive and negative experiences of comparable emotional impact in the present, further analyses will examine the link between ratings of emotional impact and subjective distance scores (See results presented on page 56).

*Subjective and Actual Time.* The relationship between subjective and actual time was investigated since previous results (Ross & Wilson, 2002) have suggested a relationship. Two exploratory analyses were conducted to examine outliers in actual distance by valence using a criterion of excluding outliers that were more than 3 standard deviations from the mean. Three outliers were removed for disappointing events and three were removed for satisfying events. One participant provided actual distance outliers for both events. These outliers were events greater than 281 days away from the satisfying grade and greater than 546 days away from the disappointing grade. Less than 2% of the actual distance scores were removed following this investigation. Other responses from the participants who produced actual distance outliers were retained in the data set.<sup>1</sup>

Pearson correlations were used to assess the relationship between subjective and actual time, separately for each valence. These variables were correlated for participants' best grades ( $r = .23, p < .01$ ) but not for their worst grades ( $r = .10, p = .20$ ). Since there was a significant relationship for positive events, calendar time will be controlled for in all subsequent analyses. Table 9 presents the actual time reported for the best and worst grades by grade level and gender. As a comparison to actual distance scores, Table 10 provides the subjective time reported for best and worst grades by grade level and gender.

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<sup>1</sup> Approximately 9% of disappointing events and 17% of satisfying events occurred within the past week. In order to test for the potential effects of events being too close in actual time, participants who provided an event occurring within the past week were removed from all analyses in the main and ancillary hypotheses. However, since the results were not altered with the removal of these participants, all participants' data were retained in subsequent analyses.

*Table 9. Means and Standard Deviations of Actual Distance Scores by Valence, Gender and Grade Level*

		Best Grade	SD	Worst Grade	SD
Male					
	4th/5th	76.95	(98.60)	124.29	(146.51)
	7th/8th	88.15	(73.10)	133.42	(74.45)
Female					
	4th/5th	55.16	(58.79)	75.29	(93.20)
	7th/8th	57.02	(53.96)	112.72	(195.85)

Note. Actual distance was coded as the number of days since the event.

*Table 10. Means and Standard Deviations of Subjective Distance Scores by Valence, Gender and Grade Level*

		Best Grade	SD	Worst Grade	SD
Male					
	4th/5th	4.94	(3.17)	6.26	(2.84)
	7th/8th	4.89	(2.51)	6.23	(2.81)
Female					
	4th/5th	5.33	(2.56)	5.65	(3.04)
	7th/8th	4.73	(2.50)	5.81	(2.66)

Note. Subjective Distance was assessed on a 1 to 10 point scale, with 1 indicating that the event “feels like yesterday” and 10 indicating that the event “feels very far away.”

Since there appeared to be differences in actual distance scores, a mixed between-within analysis of variance was conducted to determine whether actual distance (in days) differed as a function of the valence of the event, participants’ gender, and grade level. There were two between-participants factors: gender and grade level. The within-participants factor was valence (worst versus best grade).

Beginning with main effects, there was a significant main effect of valence ( $F_{[1, 171]} = 14.41, p < .001, \eta^2 = .08$ ). Collapsed across gender and grade level, participants’ reports of actual distance were greater for participants’ worst grades compared to participants’ best grades. In other words, disappointing grades were farther away in actual time than satisfying grades. There was also a significant main effect of gender ( $F_{[1, 171]} = 4.59, p < .05, \eta^2 = .03$ ). Males provided events that were farther away in actual time when compared to females. None of the interaction

terms were significant. These results further suggest the importance of controlling for actual time.

*Global Self-Worth versus Academic Competence.* The relationship between Global Self-Worth and Academic Competence was assessed in order to determine the appropriate measure to use in further analyses. A Pearson correlation was conducted to assess the relationship between global self-worth scores and academic competence scores. The relationship between global self-worth and academic competence scores was highly significant ( $r = .28, p < .01$ ). Since both measures did not illustrate a one-to-one correspondence, both measures will be used in subsequent analyses, to determine which measure explains more variance in subjective temporal distance.

*Reliability of Measures Assessing Same Construct.* In order to examine the strength of the relationship between questions intended to measure the same constructs, Pearson correlation analyses were conducted. The relationship between two questions for each of the four constructs (rumination, co-rumination with peers, co-rumination with others and subjective distance) were examined and correlations are presented in Table 11.

*Table 11. Correlation Matrix Assessing Reliability of Measures*

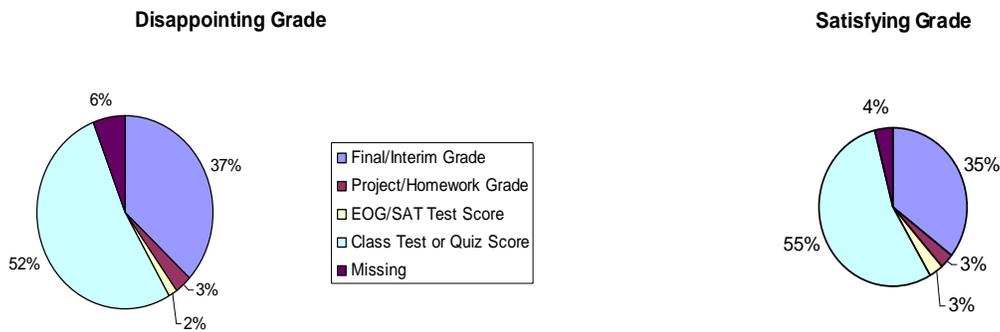
Construct	Correlations with Related Question	Significance (2-tailed)
Subjective Distance	<i>0.63</i>	<i>&lt; .01</i>
Rumination	<i>0.70</i>	<i>&lt; .01</i>
Co-rumination with peers	<i>0.71</i>	<i>&lt; .01</i>
Co-rumination with others	<i>0.76</i>	<i>&lt; .01</i>

Since the relationships were strong across questions, the following questions are used in reporting the main hypotheses. The first rumination question is used (Appendix B, part III, item e), since it is more specific to general rumination and does not include the realm of intrusive thoughts. The closed-ended co-rumination questions are used in subsequent analyses (Appendix

B, part III, items h and j), since many participants did not discuss these events with others. The overall average of these questions thus gives a clearer picture of events that took place and is not influenced by participants who discussed the events repeatedly. The first subjective distance question (Appendix B, part II) is used since it most closely mirrors Ross and Wilson (2002).

*Descriptive Results*

*Grades versus Test Scores.* Figure 1 presents the percentage of children who reported grades versus test scores, separated by valence.



*Figure 1. Percentage of participants who reported grades versus test scores (by valence) (n=192)*

In general, participants reported approximately equal numbers of grades and test scores for each valence. A similar pattern was observed for females. Males showed a similar pattern for their self-reported best grade but reported a higher percentage of class test scores for their worst grade (63%) compared to females (52%). In addition, 7<sup>th</sup>/8<sup>th</sup> graders reported a higher percentage of class test scores (67%) than 4<sup>th</sup>/5<sup>th</sup> graders (46%) for the disappointing event. Across gender and grade level, similar patterns were shown for self-reported best grades.

*Actual Scores and Competence Groups.* Further descriptive analyses examined whether reported grades or test scores differed by competence group. Groups were constructed based on the relationship between academic competence scores and importance ratings, as assessed by

participants' self-reports on the Harter Scales. These classifications were derived through the direct application of procedures presented in the Harter manuals (Harter, 1988; Harter, 1987). Participants scoring less than 0 were classified as High Academics: Importance > Performance. Participants scoring 0 were classified as High Academics: Importance = Performance. Participants scoring greater than 0 were classified as High Academics: Importance < Performance. Participants scoring low on the academic competence version (less than 3) were classified as Low academic. The number of participants classified in each academic category by grade level and gender are presented in Table 12.

*Table 12. Number of Children in each Academic Category by Grade level and Gender*

Category	Gender		Grade	
	Males	Females	4th/5th	7th/8th
High: Importance > Academics	14	32	25	22
High: Importance = Academics	5	12	5	12
High: Importance < Academics	5	7	9	3
Low Importance	30	30	42	18
Total	54	81	81	55

Chi square analyses were used to determine that there were no associations between grade level or gender and academic classification. There were no associations between gender and academic classification ( $\chi^2(3, N = 135) = 5.06, p > .1$ ). However, there was an association between grade level and academic classification ( $\chi^2(3, N = 136) = 11.11, p < .05$ ). As indicated in Table 5, individuals who were in the category of "High Importance=Academics" reported higher mean grades across valence compared to those participants classified in the "Low

Academic group.” ( $p < .05$ ). Tables 13 and 14 display the mean best and worst grade or test scores reported by the children by grade level, gender and academic competence group.

*Table 13. Means and Standard Deviations of Reported Scores by Valence, Grade Level, and Gender*

		Best Grade	SD	Worst Grade	SD
Male	4th/5th	4.34	(0.85)	2.00	(1.00)
	7th/8th	4.32	(0.48)	1.75	(0.89)
Female	4th/5th	4.50	(0.54)	2.01	(0.98)
	7th/8th	4.57	(0.50)	1.93	(0.93)

*Table 14. Means and Standard Deviations of Reported Scores by Valence and Academic Competence Group*

Category	Satisfying	SD	Disappointing	SD
High: Importance > Academics	4.40	(0.58)	1.91	(0.95)
High: Importance = Academics	4.63	(0.50)	2.31	(1.92)
High: Importance < Academics	4.64	(0.50)	2.00	(1.00)
Low Importance	4.33	(0.75)	1.75	(0.90)

Note. Reported scores were coded on a 1-5 scale, with a rating of 1 indicating a 69 (D) or lower and a score of 5 indicating a grade above 100 (A+)

In order to determine if reported grades differed by academic competence, a separate 2 (age) x 2 (gender) x 4 (competence group) ANOVA was conducted for each valence (best versus worst grade). No effects were observed, indicating that reported grades did not differ by academic competence group. In addition, a mixed between-within analysis of variance was conducted to analyze differences in reported grades or test scores. The between participants factors were gender and grade level (4<sup>th</sup>/5<sup>th</sup> grade or 7<sup>th</sup>/8<sup>th</sup> grade). The within-participants factor was valence (worst versus best grade). As expected, there was a main effect of valence ( $F_{[1, 109]} = 222.81, p < .001, \eta^2 = .67$ ), such that participants received significantly higher grades for satisfying events compared to disappointing events. In addition, there was a main effect of

academic category ( $F_{[3, 109]} = 3.72, p < .05, \eta^2 = .09$ ). Tukey HSD post-hoc tests revealed that individuals who were in the category of “High Importance=Academics” reported higher mean grades across valence compared to those participants classified in the “Low Academic group” ( $p < .05$ ). No effects of gender or grade level were observed.

