

## **Supplemental Materials to Lewis & Oyserman – Time Metrics Matter, Connecting Present and Future Selves**

### **Proximity Cues Influence Judgment of Current Action**

The following results are without supplemental controls:

Study 1:

- Main Effect of condition (proximal, distal units)  $F(1,67) = 335.204, p < 0.001, \eta^2 = 0.833$ . Proximal units make future events feel closer in time.

Study 2:

- Main Effect of condition (proximal, distal units)  $F(1,61) = 73.167, p < 0.001, \eta^2 = 0.545$ . Proximal units make future events feel closer in time.

### **Proximity Cues Influence Judgment of Future Action**

*When do people plan to start?*

Study 3: Saving for newborn's college education

The following results are with demographic controls:

- Main Effect of Metric (days, years),  $F(1,131) = 9.929, p = .002, d = 0.55^1$ . Participants led to consider their newborn going to college in 6,570 days believe they should begin saving sooner than people led to consider the same event in 18 years.
- Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $F(1,131) = 6.687, p = 0.011, d = 0.45$ . People led to consider saving per unit (day, year) believe they should begin saving sooner than those led to consider only the amount to be saved overall.
- Metric by Chance for Incremental Action interaction  $F(1,131) = 4.301, p = .04$ . People considering their newborn's education in days and imagine daily saving believe they should begin saving sooner than those considering their newborn's education in years and how much they should save overall.

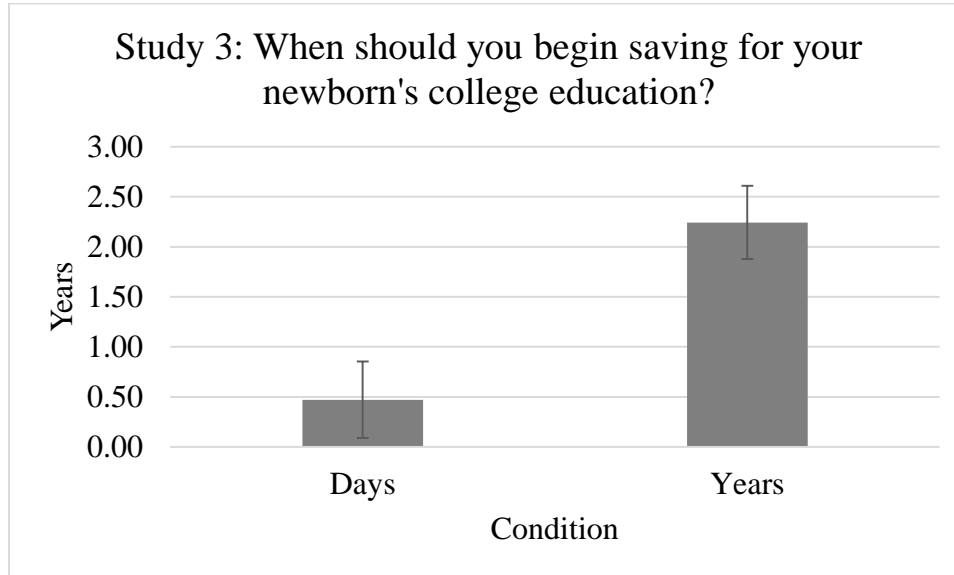
The following results are without demographic controls:

- Main Effect of Metric (days, years),  $F(1,134) = 9.641, p = 0.002$ . People led to consider their newborn going to college in 6,570 days believe they should begin saving sooner than people led to consider the same event in 18 years.
- Main Effect of Chance for Incremental Action (daily or yearly incremental, overall),  $F(1,134) = 3.924, p = 0.05$ . People led to consider saving per unit (day, year) believe they should begin saving sooner than those led to consider only the amount to be saved overall.

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<sup>1</sup> There was a significant effect of participant-reported level of education ( $p = .031$ ), a trend-level effect of age ( $p = 0.057$ ), and no significant effect of participant-reported income ( $p = 0.797$ ). Better-educated and older participants reported that they should start saving sooner.

- Metric by Chance for Incremental Action interaction,  $F(1,134)=3.755$ ,  $p=0.054$ . People considering their newborn's education in days and imagine daily saving believe they should begin saving sooner than those considering their newborn's education in years and how much they should save overall.