*Global Self-Worth, Academic Competence and Academic Importance Scores.* Descriptive analyses considered the spread of data for Global Self-Worth and Academic Competence Scores. Three participants were removed from all subsequent analyses for Global Self-Worth and one participant was removed for their Academic competence score. Each of these participants who were removed provided a score that was 3 standard deviations below the mean. Only the data for each of these scores was removed and not the whole participant. This removed less than 2% of the data for Global Self-Worth and less than 1% of the data for Academic Competence scores. Participants in this sample showed high levels of Global Self-Worth ( $M = 3.34, SD = .55$ ). In addition, participants in this sample showed varied levels of academic competence ( $M = 3.14, SD = .61$ ).

Descriptive analyses considered the spread of data for academic importance (Figure 2). As indicated in the figure, nearly all students agreed that academics are important in this sample ( $M = 3.59, SD = .59$ ). Since the spread of the data was heavily skewed toward high importance, further analyses considered only academic competence, rather than the relationship between competence and importance.

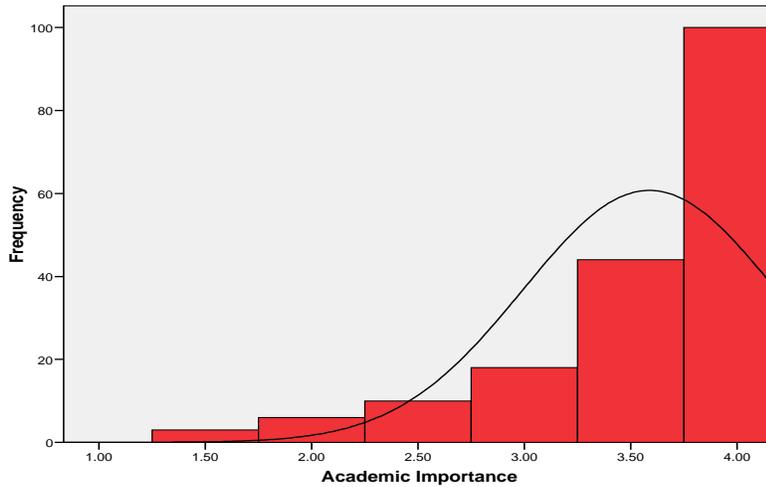


Figure 2. Frequency of Academic Importance Scores (n=181)

*Rumination and Co-Rumination.* Descriptive analyses considered the mean ratings and reports for rumination (Table 15), co-rumination with peers (Table 16) and co-rumination with others (Table 17) means and standard deviations were investigated by gender and grade level. It should be noted that the rumination and co-rumination items used in the analyses were measured on a 0 to 6 point scale.

Table 15. Means and Standard Deviations of Rumination Ratings by Valence, Gender and Grade Level

	Satisfying	SD	Disappointing	SD
Male				
4th/5th	2.53	(1.95)	1.78	(1.57)
7th/8th	2.15	(1.46)	1.78	(1.55)
Female				
4th/5th	2.69	(1.90)	2.33	(1.83)
7th/8th	1.83	(1.48)	1.98	(1.60)

Note. Rumination was assessed on a 0 to 6 point scale, with a rating of 0 indicating “not at all” to a 6 indicating “All of the time.”

*Table 16. Means and Standard Deviations of Co-Rumination with friends by Valence, Gender and Grade Level*

		Satisfying	SD	Disappointing	SD
Male					
	4th/5th	1.36	(1.60)	0.40	(0.69)
	7th/8th	1.64	(1.45)	1.04	(1.32)
Female					
	4th/5th	1.67	(1.72)	0.87	(1.32)
	7th/8th	1.51	(1.36)	1.14	(1.18)

*Table 17. Means and Standard Deviations of Co-Rumination with others by Valence, Gender and Grade Level*

		Satisfying	SD	Disappointing	SD
Male					
	4th/5th	2.00	(1.82)	1.11	(1.22)
	7th/8th	2.31	(1.69)	1.67	(1.45)
Female					
	4th/5th	1.70	(1.40)	0.93	(1.02)
	7th/8th	1.78	(1.49)	1.25	(1.17)

Note. Co-rumination was assessed on a 0 to 6 point scale, with a score of 0 indicating “not at all” to a score of 6 indicating “all of the time.”

Since there appeared to be differences in rumination ratings, a mixed between-within analysis of variance was conducted to determine whether rumination differed as a function of the valence of the event, participants’ gender, and grade level. There were two between-participants factors: gender and grade level. The within-participants factor was valence (worst versus best grades).

Beginning with main effects, there was a significant main effect of valence ( $F_{[1, 181]} = 3.80, p < .05, \eta^2 = .02$ ). Collapsed across gender and grade level, participants’ rumination ratings were greater for participants’ best grades compared to participants’ worst grades. There was also a significant main effect of grade level ( $F_{[1, 181]} = 4.04, p < .05, \eta^2 = .02$ ). Fourth and fifth graders ruminated more about both types of grades (disappointing and satisfying) compared to seventh and eighth graders. None of the interaction terms were significant.

Since there appeared to be differences in reports of co-rumination with peers, a mixed between-within analysis of variance was conducted to determine whether co-rumination with peers differed as a function of the valence of the event, participants' gender, and grade level. There were two between-participants factors: gender and grade level. The within-participants factor was valence (worst versus best grades).

There was only one significant main effect of valence ( $F_{[1, 182]} = 24.44, p < .001, \eta^2 = .12$ ). Collapsed across gender and grade level, participants' ratings of co-rumination with peers were greater for their best grades compared to their worst grades. None of the interaction terms were significant.

Since there appeared to be differences in reports of co-rumination with others, a mixed between-within analysis of variance was conducted to determine whether co-rumination with others differed as a function of the valence of the event, participants' gender, and grade level. There were two between-participants factors: gender and grade level. The within-participants factor was valence (worst versus best grade).

Beginning with main effects, there was a significant main effect of valence ( $F_{[1, 181]} = 28.17, p < .001, \eta^2 = .14$ ). Collapsed across gender and grade level, participants' reports of co-rumination with others were greater for their best grades compared to their worst grades. In addition, there was a significant main effect of grade ( $F_{[1, 181]} = 10.98, p < .05, \eta^2 = .02$ ). Collapsed across valence and gender, 4<sup>th</sup>/5<sup>th</sup> graders showed more co-rumination with others (e.g. parents and teachers) compared to 7<sup>th</sup>/8<sup>th</sup> graders. None of the interaction terms were significant.

*Personal Growth.* Mean ratings for personal growth by valence, grade level and gender are presented in Table 18.

*Table 18. Means and Standard Deviations of Personal Growth Ratings by Valence, Gender and Grade Level*

		Satisfying	SD	Disappointing	SD
Male	4th/5th	3.09	(1.98)	3.18	(1.95)
	7th/8th	1.85	(1.77)	2.41	(1.69)
Female	4th/5th	2.91	(1.87)	2.98	(1.92)
	7th/8th	2.64	(1.74)	2.44	(1.51)

Note. Personal growth was assessed on a 0 to 6 point scale, with a score of 0 indicating “no change” and a score of 6 indicating “complete change.”

Since there appeared to be differences in personal growth scores, a mixed between-within analysis of variance was conducted to determine whether personal growth ratings differed as a function of the valence of the event, participants’ gender, and grade level. There were two between-subjects factors: gender and grade level. The within-subjects factor was valence (worst versus best grades).

There was only one significant main effect of grade level ( $F_{[1, 181]} = 8.71, p < .01, \eta^2 = .05$ ). Collapsed across valence, participants’ reports of personal growth were greater for 4<sup>th</sup>/5<sup>th</sup> graders compared to 7<sup>th</sup>/8<sup>th</sup> graders. There were no significant main effects of gender or valence. In addition, the interaction terms were not significant.

### *Tests of Main Hypotheses*

Since the data were contributed by individuals who provided their own comparison (two events), and since both continuous and categorical data (e.g. global self-worth and gender) were analyzed, a multilevel model analysis appeared to be the best approach.<sup>2</sup> However, since there was only sufficient variability at one level, tests of hypotheses were conducted using hierarchical regression (also described as OLS Multiple Regression with hierarchical entry). In other words,

<sup>2</sup> In order to determine if there was sufficient variability at Level 1 and Level 2 to warrant continuation with MLM analyses, a fully unconditional model was conducted. Results from this analysis indicated that 4% of the variability in subjective temporal distance was between people ( $\tau_{00} = .35, z = .60, p = .28$ ) and 96% was within people ( $\sigma^2 = 7.46, z = 9.58, p < .001$ ).

since there was only variability at the observation level and no person level differences, it made sense to treat the observations as being independent.

*Hypotheses 1-4: Influences on Subjective Distance: Differences in Subjective Temporal Distance are anticipated by Gender, Grade, Valence and Global Self-Worth, as different groups may have different priorities for utilizing subjective temporal distance (refer to page 27 for full hypotheses)*

See Table 8 above for the mean subjective temporal distancing scores for participants’ best and worst grades by gender and grade in school.

In order to test the main hypotheses using a hierarchical regression, Pearson correlations were conducted first to assess the relationships between the predictor variables and subjective temporal distance. Correlations and significance levels are presented in Table 19.

*Table 19. Correlations between Hypotheses 1-4 Predictor Variables and Subjective Temporal Distance*

Predictors	Correlations with Subjective Temporal Distance	Significance (2-tailed)
Valence	-0.17	< .01
Gender	-0.04	0.43
Grade	-0.05	0.30
Global Self-Worth	-0.08	0.11
Academic Competence	-0.05	0.39

As indicated in this table, the correlation analyses revealed that only valence met the criterion for inclusion in subsequent regression models predicting subjective temporal distance. Due to the lack of linear relationships, further analyses were conducted to assess whether there was a curvilinear relationship between global self-worth and subjective distance or between academic competence and subjective distance.<sup>3</sup> Global self-worth was squared and entered into a

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<sup>3</sup> Curvilinear effects were not assessed for gender, grade or valence since these variables were dichotomous. In order to test for curvilinear effects, you need at least three points.

regression equation as a predictor of subjective distance, along with the variables of actual distance and valence. Preliminary analyses tested for homoscedasticity of the model and found that approximately 1% of the standardized residuals were greater than 2. As a result, assumptions were not violated in this model. No significant relationships were found between global self-worth squared and subjective distance, indicating that there is no curvilinear relationship between the two variables. In addition, academic competence was squared and entered into a regression equation as a predictor of subjective distance, along with the variables of actual distance and valence. Preliminary analyses tested for homoscedasticity of the model and found that approximately 1% of the standardized residuals were greater than 2. As a result, assumptions were not violated in this model. No significant relationships were found between academic competence squared and subjective distance, indicating that there is no curvilinear relationship between the two variables.

In order to determine whether valence explains subjective temporal distance beyond the effects of actual distance, both variables were entered into a regression equation. Preliminary analyses tested for homoscedasticity of the model and found that less than 2% of the standardized residuals were greater than 2. As a result, assumptions were not violated in this model. Actual distance was controlled for in Block 1 and Valence was added in Block 2. Before entering valence, actual distance accounted for 6% of the variance in subjective temporal distance. As can be seen in Table 20, the predictor of valence accounted for an additional 2% of the variance in Subjective Temporal Distance, which was a significant change from Block 1 ( $F_{[1, 336]} = 6.42, p < .05$ ). Valence was negatively related to subjective distance, and this relationship was statistically significant ( $p < .05$ ), indicating that disappointing events felt farther away and satisfying events felt closer in time (Figure 3).

Table 20. Summary of Hierarchical Regression Analysis for Valence and Actual Distance Predicting Subjective Temporal Distance

Predictors	Block 1			Block 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Actual Distance	.01**	.00	.24	.01**	.00	.21
Valence				-.76*	.30	-.14
R <sup>2</sup>		.06			.08	
$\Delta R^2$					.02*	

Note. \*p < .05. \*\*p < .01.

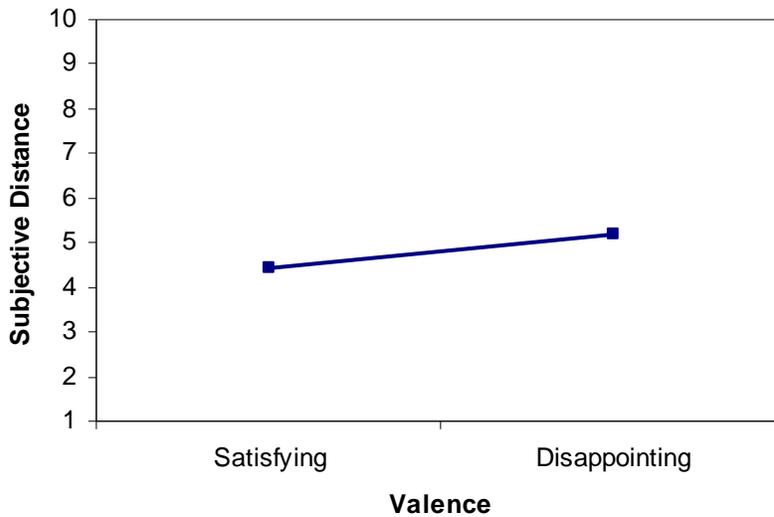


Figure 3. Relation between Valence and Subjective Distance (n = 192)

While there was no effect of gender, grade or global self-worth, there was a small effect of valence on subjective temporal distance. Hence, the children at both grade levels perceived the positive event to be closer in time than the negative event, even after the influence of actual distance had been controlled. This pattern is consistent with Ross and Wilson’s (2002) findings with adult participants. At the same time, however, global self-worth was not significant for children, which is in contrast to the previous work. Further analyses will examine how the

relationship between valence and subjective temporal distance operates in children and adolescents.

*Hypothesis 5: Intensity change as well as impact change scores will be related to subjective distance from the event. If the event has a greater impact over time or has greater intensity ratings, this will be related to less distancing from the event.*

Participants’ ratings of the intensity and impact of having received their reported best and worst grades were presented above (see Tables 5-8). Both intensity change and impact change were operationalized as the difference between the ratings of receiving the grade at the time it occurred and at the present time. In order to test the hypotheses using a hierarchical regression, Pearson correlations were conducted first to assess the relationships between the predictor variables and subjective temporal distance. Correlations and significance levels are presented in Table 21.

*Table 21. Correlations between Hypothesis 5 Predictor Variables and Subjective Temporal Distance*

Predictors	Correlations with Subjective Temporal Distance	Significance (2-tailed)
Intensity Change	-0.17	< .01
Impact Change	0.00	0.97

Since the relation between intensity change and subjective distance was significant, a hierarchical regression was conducted to predict current feelings of emotional intensity. Pearson correlations were conducted first to assess the relationships between the predictor variables and current emotional intensity. Correlations and significance levels are presented in Table 22.

Table 22. Correlations between predictor variables and current emotional intensity ratings

Predictors	Correlations with Current Emotional Intensity	Significance (2-tailed)
Intensity at the time	0.62	<.001
Subjective Distance	-0.29	<.001
Valence	0.41	<.001
Gender	0.02	0.69
Grade	0.05	0.31

Intensity at the time of the event and valence were entered in Block 1. Subjective temporal distance and the interaction between subjective temporal distance and emotional intensity at the time of the event were entered in Block 2. Preliminary analyses tested for homoscedasticity of the model and found there were standardized residuals over 3. Three cases had standardized residuals over 3 and hence were removed from the analysis. This deletion of outliers resulted in a loss of less than 1% of the data. After these three cases were removed, standardized residuals were examined again, revealing that approximately 4% of the standardized residuals were above 2 and approximately 1% was above 2.5. Hence, assumptions have not been violated in this model. As can be seen in Table 23, the first block of predictors accounted for 46% of the variance in present intensity feelings. Intensity at the time was positively related to intensity in the present, and this relationship was statistically significant ( $p < .01$ ), indicating that the emotional intensity of events decreased over time. In addition, valence was positively related to intensity in the present ( $p < .01$ ), indicating that satisfying events were associated with more intense current emotions compared to negative events. Subjective distance and the interaction between subjective distance and intensity at the time were added in block 2 and the amount of variance increased to 49%, which was a significant ( $F_{[2,360]} = 8.93, p < .001$ ) increase from block 1. It should be noted that with the addition of block 2, emotional intensity at

the time of the event was still significantly uniquely associated with present feelings. Turning to regression estimates, subjective distance was not a significant predictor of current feelings of emotional intensity.

*Table 23. Summary of Hierarchical Regression Analysis for Variables Predicting Intensity in the present*

Predictors	Block 1			Block 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Feelings at the time	.68**	.05	.58	.73**	.10	.62
Valence	.79**	.15	.21	.71**	.15	.19
Subjective Distance				-.05	.07	-.08
SubDist_Feelings at time				-.01	.02	-.10
R <sup>2</sup>		.46			.49	
$\Delta R^2$					.03**	

Note. \* $p < .05$ . \*\* $p < .01$

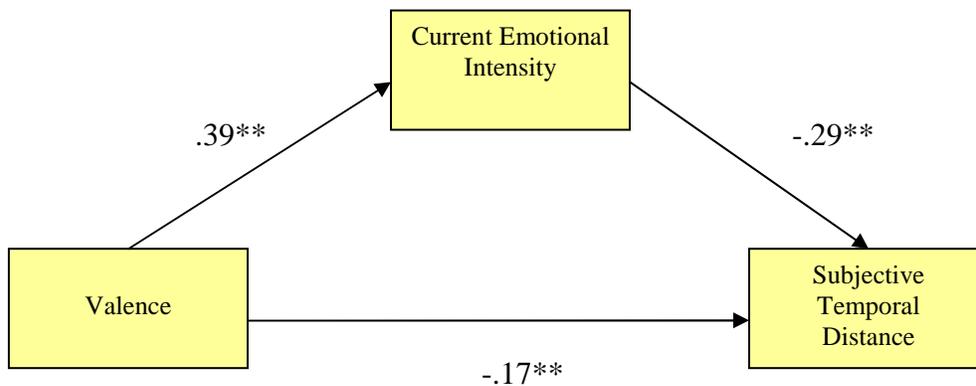
The relationship between emotional intensity and subjective distance was further investigated through a hierarchical regression predicting subjective distance. Valence and Actual Distance were controlled for by being entered in Block 1. Intensity feelings in the present and intensity change were entered in Block 2. Preliminary analyses tested for homoscedasticity of the model and found that only 2% of the standardized residuals were greater than 2. As a result, assumptions were not violated in this model. As shown in Table 24, emotional intensity in the present and intensity change were added in block 2 and the amount of variance increased to 12%, which was a significant four percent ( $F_{[2,331]} = 9.05, p < .01$ ) increase from block 1. It should be noted that with the addition of block 2, actual distance was still significantly uniquely associated with subjective distance. In addition, present feelings was found to be significantly and negatively associated with subjective temporal distance, indicating that having lower levels of present emotional intensity toward the event was associated with the event feeling farther away in time ( $p < .01$ ). The predictor variable of intensity change was not found to be significant.

Table 24. Summary of Hierarchical Regression Analysis for Emotion ratings, Valence and Actual Distance Predicting Subjective Temporal Distance

Predictors	Block 1			Block 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Valence	-.77*	.30	-.14	-.25	.32	-.05
Actual Distance	.01**	.00	.21	.01**	.00	.18
Present Feelings				-.35**	.10	-.24
Intensity_change				-.02	.12	-.01
R <sup>2</sup>		.08			.12	
$\Delta R^2$					.04**	

Note. \*p < .05. \*\*p < .01

In order to assess whether or not current emotional intensity mediates the relationship between valence and subjective temporal distance, a mediational analysis (Baron & Kenny, 1986) was conducted. In order to test for mediation, three steps had to be taken before examining a change in R<sup>2</sup>. First, Pearson correlations were used to assess whether or not the predictor (valence), mediator (current feelings) and dependent variable (subjective temporal distance) were significantly related with one another. Figure 4 illustrates this relationship graphically.



Note. \*\*p < .01

Figure 4. Mediation Model and Correlations

A hierarchical regression analysis was then used to evaluate whether current emotional intensity mediated the relation between valence and subjective temporal distance. Actual distance was controlled for in this analysis. Lastly, the predictor variable (valence) was no longer significant in Block 2, whereas the mediator (present feelings) was highly significant ( $p < .01$ ). Since the  $R^2$  change from block 1 to block 2 was significant ( $F_{[1,332]} = 18.14, p < .001$ ), the mediator added significant variance not explained by the predictor (Table 25). As a result, current emotional intensity mediates the relationship between valence and subjective temporal distance. For this sample, present emotional intensity explains subjective temporal distance ratings more than valence. Valence becomes insignificant once current feelings are added into the picture. Further analyses will incorporate this effect by controlling for present emotional intensity rather than valence of the event.