**Figure 1: When should you begin saving for your newborn's college education?**

#### Study 4: Saving for your own retirement in 30 years

The following results are with demographic controls:

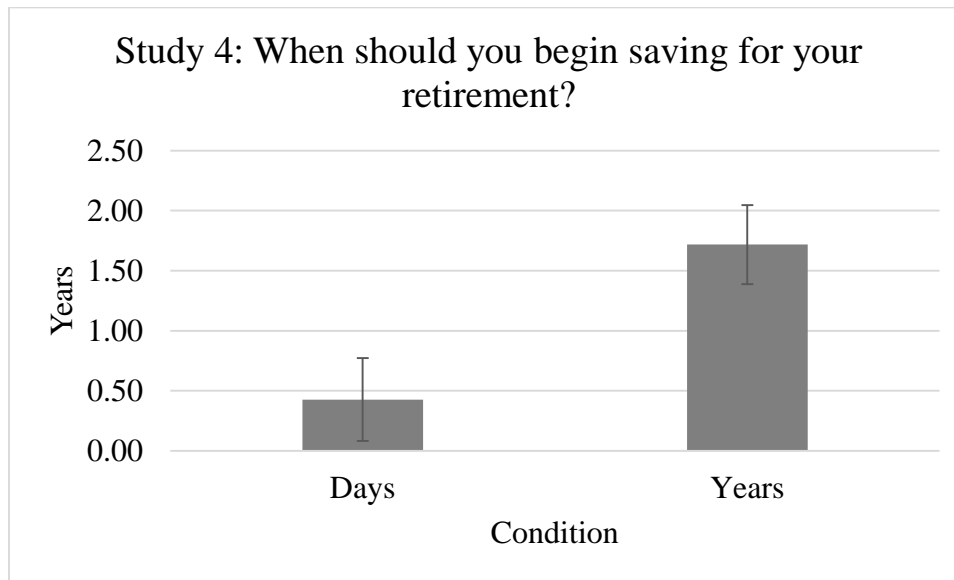
- Main Effect of Metric (days, years),  $F(1,115)=7.497$   $p = .007$ ,  $d= 0.51^2$ . People led to consider their retirement in days believe they should begin saving sooner than people led to consider their retirement in years.
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $p=0.817$ .
- No Metric by Chance for Incremental Action interaction  $p=0.436$ .

The following results are without demographic controls:

- Main Effect of Metric (days, years),  $F(1,118)= 7.166$ ,  $p=0.008$ . People led to consider their retirement in days believe they should begin saving sooner than people led to consider their retirement in years.
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $F(1,118)=0.118$ ,  $p=0.732$

<sup>2</sup> Five respondents gave extremely distal responses, more than 3 *SDs* above the mean (one participant gave an estimate that was at 3.4 *SD* above the mean, two at 3.6 *SDs*, one at 4.9 *SD*, and one at 6.8 *SD* above the mean). They were dropped from analysis consistent with Schuman & Pressor (1979) leading to a final  $n= 122$ . There was a no significant effect of participant-reported level of education ( $p = .612$ ), age ( $p=0.369$ ), or participant-reported income ( $p=0.833$ ).

- No Metric by Chance for Incremental Action interaction,  $F(1,118)=0.413$ ,  $p=0.522$



**Figure 2: When should you begin saving for your retirement?**

#### Study 5: Saving for your own retirement in 40 years

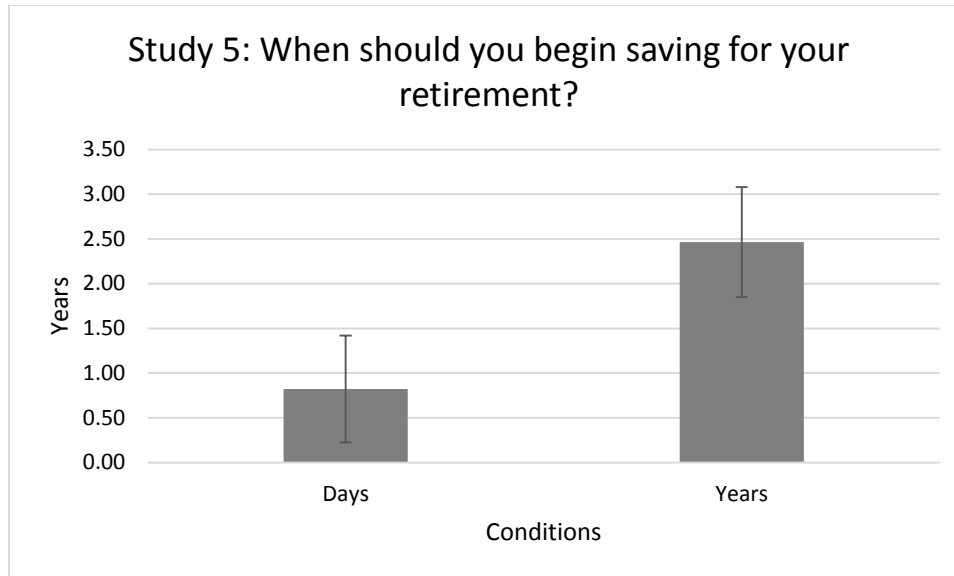
The following results are with demographic controls:

- Trend-level effect of Metric (days, years),  $F(1, 111)=2.690$ ,  $p=0.104$ ,  $d=0.31^3$ . People led to consider their retirement in 14,600 days believe they should begin saving sooner than people led to consider their retirement in 40 years.
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $p=0.621$ .
- No Metric by Chance for Incremental Action interaction  $p=0.470$ .

The following results are without demographic controls:

- Trend level Effect of Metric (days, years),  $F(1,115)= 3.434$ ,  $p=0.066$ . People led to consider their retirement in 14,600 days believe they should begin saving sooner than people led to consider their retirement in 40 years.
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $F(1,115)=0.132$ ,  $p=0.717$
- No Metric by Chance for Incremental Action interaction,  $F(1,115)=0.413$ ,  $p=0.304$

<sup>3</sup> Five respondents gave extremely distal responses, more than 3 *SDs* above the mean (one response was 3.2 *SD* above the mean, one was 3.8 *SD*, one 4.4 *SD*, one was 6.2 *SD* and one was 10.9 *SD* above the mean). They were dropped from analysis consistent with Schuman & Pressor (1979), yielding a final  $n = 117$ . There was no significant effect of participant-reported level of education ( $p = .562$ ), age ( $p=0.209$ ), or participant-reported income ( $p=0.192$ ).



**Figure 3: When should you begin saving for your retirement?**

Combined Analysis Studies 3, 4, 5:

- Main Effect of Metric (days, years),  $F(1,375)=19.036$ ,  $p<0.001$ . People led to consider events in days believe they should start saving sooner than people led to consider them in years.
- Trend-level Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $F(1,375)=2.696$ ,  $p=0.102$ .
- No Metric by Chance for Incremental Action interaction,  $F(1,375)=2.298$ ,  $p=0.130$ .

### ***How much do people plan to save?***

Study 3: Saving for newborn's college education

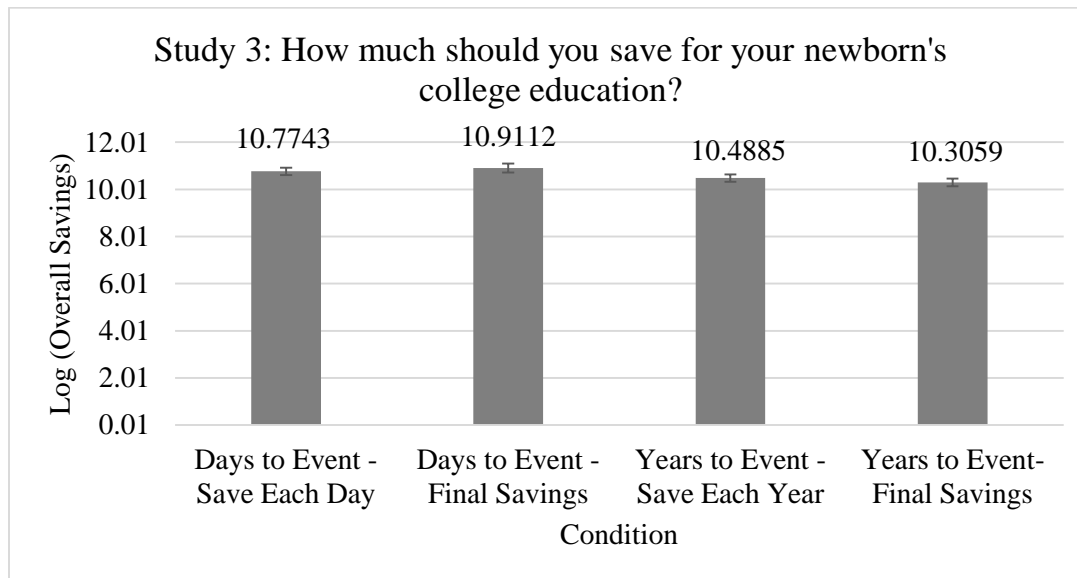
The following results are with demographic controls:

- Main Effect of Metric (days, years),  $F(1,131)=7.301$ ,  $p=.008$ ,  $d=0.47^4$ . Participants led to imagine their newborn going to college in 6,570 days planned to save significantly more than participants let to imagine their newborn going to college in 18 years.
- No Main Effect of Chance for Incremental Action,  $p=0.232$ .
- No Metric by Incremental Action Interaction,  $p=0.229$ .

<sup>4</sup> There was a significant effect of participant-reported level of education ( $p < .001$ ) and a trend-level effect of age ( $p=0.059$ ) and participant-reported income ( $p=0.102$ ). Better-educated, older, and higher income participants reported that they should save more. Though there was no main or interaction effect of our manipulations, a visual inspection of the data as graphed in Figure 6 suggested that participants in the distal future Event and no incremental Saving condition (rightmost bar) planned to save the most, this post-hoc contrast is significant ( $p = 0.012$ ).

The following results are without demographic controls:

- Main Effect of Metric (days, years),  $F(1,134)= 6.371$ ,  $p=0.013$ . People led to consider their newborn's college education in days plan to save more than those led to consider their newborn's college in years.
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall), Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $F(1,134)=0.013$ ,  $p=0.910$ .
- No Metric by Chance for Incremental Action interaction,  $F(1,143)=0.918$ ,  $p=0.340$ .



**Figure 4: How much should you save for your newborn's college education**

Note: "Save Each Day" means for the second question "how much should you save," the answer was framed in increments – "per day" or "per year". "Final Savings" means the answer was framed in total savings.

#### Study 4: Saving for your own retirement in 30 years

The following results are with demographic controls:

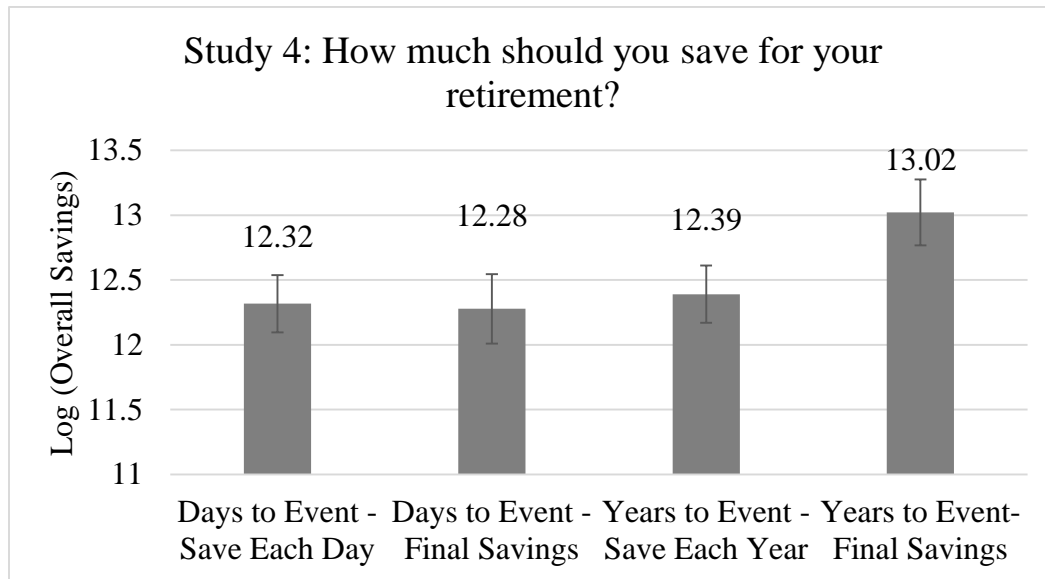
- No Main Effect of Metric (days, years),  $p = .164^5$ .
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $p=0.227$
- No Metric by Chance for Incremental Action interaction  $p=0.208$ ).