*Table 25. Summary of Hierarchical Regression Results Predicting Mediation*

Predictors	Block 1			Block 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Valence	-.77*	.30	-.14	-.25	.32	-.04
Actual Distance	.01**	.00	.21	.01**	.00	.18
Present Feelings				-.36**	.08	-.24
$R^2$		.08			.12	
$\Delta R^2$					.05**	

Note. \* $p < .05$ . \*\* $p < .01$

*Hypothesis 6: Rumination and co-rumination will be related to subjective temporal distance from the event. The greater the amount of rumination surrounding the event, the less distancing from the event. Similarly, greater amounts of co-rumination with others about the event will be related to less distancing from the event.*

The mean ratings for rumination (Table 15), co-rumination with peers (Table 16) and co-rumination with others (Table 17) were investigated by gender and grade level and are located in the section on descriptive analyses.

In order to test the hypotheses concerning the relations between rumination, co-rumination and subjective distance scores, Pearson correlations were conducted first to assess the relationships between the predictor variables and subjective temporal distance. Correlations and significance levels are presented in Table 26.

*Table 26. Correlations between Hypothesis 6 Predictor Variables and Subjective Temporal Distance*

Predictors	Correlations with Subjective Temporal Distance	Significance (2-tailed)
Rumination	<i>-0.19</i>	<i>&lt;.001</i>
Co-Rumination with Peers	<i>-0.15</i>	<i>&lt;.01</i>
Co-Rumination with Others	<i>-0.17</i>	<i>&lt;.01</i>

Since rumination and co-rumination showed significant negative correlations with subjective temporal distance, this relationship was further investigated through two separate hierarchical regressions. Additionally, Pearson correlations were conducted to examine the relationship between present emotional intensity and rumination ( $r = .43, p < .01$ ), co-rumination with peers ( $r = .30, p < .01$ ) and co-rumination with others ( $r = .31, p < .01$ ). The first regression was conducted to investigate whether co-rumination with peers and the interaction between peer co-rumination and emotional intensity may explain ratings of subjective temporal distance from events. Each of the predictor variables (rumination and both types of co-rumination) were centered by subtracting the mean of the sample from each individual score. In addition, the potential moderator (current emotional intensity) was centered. This transformation was

conducted in order to reduce multicollinearity among the main effects and interaction, since all variables were strongly correlated with one another. When variables are centered, nothing about the distribution of the variable actually changes (Aiken, West & Reno, 1991). Present Emotional Intensity (centered) and Actual Distance were entered in Block 1. Actual distance is being controlled for in Block 1. As discussed above, valence was not included since previous models have since illustrated that valence works through current emotional intensity. Co-rumination with peers (centered) and the interaction between peer co-rumination and present emotional intensity (centered) were entered in Block 2. Preliminary analyses tested for homoscedasticity of the model and found that only 1% of the standardized residuals were greater than 2. As a result, assumptions were not violated in this model. As you can see in Table 27, co-rumination with peers and the interaction term were added in block 2 and the amount of variance increased to 14%, which was an increase from block 1 that approached significance ( $F_{[2,331]} = 2.88, p = .06$ ). It should be noted that with the addition of block 2, present emotional intensity and actual distance were still significantly uniquely associated with subjective distance. Co-rumination with peers was not found to be uniquely predictive of subjective temporal distance. However, the interaction between co-rumination with peers and present emotional intensity was found to be predictive of subjective temporal distance. At high and medium levels of emotional intensity, there is a negative and significant relationship between co-rumination with peers and subjective temporal distance, and the high emotional intensity group shows the steepest slope. At low levels of emotional intensity, the negative relationship between co-rumination with peers and subjective temporal distance is not significant. In sum, higher levels of emotional intensity are associated with higher levels of co-rumination and the event feeling closer in subjective time.

*Table 27. Summary of Hierarchical Regression Analysis for Emotional Intensity, Co-rumination with peers and Actual Distance Predicting Subjective Temporal Distance*

Predictors	Block 1			Block 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Actual Distance	.01**	.00	.19	.00**	.00	.19
Present Emotional Intensity_cen	-.38**	.08	-.26	-.38*	.08	-.24
Co-rumination with peers_cen				-.02	.12	-.01
Peer co-rumination_Present Intensity_cen				-.13*	.06	-.12
R <sup>2</sup>		.12			.14	
$\Delta R^2$					.02	

Note. \* $p < .05$ . \*\* $p < .01$ .

In order to better understand this interaction, two additional regression equations were conducted, using the same variables in each block, separately for each event type (best versus worst grade). Preliminary analyses tested for homoscedasticity of the model and found that only 1% of the standardized residuals were greater than 2 for best grades and only 1% was greater than 2 for worst grades. As a result, assumptions were not violated in either model. The interaction term for worst grades was not significant and will not be investigated in further, whereas the interaction term for best grades was significant. As you can see in Table 28, co-rumination with peers and the interaction term were added in block 2 and the amount of variance increased to 14%, which was an increase from block 1 that approached significance ( $F_{[2,164]} = 2.75, p = .07$ ). It should be noted that with the addition of block 2, present emotional intensity and actual distance were still significantly uniquely associated with subjective distance. Co-rumination with peers was not found to be uniquely predictive of subjective temporal distance. However, the interaction between co-rumination with peers and present emotional intensity was found to be predictive of subjective temporal distance. At high and medium levels of emotional

intensity, for best grades only, there is a negative and significant relationship between co-rumination with peers and subjective temporal distance, and the high emotional intensity group shows the steepest slope. At low levels of emotional intensity, the negative relationship between co-rumination with peers and subjective temporal distance is not significant. In sum, higher levels of emotional intensity, for best grades only, are associated with higher levels of co-rumination and the event feeling closer in subjective time. This interaction is illustrated in Figure 5.

*Table 28. Summary of Hierarchical Regression Analysis for Emotional Intensity, Co-rumination with peers and Actual Distance Predicting Subjective Temporal Distance (Best Grades only)*

Predictors	Block 1			Block 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Actual Distance	.00*	.00	.19	.01**	.00	.20
Present Emotional Intensity_cen	-.39**	.12	-.25	-.42**	.13	-.26
Co-rumination with peers_cen				-.00	.14	-.00
Peer co-rumination_Present Intensity_cen				-.20*	.09	-.17
R <sup>2</sup>		.11			.14	
$\Delta R^2$					.03	

Note. \* $p < .05$ . \*\* $p < .01$ .

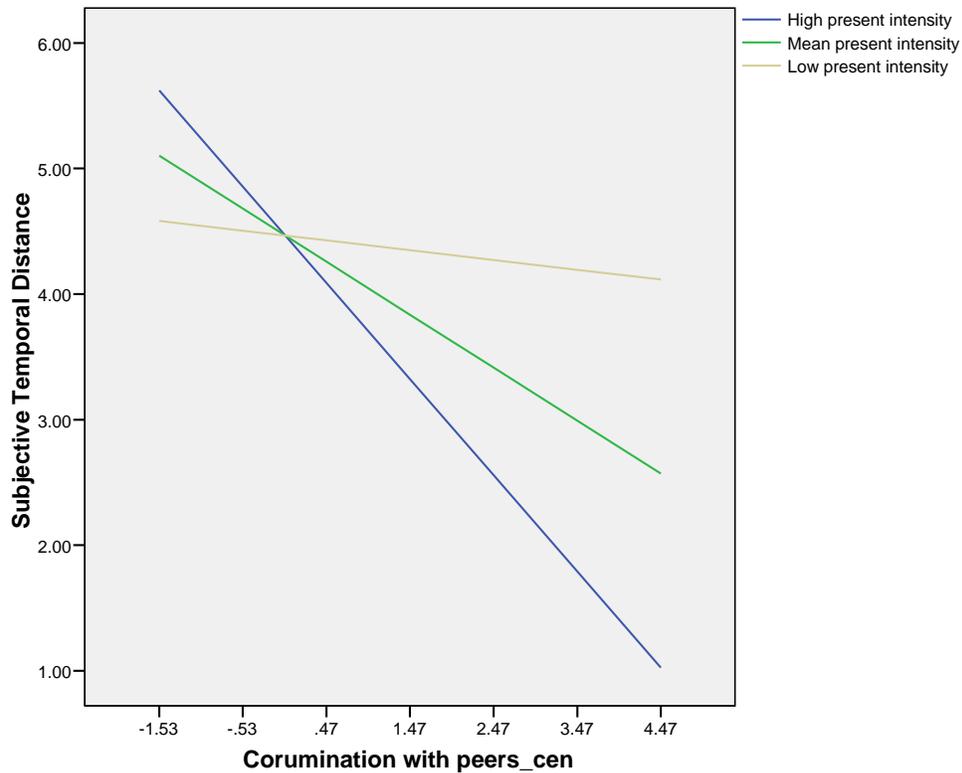


Figure 5. Interaction between co-rumination with peers and present emotional intensity, explaining subjective temporal distance (Best grades only)

The next regression was conducted to investigate whether co-rumination with individuals other than peers (e.g., parents and teachers) and the interaction between other co-rumination and emotional intensity would explain ratings of subjective temporal distance from events. Present Emotional Intensity and Actual Distance were controlled for by being entered in Block 1. Co-rumination with others and the interaction between other co-rumination and emotional intensity were entered in Block 2. Preliminary analyses tested for homoscedasticity of the model and found that only 1% of the standardized residuals were greater than 2. As a result, assumptions were not violated in this model. As you can see in Table 29, co-rumination with others and the interaction term were added in block 2 and the amount of variance increased to 13%, which was not a significant increase from Block 1 ( $F_{[2, 331]} = 1.68, p = .19$ ). It should be noted that with the addition of block 2, present emotional intensity and actual distance were still significantly

uniquely associated with subjective distance. Co-rumination with peers and the interaction between co-rumination with others and emotional intensity were not found to be uniquely predictive of subjective temporal distance.

*Table 29. Summary of Hierarchical Regression Analysis for Emotional Intensity, Co-rumination with others and Actual Distance Predicting Subjective Temporal Distance*

Predictors	Block 1			Block 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Present Emotional Intensity_cen	-.38**	.08	-.26	-.36**	.08	-.24
Actual Distance	.01**	.00	.19	.00**	.00	.18
Co-rumination with others_cen				-.11	.10	-.06
Other co-rumination_Present Intensity_cen				-.06	.06	-.06
R <sup>2</sup>		.12			.13	
$\Delta$ R <sup>2</sup>					.01	

Note. \* $p < .05$ . \*\* $p < .01$ .

A third regression was conducted to investigate the effects of rumination on subjective temporal distance. Rumination refers to an internal, private process whereas co-rumination (analyzed in the previous models) refers to an external, social process. Actual Distance and Current Emotional Intensity were controlled for by being entered in Block 1. Rumination and the interaction between rumination and emotional intensity were entered in Block 2. Preliminary analyses tested for homoscedasticity of the model and found that only 2% of the standardized residuals were greater than 2. As a result, assumptions were not violated in this model. As you can see in Table 30, rumination and the interaction term were added in block 2 and the amount of variance remained constant at 12%, which was not a significant ( $F_{[2,330]} = .33, p = .72$ ) increase from block 1. It should be noted that with the addition of block 2, actual distance and present emotional intensity were still significantly uniquely associated with subjective distance. The

results suggest that rumination and the interaction between rumination and present emotional intensity do not explain subjective temporal distance ratings, at least beyond the effects of present emotional intensity and actual distance.

*Table 30. Summary of Hierarchical Regression Analysis for Emotional Intensity, Rumination and Actual Distance Predicting Subjective Temporal Distance*

Predictors	Block 1			Block 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Present Emotional Intensity_cen	-.38**	.08	-.25	-.35**	.09	-.23
Actual Distance	.01**	.00	.19	.01**	.00	.19
Rumination_cen				-.07	.10	-.05
Rumination_Present Intensity_cen				-.00	.05	-.00
R <sup>2</sup>		.12			.12	
$\Delta R^2$					.00	

Note. \* $p < .05$ . \*\* $p < .01$ .

*Hypothesis 7: Feelings of personal growth will be related to subjective distance from the event.*

*Greater perceived personal growth will be related to greater distancing from the event.*

Mean ratings for personal growth by valence, grade level and gender are presented in Table 18 within the section on descriptive analyses.

The relationship between feelings of personal growth and subjective distance from the event was investigated using separate Pearson correlations for each valence. Neither the relationships for satisfying grades ( $r = -.13, p = .07$ ) nor disappointing grades ( $r = -.05, p = .50$ ) were significant. One additional exploratory analysis found that initial impact of the event was related to personal growth from the event both for satisfying grades ( $r = .48, p < .001$ ) and disappointing grades ( $r = .28, p < .001$ ), such that the greater the initial impact, the higher the ratings of personal growth from the event.

## Discussion

Although the results that Ross and Wilson (2002) obtained with adults were only partially replicated with this sample of children and adolescents, the present findings have implications for understanding children's coping with events. The results for gender, grade, valence and global self-worth will be examined first. In the following sections of the paper are an exploration of the impact of the results for understanding the effects of the intensity and impact of the events, a discussion of the significance of different types of rumination and co-rumination, and a perspective on the achievement of personal growth. The chapter concludes with a discussion of some of the limitations and future directions.

### *Gender, Grade, Valence and Global Self-Worth*

Contrary to expectations, gender and grade did not have an effect on reports of subjective temporal distance. Specifically, based on research by Hampel & Peterman (2005) and Rose (2002), it was expected that females in the older grades would have more difficulty distancing from these events due to higher levels of co-rumination and rumination. In contrast, male and female participants were equally likely to report that their satisfying grades were perceived to be more recent in both subjective and actual time than were their disappointing grades. Further, younger children and older children of both genders reported such temporal distancing to a comparable extent. It is possible that the present method was not appropriate for identifying grade and gender effects in that the academic events under consideration had relatively little long-term significance. In middle and elementary school, there may be less importance placed on grades than there would be in high school or college. Grades are less likely to have lasting consequences at these age groups, whereas negative or positive grades at later ages are associated with clear and direct effects (e.g. getting into colleges or staying in a particular

major). Supporting this possibility, the children rated the impact of the grades they discussed as low to moderate (see Tables 7 and 8). If the events under discussion posed relatively little threat, there would be little need to co-ruminate or ruminate about them. The data presented in Tables 15-17 are consistent with this possibility; the participants reported relatively low to moderate frequencies of co-rumination or rumination.

Replicating Ross and Wilson (2002), there was a main effect of valence. Both children and adolescents reported feeling farther away from disappointing events and closer to satisfying events, even after controlling for actual time. One potential explanation is that participants did show fairly high levels of global self-worth and academic competence, which may explain why all participants utilized subjective temporal distance. A second explanation may be that children at this age are being socialized to subjectively distance from events by parents, peers and others. We know from Ross and Wilson (2003) that reminders of the event may make it more difficult to utilize subjective temporal distance as an internal coping device. It may be the case that parents and teachers remind their children of positive academic experiences by placing those grades on the fridge or by recognizing the child in class for high grades. For poor grades, parents and teachers may be less likely to discuss these grades in detail, put them on fridges or even “recognize” the child in front of others for this lack of achievement. In this sample, subjective temporal distance may not be an internal coping mechanism, per say, but may have origins externally rather than internally. Similar to the Vygotsky (1978) model of learning, social others instruct the child on how to act when faced with positive and negative situations. Subjective temporal distance, in this case, may be a reaction to the salience of the event based on reactions from others. In other words, the child has internalized the external response of parents and peers

who congratulate the child for positive academic experiences and encourage the child to move past negative academic experiences.

It should also be noted that the main effect of valence disappeared after controlling for the emotional intensity of the event. In other words, how emotionally intense the event is in the present time matters more for ratings of subjective temporal distance than the valence of the event as positive or negative. Events that felt either “really good” or “really bad” were more difficult to separate in psychological time from the present. These results suggest that there may be some other factor that explains current emotional intensity and thus subjective temporal distance. This idea, which does not contradict the above discussion of the possible contributions of parents and others, will be explored in a later part of the discussion.

Contrary to Ross and Wilson (2002), global self-worth did not appear to have an effect on reports of subjective temporal distance. As discussed earlier, it may simply be the case that these children showed relatively high levels of global self-worth, and thus all evidenced subjective temporal distance. If you consider the highly skewed academic importance scores, there may not have been sufficient variability in this domain to detect a difference. Ross and Wilson (2002) note that individuals who are high in global self-worth utilize subjective temporal distance due to a higher level of motivation to preserve a sense of self. By comparison, these children were all highly motivated in the realm of academics when one considers the strong ratings of academic importance. Regardless of whether or not the global self-worth scores were variable, the academic motivation was present, and as a result, children and adolescents kept positive events close and negative events farther away in subjective time.

In addition, previous populations have only considered college students. In college, global self-worth may matter more when it comes to subjective temporal distance, as it may be

more of an individual process. How an individual deals with grades in college is very different than how an individual deals with grades in middle or elementary school. In college, the grades received are delivered only to the undergraduate and these may be shared or not shared with others at the sole discretion of the student. However, at younger ages, grades are sent home in the form of report cards, interim reports and test scores. Parents and teachers are aware of these reports and there is more of a social effort involved in the academic experience. In other words, in the earlier years of formal education, there is a greater social focus on helping the individual progress. In college, individuals are expected to have more responsibility and thus be able to sink or swim on their own.

It may also be the case that the absence of a relationship with global self-worth reflects a distinction between the real nature of the construct and widely-held assumptions about what self-esteem actually measures. Leary (1999) and Leary & Baumeister (2000) suggest that self-esteem is much more social than has been previously assumed. According to their sociometer theory, self-esteem is actually a gauge of the perceived quality of relationships with others. Self-esteem is high or low, based on the perceived quality of relationships with individuals who are important in our lives. As a means of maintaining these quality relationships, we act and behave in certain ways because we believe it will please or displease those important people (e.g. parents and peers). Leary (1999) suggests that this perspective, “explains why events that are known (or potentially known) by other people have much greater effects on self-esteem than events that are known only by the individual him or himself.” It may be the case that these high self-esteem children felt more motivated to maintain positive academic self-views because they perceive that social others view academics as important. This idea is consistent with children’s ratings of academic importance in this investigation (Figure 2), which were very high and showed little

variability. This finding also coincides with sociometer theory (Leary & Baumeister, 2000), which suggests that domains that are considered important to the self (due to perceptions of social acceptance) are more likely to be aversive if an individual is faced with a threat in that domain. These children believed academics were important because they have been socialized to believe this, and as a result, they were more motivated to use subjective temporal distance. In other words, since global self-worth and academic importance may be more reflective of what important social others believe (e.g. peers and parents); the role of society in subjective temporal distance may be more active than previously considered.

#### *Intensity and Impact of Events*

An unanticipated effect of emotional intensity emerged in the preliminary analyses. Participants reported that their best grades, in comparison with their worst grades, were accompanied by a higher level of emotional intensity in both the past and present. In other words, their best grades felt really good and their worst grades were not that bad. These findings are similar to those observed by Walker, Skowronski and Thompson (2003) in college students. These researchers found evidence of fading affect bias, which suggests that the emotion associated with positive events decreases less in intensity than the emotional intensity associated with negative events. Across two separate retrospective studies (Walker et al., 2003; Skowronski et al., 2004), the researchers discuss how this bias has been replicated in normal and dysphoric (mildly depressed) college students. Individuals classified as dysphoric show less fading affect over time. Both positive and negative autobiographical memories are judged to be of equal emotional intensities at the time of the event, but the effect for negative experiences fades much faster than it does for positive experiences. However, in the present sample of children and adolescents, emotional intensity was judged to be different at the time across events (Tables 5 &

6). In addition, disappointing events were estimated to be farther away in actual time than satisfying events. It may be the case that fading affect bias was still at work in this sample, but just in a different manner.

In other words, perhaps time for events is still developing in this sample. As mentioned previously, the Friedman (1986) article suggests that children cannot backward order events until 10<sup>th</sup> grade. Table 9 illustrates the difference in actual time by valence. Best grades were judged to be closer in actual time compared to worst grades. It is important to recognize that these reports were retrospective and thus subject to constructive processing. It may have been too difficult a task to provide a specific date of the event and events may have been dated based on how far away they felt rather than their actual distance. In other words, fading affect bias may have skewed the actual time estimates for this sample. Future studies should try to verify estimates, either by collecting data prospectively or by having a parent or teacher confirm the estimate.