The following results are without demographic controls:

- No Main Metric of Event (days, years),  $F(1,118)= 2.205$ ,  $p=0.140$

<sup>5</sup> There was a significant effect of participant-reported income ( $p=0.04$ ) but not of education ( $p = .295$ ) or age ( $p=0.294$ ). Higher income participants reported that they should save more.

- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $F(1,118)=1.464$ ,  $p=0.229$
- No Metric by Chance for Incremental Action interaction,  $F(1,118)=2.005$ ,  $p=0.159$



**Figure 5: How much should you save for your retirement in 30 years (10,950 days)?**

*Note:* “Save Each Day” means for the second question “how much should you save,” the answer was framed in increments – “per day” or “per year”. “Final Savings” means the answer was framed in total savings.

#### Study 5: Saving for your own retirement in 40 years

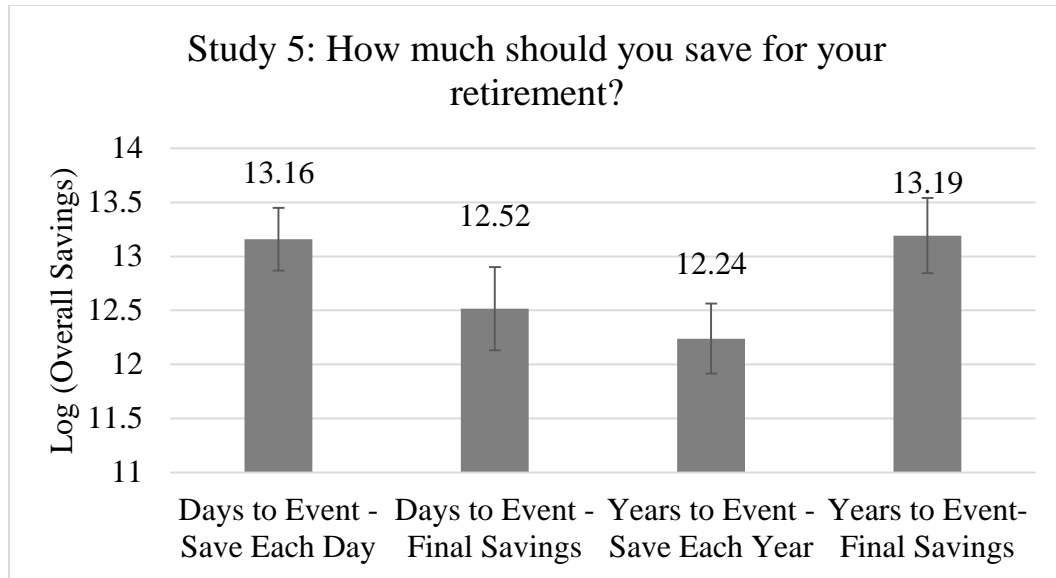
The following results are with demographic controls:

- No Main Effect of Metric (days, years),  $p = .433^6$ .
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall)  $p=0.552$ .
- Uninterpretable Metric by Chance for Incremental Action Interaction,  $p=0.028$ .

The following results are without demographic controls:

- No Main Effect of Metric (days, years),  $F(1,115)= .623$ ,  $p=0.432$ .
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall), ,  $F(1,115)=.159$ ,  $p=0.691$ .
- Uninterpretable Metric by Chance for Incremental Action interaction,,  $F(1,115)=5.551$ ,  $p=0.020$ .

<sup>6</sup> There was no significant effect of participant-reported income ( $p=0.139$ ), education ( $p = .302$ ) or age ( $p=0.166$ ).