In contrast to the emotional intensity ratings, the reported impact of the events was not related to subjective temporal distance. Event impact ratings, however, were correlated with the measure of personal growth. In other words, the higher the ratings of initial impact of the event, the higher the perception of personal growth from the event. In addition, the way the question was worded may not have tied directly back to impact. Participants were asked to consider how much this grade had affected their lives. Perhaps they thought this was a strange question (and it may have been) and did not know how to answer it, and as a result, they may have consistently answered somewhere in the middle.

It should also be mentioned that the impact of events was moderate across both types of events, at the time of the event (Table 7). Thus, in some ways it is surprising that participants

used subjective temporal distance for events that were of only moderate impact. In addition, fading affect bias (Walker, Skowronski & Thompson, 2003) appeared to be present in ratings of impact (Table 8). Both negative and positive events were of equal impact at the time of the event; however the impact of the event for negative events faded faster than the impact for positive events. In other words, at the time of the event, there was no difference in impact ratings. In the present time, there was a difference, such that positive academic experiences had a greater perceived impact than negative academic experiences.

#### *Rumination and Co-Rumination*

Co-rumination with peers was related to the extent to which the event felt closer in time, and this effect was moderated by current levels of emotional intensity. At high and moderate levels of present emotional intensity, individuals reported co-ruminating more with peers and evidenced less subjective temporal distance from the event. In other words, events that were more extreme in current emotional intensity were discussed more with peers and thus felt closer in time. This occurred for both the disappointing and satisfying events.

As mentioned earlier in the discussion, it appears that emotional intensity is important to consider and its importance may be due to differing amounts of co-rumination. It is possible that extreme negative events were discussed more with peers as a way to cope with the potential negative affect. However, by discussing the event, children were inadvertently making it feel closer. This seems to be strong evidence of co-rumination (Rose, 2002) in the strictest sense, whereby peers encourage the excessive discussion of negative issues. In this case, while the intentions of co-rumination may have been in the right place (e.g. "Let's talk about it and move past it"), this may actually have created the opposite effect and made the event feel closer. On the other side, extremely positive events were discussed more with peers presumably because

these events truly felt satisfying. Discussing these positive events was not only a boost to the child but allowed the event to feel closer in time. In this case, co-rumination with peers (Rose, 2002) was used in a positive manner. This finding is also consistent with the work by Hampel and Peterman (2005), who found that German children experienced more social support for an academic stressor compared to an interpersonal stressor. Mutual encouragement to discuss positive events helps the child to own the event in the present. It appears that co-rumination with peers can serve both a positive and negative purpose, both of which allow the event in question to feel closer in subjective time.

Interestingly, rumination and co-rumination with others did not explain differences in subjective temporal distance beyond the effects of valence, emotional intensity in the present and actual time. This effect seems to go against the findings of Ross and Wilson (2002) who found that rumination was related to the event feeling closer in time. In addition, Hampel and Petermann (2005) found that rumination increases from with age. The exact opposite was the case in this study. As you will recall in Figure 15, 4<sup>th</sup>/5<sup>th</sup> graders reported ruminating more about grades than 7<sup>th</sup>/8<sup>th</sup> graders. It should also be noted that there was a main effect of grade type, such that participants reported discussing satisfying grades more than disappointing grades. This seemingly contradictory finding may be due to the differing importance and impact of grades between age groups. As indicated by their importance ratings, the younger children found the grades to be more important and thus may have spent more time discussing them.

As for co-rumination with others, it may be the case that peers are more salient for this age group and that peer groups may matter more to the participants in this sample than was the case in work with older participants. Groups of peers share the same academic context and hence in this realm of moderate academic experiences, their opinion matters. It may also be the case

that since these were not academic experiences with lingering effects or impacts, parents and teachers did not need to take as much of an active role. As a result, parents and teachers may not directly discuss the events with the child but may indirectly affect the child's perceptions of distance from the event through reminders (e.g., by posting good grades on the fridge) and recognition (e.g., in telling others, "Jon was the only one to make a 100 on this test today").

### *Personal Growth*

Personal growth was not related to ratings of subjective temporal distance. However, personal growth ratings and impact ratings were correlated with each other, although neither was related to subjective temporal distance. It may be the case that personal growth (McFarland & Alvaro, 2000) is a separate construct from subjective temporal distance, at least in child and adolescent populations. How much one has changed as a student as a result of an academic experience is not related to how far away it feels in time. Another possibility concerns the salience of the event. If the events had been more extreme, subjective temporal distance may have been more related to personal growth at higher impact levels. It may also be the case that a better question could have addressed feelings of personal growth, specifically one that asks whether or not the child sees this past "disappointing grade" self as different from their present self.

### *Limitations and Future Directions*

This study illustrated that children and adolescents do not utilize subjective temporal distance in the same manner as adults. New variables were discovered, namely co-rumination and emotional intensity, which added to our knowledge of subjective temporal distancing in childhood and adolescence. Future studies that examine subjective temporal distance in child and

adolescent populations should strongly consider further investigation of the operation of these variables.

Whereas the results are certainly intriguing, certain limitations should also be taken into consideration. First, this research appears to lend support to the Leary and Baumeister (2000) sociometer theory of self-esteem. However, better questions could be written to determine if this is actually the case. Questions that delve further into the actual construct of co-rumination could be added, such as questions asking how peers encourage them or discourage them when it comes to discussing events. Further aims should address the even larger question of how important people in our lives shape how we cope with and perceive various experiences (See, e.g. Bronfenbrenner & Evans, 2000).

Second, many will question how subjective temporal distance operates across time. The questionnaire given to the participants was retrospective and hence their reported time perceptions may have been distorted by fading affect bias (Walker, Skowronski, & Thompson, 2003) or other constructivist processes. This study may not have provided insights into the true development and socialization of subjective temporal distance, whereas future studies that follow the child prior to a positive or negative experience to several months afterward could be extremely enlightening.

Thirdly, the lack of variability in academic importance did not allow for further examination of the sociometer theory of self-esteem (Leary & Baumeister, 2000). Although the participants in this investigation were recruited from varied socioeconomic backgrounds, reports of academic importance still held fairly constant at high levels.<sup>4</sup> Future studies should try to find populations of children where academics are less valued and examine subjective temporal

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<sup>4</sup> It should be noted that the main investigator observed the importance of academics within all of the different school and after school environments. Schools and clubs were all extremely supportive of the academic welfare of their students. There was an overall environment of support and warmth.

distance in these populations. In addition, it may be instructive to examine other event types (e. g., episodes of peer acceptance or rejection) that may pose more of a threat to their sense of self.

These limitations notwithstanding, the present investigation establishes the importance of understanding the development of temporal distancing. Further investigations of the processes through which children and adolescents come to alter the perceived closeness in time of experiences relevant to their perceptions of self-worth are needed. Such work is important in understanding autobiographical memory and promises to elucidate mechanisms underlying the development of coping.

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## Appendix

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Appendix A. Parent letter and NCSU consent form

**NC STATE UNIVERSITY**

Department of Psychology  
640 Poe Hall  
2310 Stinson Drive  
Raleigh, NC 27695-7650

January 2007

Dear Parent or Guardian,

I am writing to invite your child to participate in my Master's thesis project that examines how children maintain a positive outlook.

The research examines age differences in typically-developing children's memory of both a positive and negative academic experience selected by your child (for example, getting a satisfying or disappointing grade on a test). The work is based on previous investigations in adults, which indicate that how we remember these events may be related to our adjustment. At this time, however, little is known about how children and teens come to understand both positive and negative academic experiences. I hope that this research will contribute to the identification of positive coping strategies at different ages.

With your permission, your child will be interviewed individually. Each participant will be asked to discuss two grades (or test scores) from the past six months, one that they were happy with and one that they were unhappy with. Participants will then be asked to rate their feelings about these grades (For example, I will ask: "How good did you feel about [selected event] when it happened?" and show the child a 7-point rating scale.) After these ratings, they will then be asked to provide some ratings on how they see themselves as a person. Each child's participation in this study is voluntary, and he or she may withdraw at any time. The children's responses are identified only by number to protect their privacy.

Of course, I cannot interview your child without your permission, and the permission of your child. If your child is interested in participating, there is a consent form for you to sign on the back of this letter. Please note that this form, which uses the legal language, is written in the format established by the University.

Please do not hesitate to call me at (919) 357-1804 or email me at [Mary\\_Styers@ncsu.edu](mailto:Mary_Styers@ncsu.edu) if you have any questions about this study. You may also contact my advisor, Dr. Lynne Baker-Ward at (919) 515-1731. Thank you very much for your consideration.

Sincerely,

Mary Styers  
Graduate Student in Developmental Psychology

**North Carolina State University  
INFORMED CONSENT FORM for RESEARCH**

Title of Study: Maintaining a Positive Outlook: Developmental Differences in the Use of Subjective Temporal Distance

Principal Investigator: Mary Styers

Faculty Sponsor: Lynne Baker-Ward

---

We are asking your child to participate in a research study. The purpose of this study is to better understand how children stay positive when negative situations arise.

**INFORMATION**

If your child agrees to participate in this study, they will be asked to talk about grades or test scores from the past six months, rate their feelings about these grades, and provide some other ratings on how they see themselves as a person. They will only be interviewed once about this, and the entire interview will take approximately 25-30 minutes.

**RISKS**

No risks are expected in participating in this study. However, if your child ever feels uncomfortable talking about a grade, they may choose not to talk about that grade and/or to quit the study.

**BENEFITS**

There are no direct benefits to the participant. However, the results of this study may help psychologists to better understand how children maintain a positive outlook. Your child's participation may ultimately teach psychologists about how to make other kids feel better after a negative event.

**CONFIDENTIALITY**

The information in the study records will be kept strictly confidential. Data will be stored securely in a locked drawer in the office of the principal investigator. Your child's name will not be on any form with the exception of the informed consent, and their name will be kept anonymous by a three digit number. No reference will be made in oral or written reports which could link your child to the study.

**COMPENSATION**

For participating in this study your child will receive a small gift as a token of the researcher's appreciation. If your child withdraws from the study prior to its completion, they will still receive a small gift.