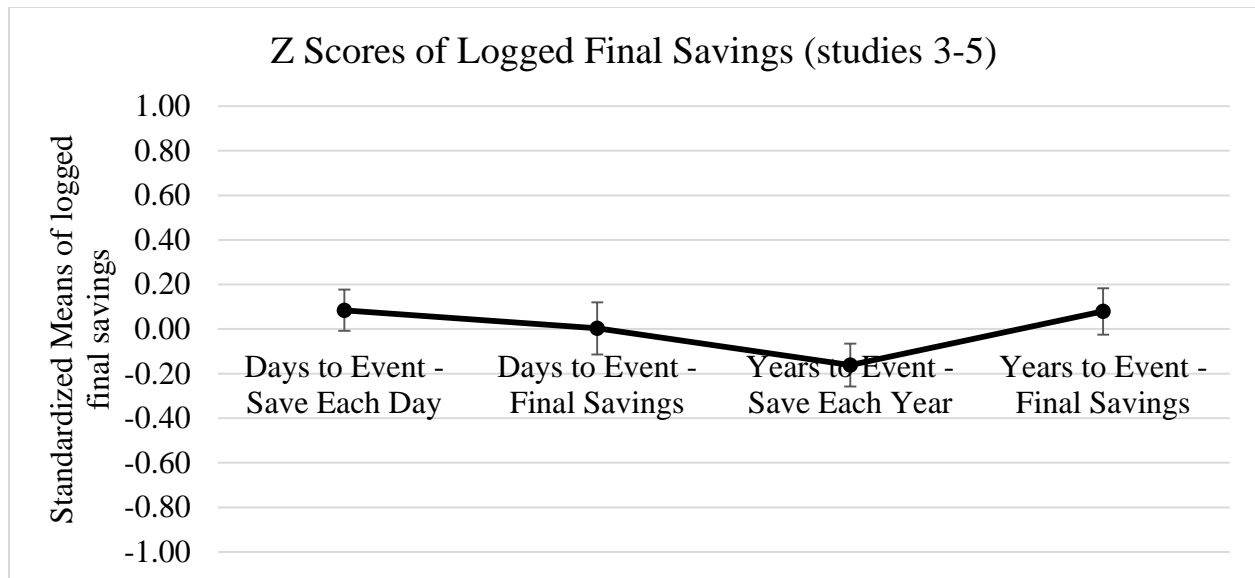
**Figure 6: How much should you save for your retirement in 40 years (14,600 days)?**

*Note:* “Save Each Day” means for the second question “how much should you save,” the answer was framed in increments – “per day” or “per year”. “Final Savings” means the answer was framed in total savings.

Combined Analysis Studies 3, 4, 5:

- No Main Effect of Metric (days, years),  $F(1,375) = 1.281, p = 0.258^7$ .
- No Main Effect of Chance for Incremental Action (daily or yearly increment, overall),  $F(1,375) = 0.183, p = 0.669$ .
- No Metric by Chance for Incremental Action interaction,  $F(1,375) = 1.966, p = 0.162$ .

<sup>7</sup> There were significant effects of participant-reported level of education ( $p = .001$ ), age ( $p = 0.034$ ), and participant-reported income ( $p = 0.012$ ). Better-educated, older, and higher income participants reported that they should save more.

**Figure 7****Studies 3, 4, 5 – How much should you save for future events**

*Note:* There were four conditions in each scenario (college in 18 years, retirement in 30 years, retirement in 40 years). Days to Event-Save Each Day: People were told in how many days (6,570, 10,950, or 14,600) an event would occur and asked how much they would save toward it each day. Days to Event-Final Savings: People were told in how many days (6,570, 10,950, or 14,600) an event would occur and asked how much they would save toward it overall. Years to Event-Save Each Year: People were told in how many years (18, 30, or 40) an event would occur and asked how much they would save toward it annually. Years to Event-Final Savings: People were told in how many years (18, 30, or 40) an event would occur and asked how much they would save toward it overall.

We transformed people's open-ended response as to how much they would save by multiplying daily or yearly response to obtain a final amount, then logging that amount. Within each study we then standardized responses so that responses are comparable across the time frames in the three scenarios.



## APPENDIX: Materials Used in Each Study

### Study 1

- John/Jane is shopping for a present for his/her friend's birthday party. When do you think the birthday party is? In \_\_\_\_ day(s)/month(s)
- Josh/Allison is an undergraduate who is meeting with his/her academic advisor to make sure he/she is on track with his/her graduation requirements. What year do you think Josh/Allison is? Freshman    Sophomore    Junior    Senior
- Mark/Sarah is saving money for his/her wedding. When do you think the wedding is? In \_\_\_\_ month(s)/year(s)
- Dan/Elizabeth is preparing his/her presentation for work. When do you think the presentation is? In \_\_\_\_ day(s)/month(s)
- Chris/Christina is meeting with his/her attorney to establish his Last Will and Testament. How old do you think Chris/Christina is? \_\_\_\_ years old
- Alex is a 22 year old who is saving for his/her retirement. When do you think he/she plans to retire? In \_\_\_\_ year(s)