**CONTACT**

If you have questions at any time about the study or the procedures, you may contact the researcher, Mary Styers, at NCSU, Dept. of Psychology, 640 Poe Hall, 2310 Stinson Drive, Raleigh, NC, 27695, or (919) 357-1804. If you feel you have not been treated according to the descriptions in this form, or your child's rights as a participant in research have been violated during the course of this project, you may contact Dr. Matthew Zingraff, Chair of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/513-1834) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148)

**PARTICIPATION**

Your child's participation in this study is voluntary; your child may decline to participate without penalty. If your child decides to participate, they may withdraw from the study at any time without penalty and without loss of benefits to which they are otherwise entitled. If your child withdraws from the study before data collection is completed their data will be returned to you or destroyed at your request.

**CONSENT**

“I have read and understand the above information. I have received a copy of this form. I agree to let my child participate in this study with the understanding that they may withdraw at any time.”

**Child's name (printed)** \_\_\_\_\_

**Date of Birth** \_\_\_\_\_

**Parent's signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**Investigator's signature** \_\_\_\_\_

**Date** \_\_\_\_\_

## Appendix B. Child assent form

## Assent Form

You are being invited to take part in a project that will help psychologists know more about how teens your age have positive attitudes. This questionnaire will ask you about some grades that you received over the past six months. You will also be asked to rate how you feel about those grades and to tell a little bit about how you see yourself. If you choose to participate, you will receive the attached NCSU pencil as a token of our appreciation. If you feel uncomfortable answering any questions, you may choose to skip them. If you want to stop filling out this questionnaire you can do so at any time. You may still keep the pencil if you do not complete the packet. The questionnaire should take about 15 to 20 minutes. Try to do these questionnaires on your own. Since this is a survey about you, there are no right or wrong answers.

Would you like to take part? Circle YES or NO

Participant Signature: \_\_\_\_\_

Investigator Signature: \_\_\_\_\_

Appendix C. Teen Harter questionnaire

For this first part, we are interested in what each of you is like; what kind of a person you are like. This is a survey, not a test. There are no right or wrong answers. Since teenagers are very different from one another, each of you will be putting down something different.

There is a sample question at the top, marked (a). This question talks about two kinds of teenagers, and we want to know which teenagers are most like you.

- (1) So decide first whether you are more like the teenager on the left side who would rather go to the movies, or whether you are more like the teenager on the right side who would rather go to a sports event. Don't mark anything yet, but first decide which kind of kid is most like you, and go to that side of the sentence.
- (2) Now decide whether that is only sort of true for you, or really true for you. If it's only sort of true, then put an X in the box under sort of true; if it's really true for you, then put an X in that box, under really true.
- (3) For each sentence you only check one box. Sometimes it will be on one side of the page, another time it will be on the other side of the page, but you can only check one box for each sentence. You don't check both sides, just the one side most like you.
- (4) Now go ahead and check the other boxes based on the statement that is most like you.

**WHAT I AM LIKE**

	Really True for me	Sort of True for me		<b>BUT</b>		Sort of True for me	Really True for me
(a)	<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers like to go to movies in their spare time.		Other teenagers would rather go to sports events.	<input type="checkbox"/>	<input type="checkbox"/>
1.	<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are often disappointed with themselves.		Other teenagers are pretty pleased with themselves.	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel like they are <i>just as smart</i> as other kids their age		Other teenagers aren't so sure and <i>wonder</i> if they are as smart.	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers <i>don't</i> like the way they are leading their life		Other teenagers <i>do</i> like the way they are leading their life.	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are pretty <i>slow</i> in finishing their school work		Other teenagers can do their school work more <i>quickly</i> .	<input type="checkbox"/>	<input type="checkbox"/>

- |     |                          |                          |   |            |  |                          |                          |
|-----|--------------------------|--------------------------|---|------------|--|--------------------------|--------------------------|
| 5.  | <input type="checkbox"/> | <input type="checkbox"/> | Some teenagers are <i>happy</i> with themselves most of the time      | <b>BUT</b> | Other teenagers are often not happy with themselves.             | <input type="checkbox"/> | <input type="checkbox"/> |
| 6.  | <input type="checkbox"/> | <input type="checkbox"/> | Some teenagers like the kind of person they are                       | <b>BUT</b> | Other teenagers often wish they were someone else.               | <input type="checkbox"/> | <input type="checkbox"/> |
| 7.  | <input type="checkbox"/> | <input type="checkbox"/> | Some teenagers do <i>very well</i> at their class work                | <b>BUT</b> | Other teenagers <i>don't</i> do very well at their class work.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 8.  | <input type="checkbox"/> | <input type="checkbox"/> | Some teenagers are very <i>happy</i> being the way they are           | <b>BUT</b> | Other teenagers wish they were <i>different</i> .                | <input type="checkbox"/> | <input type="checkbox"/> |
| 9.  | <input type="checkbox"/> | <input type="checkbox"/> | Some teenagers have <i>trouble</i> figuring out the answers in school | <b>BUT</b> | Other teenagers almost <i>always</i> can figure out the answers. | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | <input type="checkbox"/> | <input type="checkbox"/> | Some teenagers feel that they are pretty intelligent                  | <b>BUT</b> | Other teenagers <i>question</i> whether they are intelligent.    | <input type="checkbox"/> | <input type="checkbox"/> |

**HOW IMPORTANT ARE EACH OF THESE THINGS TO YOU?**

- |     | Really True for me       | Sort of True for me      |  |            |  | Sort of True for me      | Really True for me       |
|-----|--------------------------|--------------------------|--|------------|--|--------------------------|--------------------------|
| 11. | <input type="checkbox"/> | <input type="checkbox"/> | Some teenagers think it is important to be intelligent.                        | <b>BUT</b> | Other teenagers don't think it is important to be intelligent. | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> | Some teenagers don't think that doing well in school is really that important. | <b>BUT</b> | Other teenagers think that doing well in school is important.  | <input type="checkbox"/> | <input type="checkbox"/> |

Appendix D. Child Harter questionnaire

For this first part, we are interested in what each of you is like; what kind of a person you are like. This is a survey, not a test. There are no right or wrong answers. Since kids are very different from one another, each of you will be putting down something different.

There is a sample question at the top, marked (a). This question talks about two kinds of kids, and we want to know which kids are most like you.

- (1) So, decide first whether you are more like the kids on the left side who would rather play outdoors, or whether you are more like the kids on the right side who would rather watch T.V. Don't mark anything yet, but first decide which kind of kid is most like you, and go to that side of the sentence.
- (2) Now, the second thing I want you to think about, is to decide whether that is only sort of true for you, or really true for you. If it's only sort of true/then put an X in the box under sort of true; if it's really true for you then put an X in that box, under really true.
- (3) For each sentence you only check one box.-Sometimes it will be on one side of the page, and other times it will be on the other side of the page but only check one box for each sentence/You don't check both sides, just the one side most like you.
- (4) Now go ahead and check the other boxes based on the statement that is most like you.

**WHAT I AM LIKE**

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
(a)	<input type="checkbox"/>	<input type="checkbox"/>	Some kids would rather play outdoors in their spare time	<b>BUT</b>	Other kids would rather watch TV.	<input type="checkbox"/>	<input type="checkbox"/>
1.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids feel that they are very <i>good</i> at their school work	<b>BUT</b>	Other kids <i>worry</i> about whether they can do the school work assigned to them.	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids are often <i>unhappy</i> with themselves	<b>BUT</b>	Other kids are pretty <i>pleased</i> with themselves.	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids feel like they are <i>just as smart</i> as other kids their age	<b>BUT</b>	Other kids aren't so sure and <i>wonder</i> if they are as smart.	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids <i>don't</i> like the way they are leading their life	<b>BUT</b>	Other kids <i>do</i> like the way they are leading their life.	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids are pretty <i>slow</i> in finishing their school work	<b>BUT</b>	Other kids can do their school work <i>quickly</i> .	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids are <i>happy</i> with themselves as a	<b>BUT</b>	Other kids are often <i>not</i> happy with	<input type="checkbox"/>	<input type="checkbox"/>

- |     |                          |                          |   |            |   |                          |                          |
|-----|--------------------------|--------------------------|---|------------|---|--------------------------|--------------------------|
| 7.  | <input type="checkbox"/> | <input type="checkbox"/> | person<br>Some kids often<br><i>forget</i> what they learn                        | <b>BUT</b> | themselves.<br>Other kids can<br>remember things                  | <input type="checkbox"/> | <input type="checkbox"/> |
| 8.  | <input type="checkbox"/> | <input type="checkbox"/> | Some kids <i>like</i> the<br>kind of person they<br>are                           | <b>BUT</b> | Other kids often<br>wish they were<br>someone else.               | <input type="checkbox"/> | <input type="checkbox"/> |
| 9.  | <input type="checkbox"/> | <input type="checkbox"/> | Some kids do <i>very</i><br><i>well</i> at their class<br>work                    | <b>BUT</b> | Other kids <i>don't</i> do<br>very well at their<br>class work.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | <input type="checkbox"/> | <input type="checkbox"/> | Some kids are very<br><i>happy</i> being the way<br>they are                      | <b>BUT</b> | Other kids wish they<br>were <i>different</i> .                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | <input type="checkbox"/> | <input type="checkbox"/> | Some kids have<br><i>trouble</i> figuring out<br>the answers in school            | <b>BUT</b> | Other kids almost<br><i>always</i> can figure<br>out the answers. | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> | Some kids are <i>not</i><br>very happy with the<br>way they do a lot of<br>things | <b>BUT</b> | Other kids think the<br>way they do things<br>is <i>fine</i> .    | <input type="checkbox"/> | <input type="checkbox"/> |

**HOW IMPORTANT ARE THESE THINGS TO HOW YOU FEEL ABOUT YOURSELF AS A PERSON**

- |     |                          |                           |  |            |   |                           |                          |
|-----|--------------------------|---------------------------|--|------------|---|---------------------------|--------------------------|
|     | Really<br>True<br>for me | Sort of<br>True<br>for me |  |            |   | Sort of<br>True<br>for me | Really<br>True<br>for me |
| 13. | <input type="checkbox"/> | <input type="checkbox"/>  | Some kids think it is<br>important to do well at<br>schoolwork in order to<br>feel good as a person                | <b>BUT</b> | Other kids don't think<br>how well they do at<br>schoolwork is that<br>important. | <input type="checkbox"/>  | <input type="checkbox"/> |
| 14. | <input type="checkbox"/> | <input type="checkbox"/>  | Some kids don't think<br>that getting good grades<br>is all that important to<br>how they feel about<br>themselves | <b>BUT</b> | Other kids think that<br>getting good grades is<br>important.                     | <input type="checkbox"/>  | <input type="checkbox"/> |

## Appendix E. Distracter Activities

Here is something a little different. We are also interested in how you can use words. Below we have different categories and we want you to write *the first three* things you can think of that go within that category. Such as fruits, and you write orange, and then you write four other fruits you can think of.