### Study 2

- John/Jane is shopping for a present for his/her friend's birthday party. When do you think the birthday party is? In \_\_\_\_ day(s)/month(s)
- Josh/Allison is an undergraduate who is meeting with his/her academic advisor to make sure he/she is on track with his/her graduation requirements. What year do you think Josh/Allison is? Freshman    Sophomore    Junior    Senior
- Mark/Sarah is saving money for his/her wedding. When do you think the wedding is? In \_\_\_\_ month(s)/year(s)
- Dan/Elizabeth is preparing his/her midterm. When do you think the midterm is? In \_\_\_\_ day(s)/month(s)
- Chris/Christina is meeting with his/her attorney to establish his Last Will and Testament. How old do you think Chris/Christina is? \_\_\_\_ years old
- Alex is a recent graduate of The University of Michigan who is saving for his/her retirement. When do you think he/she plans to retire? In \_\_\_\_ year(s)

### Study 3

- Imagine you have a newborn child. You realize your child will be ready for college in only 18 years (6,570 days).
  - When should you begin saving for their college education? In \_\_\_\_ day(s)/year(s)
  - How much should you save (in US Dollars) per unit (per day or per year)/overall for their college education? \$ \_\_\_\_ per unit/overall.

### Study 4

- Imagine you plan to retire. You realize you will be ready for retirement in only 30 years (10,950 days).

- When should you begin saving for your retirement? In\_\_\_\_\_day(s)/year(s)
- How much should you save (in US Dollars) per unit (per day or per year)/overall for your retirement? \$\_\_\_\_\_per unit/overall.

### Study 5

- Imagine you plan to retire. You realize you will be ready for retirement in only 40 years (14,600 days).
  - When should you begin saving for your retirement? In\_\_\_\_\_day(s)/year(s)
  - How much should you save (in US Dollars) per unit (per day or per year)/overall for your retirement? \$\_\_\_\_\_per unit/overall.

### Study 6

- Imagine you plan to retire. You realize you will be ready for retirement in only 30/40 years (10,950/14,600 days).
- Imagine you have a newborn child. You realize your child will be ready for college in only 18 years (6,570 days).
  - How close does retirement/your newborn's college education feel? (1=Very near to 10= Very far)
  - How important is it to save for retirement/your newborn's college education? (1=Not at all important to 10=Very important)

### Study 7

- Imagine you have a newborn child. You realize your child will be ready for college in only 18 years (6,570 days).
- Imagine you plan to retire. You realize you will be ready for retirement in only 30 years (10,950 days).
  - Identity Connection (4 items  $\alpha = .81$ ) (1=Strongly Disagree, 7=Strongly Agree)
    - The person I am now and the person I will be in (18 years or 6,570 days/ 30 years or 10,950 days) are pretty much the same person.
    - When I try to imagine the person I will be in (18 years or 6,570 days/ 30 years or 10,950 days) it is as if I am imagining a person other than myself (Reverse Coded)
    - The person I will be in (18 years or 6,570 days/ 30 years or 10,950 days) does not look like me at all (Reverse Coded)
    - The person I will be in (18 years or 6,570 days/ 30 years or 10,950 days) is a stranger to myself (Reverse Coded)
  - Identity Congruence (4 items  $\alpha = .713$ ) (1=Strongly Disagree, 7=Strongly Agree)
    - "I cannot imagine being (the parent of a college student/ being a retiree)" (Reverse Coded)
    - The identity of a ('retiree'/ 'college mom or dad') is just something I cannot imagine as me at all" (Reverse Coded)
    - "My identity as (a parent/ an adult) includes saving for (college/retirement)"

- My identity as a person conflicts with some of the trappings of adulthood like saving for (college/retirement)” (Reverse Coded).
- Kirby Monetary Choice Questionnaire (Kirby, Petry, & Bickell, 1999).
- Interpretation of Difficulty Scale (Oyserman, Destin, & Novin, in press.)
- Grit Scale (Duckworth, Peterson, Matthews, & Kelly, 2007).