- 1) Fruits
  - 2) Zoo animals
  - 3) Clothing
  - 4) Furniture
  - 5) Vacation
- 

Okay, remember when you saw categories earlier? Do the same thing here, but this time, there are different categories. Remember to write **the first three** things you can think of that go within that category.

- 1) Vegetables
- 2) Sports
- 3) Farm animals
- 4) Weather
- 5) Hobbies

Appendix F. Worst grade questionnaire

**Part I:**

Everyone gets grades or test scores that they're happy with and grades or test scores that they're not so happy with. Think about your worst grade (or test score) from the past six months or a grade (or test score) that you were really unhappy with.

Was it a grade or a test score? \_\_\_\_\_

**If it was a grade**      What letter or number grade was it? \_\_\_\_\_

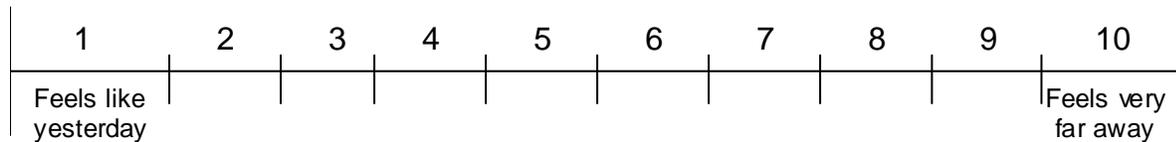
What subject was it in? \_\_\_\_\_

**If it was a test score:**      What kind of test was it? \_\_\_\_\_

What was the score? \_\_\_\_\_

**Part II:**

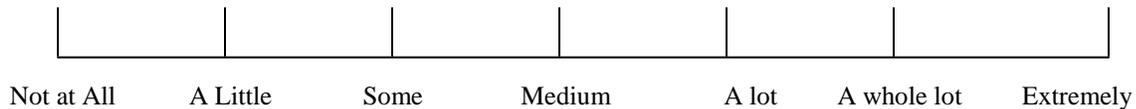
Sometimes events feel quite close or far away, regardless of how long ago they actually occurred. When you think about the memory that you just wrote about, how far away does it feel for you? If you take a look at the scale below, where would you mark how far away that memory feels for you? The scale goes from 1, where the event feels like yesterday to 10, where the event feels far away. (Circle the number here)



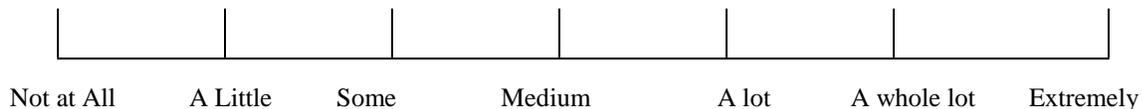
**Part III:**

Now, please fill out the ratings below to let us know more about the experience you just described. Please circle the term that best describes your reaction.

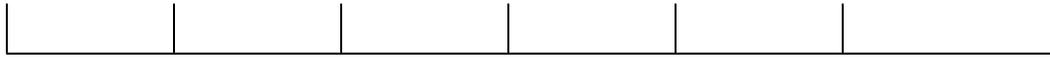
**a. How bad did getting this grade or test score make you feel at the time that it happened?**



**b. How bad do you feel about getting this grade or test score now?**

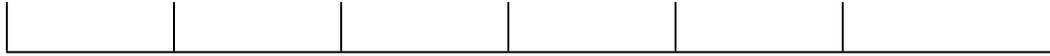


**c. Sometimes things change your life a lot and sometimes things do not change much. How did this event affect your life at the time that it happened?**



None      A little      Some      Moderate      Quite a bit      Lots      Extreme

**d. How much does this event affect your life now?**



None      A little      Some      Moderate      Quite a bit      Lots      Extreme

**e. How often have you thought about this grade or test score since you received it?**



Not at all      A Little      Some      Moderate      Quite a Bit      Lots      All of the time

**f. How often have thoughts about this grade or test score seemed to "pop" into your head since you received it?**



Not at all      A Little      Some      Moderate      Quite a Bit      Lots      All of the time

**g. How often have you talked about this grade or test score with your friends?**



Not at all      A Little      Some      Moderate      Quite a Bit      Lots      All of the time

**h. About how many times have you talked about this grade or test score with your friends? \_\_\_\_\_**

**i. How often have you talked about this grade or test score with people other than your friends?**



Not at all      A Little      Some      Moderate      Quite a Bit      Lots      All of the time

**j. About how many times have you talked about this grade or test score with people other than your friends? \_\_\_\_\_**

**k. If you've talked about this grade or test score with people other than your friends, who else have you talked about this with? (circle all that apply)**

Parents      Teachers      Counselors      Other: \_\_\_\_\_

**l. How satisfied are you with this grade?**

--	--	--	--	--	--	--

Not at all      A Little      Some      Moderate      Quite a Bit      Lots      Very

**m. How much do you think you've changed as a student since this experience?**

--	--	--	--	--	--	--

Not at All      A Little      Somewhat      Moderately      Quite a Bit      A Great Deal      Completely

**n. Remember that sometimes things can feel close or far away, regardless of how long ago they occurred? Without turning back a few pages, when you think about how far away this grade or test score feels to you, which statement best represents how far away it feels?**

- A. It feels very far away
- B. It feels far away
- C. It feels somewhere in the middle, not too close but not too far
- D. It feels close
- E. It feels very close

Appendix G. Best grade questionnaire

**Part I:**

Everyone gets grades or test scores that they're happy with and grades or test scores that they're not so happy with. Think about your best grade (or test score) from the past six months or a grade (or test score) that you were really happy with.

Was it a grade or a test score? \_\_\_\_\_

**If it was a grade**      What letter or number grade was it? \_\_\_\_\_

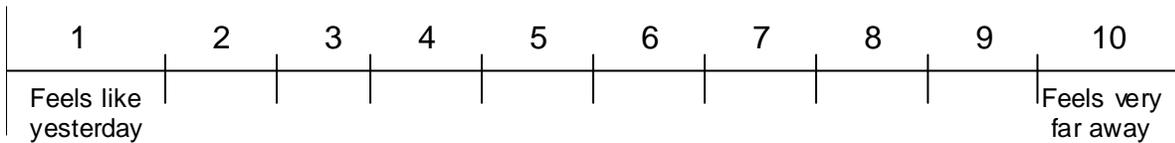
What subject was it in? \_\_\_\_\_

**If it was a test score:**      What kind of test was it? \_\_\_\_\_

What was the score? \_\_\_\_\_

**Part II:**

Sometimes events feel quite close or far away, regardless of how long ago they actually occurred. When you think about the memory that you just wrote about, how far away does it feel for you? If you take a look at my scale, where would you mark how far away that memory feels for you? The scale goes from 1, where the event feels like yesterday to 10, where the event feels far away.



**Part III:**

Now, please fill out the ratings below to let us know more about the experience you just described. Please circle the term that best describes your reaction.

**a. How good did this getting this grade or test score make you feel at the time that it happened?**



Not at All      A Little      Some      Medium      A lot      A whole lot      Extremely

**b. How good do you feel about getting this grade or test score now?**



Not at All      A Little      Some      Medium      A lot      A whole lot      Extremely

**c. Sometimes things change your life a lot and sometimes things do not change much. How did this event affect your life at the time that it happened?**

\_\_\_\_\_

None      A Little      Some      Moderate      Quite a Bit      Lots      Extreme

**d. How much does this event affect your life now?**

\_\_\_\_\_

None      A Little      Some      Moderate      Quite a Bit      Lots      Extreme

**e. How often have you thought about this grade since you received it?**

\_\_\_\_\_

Not at all      A Little      Some      Moderate      Quite a Bit      Lots      All of the time

**f. How often have thoughts about this grade or test score seemed to "pop" into your head since you received it?**

\_\_\_\_\_

Not at all      A Little      Some      Moderate      Quite a Bit      Lots      All of the time

**g. How often have you talked about this grade or test score with your friends?**

\_\_\_\_\_

Not at all      A Little      Some      Moderate      Quite a Bit      Lots      All of the time

**h. About how many times have you talked about this grade or test score with your friends? \_\_\_\_\_**

**i. How often have you talked about this grade or test score with people other than your friends?**

\_\_\_\_\_

Not at all      A Little      Some      Moderate      Quite a Bit      Lots      All of the time

**j. About how many times have you talked about this grade or test score with people other than your friends? \_\_\_\_\_**

**k. If you've talked about this grade or test score with people other than your friends, who else have you talked about this with? (circle all that apply)**

Parents      Teachers      Counselors      Other: \_\_\_\_\_

**l. How satisfied are you with this grade?**

--	--	--	--	--	--	--

Not at all      A Little      Some      Moderate      Quite a Bit      Lots      Very

**m. How much do you think you've changed as a student since this experience?**

--	--	--	--	--	--	--

Not at All      A Little      Somewhat      Moderate      Quite a Bit      A Great Deal      Completely

**n. Remember that sometimes things can feel close or far away, regardless of how long ago they occurred? Without turning back a few pages, when you think about how far away this grade or test score feels to you, which statement best represents how far away it feels?**

- A. It feels very far away
- B. It feels far away
- C. It feels somewhere in the middle, not too close but not too far
- D. It feels close
- E. It feels very close

Appendix H. Actual time and demographic questions

Here are my final questions for you. Remember that you can choose not to answer questions, if you feel uncomfortable answering them.

Actual time:

Try to think back, when did you get the worst grade or test score that you described? If you can't remember the exact date, please write the month that it happened in. If you're having trouble remembering, write your best guess.

Date: \_\_\_\_\_

Next, when did you get the best grade or test score that you described? If you can't remember the exact date, please write the month that it happened in. If you're having trouble remembering, write your best guess.

Date: \_\_\_\_\_

The Basics:

A) I am in the \_\_\_\_\_ grade.

B) My gender is: MALE FEMALE

C) My date of birth is: (MM/DD/YYYY) \_\_ \_\_/ \_\_ \_\_/ \_\_ \_\_ \_\_ \_\_

D) I describe my racial/ethnic background as: \_\_\_\_\_

E) My hometown is best described as: RURAL SUBURBAN URBAN

F) My school is: K-5 K-6 6-8 7-8 K-8 I am home schooled

G) My school is: PUBLIC PRIVATE CHARTER