“I never think about the future ... it is coming soon enough!”
—Albert Einstein

“Life can only be understood backwards;
but it must be lived forwards”
—Søren Kierkegaard

“My interest is in the future,
because I am going to spend the rest of my life there”
—Charles F. Kettering

“Everybody has a plan, until they get punched in the mouth”
—Mike Tyson

“Never make predictions, especially about the future”
—Casey Stengel
Thinking about the Future: Whether, When, Why, How, Who, What ... and So What?

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& University of Queensland
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About the Future

• Psychology studies the past
  – Causal models of behavior
  – Studies of memory
• Easier to know past than future
• But people think more about future than past
• Why? Future has advantages
  – Can still change it
  – Adaptive to orient toward future
  – Direction of evolution?
What Were You Thinking?
Past, Present, and Future in a Random Sample of Everyday Thoughts
Goals of Study

• Explore content of everyday thoughts
  – *Lab thoughts may not be the same*
• Examine how thoughts use time
• What emotions, thoughts, etc. accompany thinking about the future?
Method

• Sample
  – N = 492 (62% female) adults from the USA
  – 46.5% students
  – Mean age = 28.8 (range 18 to 67)

• Schedule
  – 6 random signals/day
  – For 3 days
  – Then questions about most recent thought
Defining Past, Present, Future

• Present defined as within 5 minutes of now
  – *Future starts after that*
  – *Same for past*

• Supplementary analyses starting the future a week hence, or a month
How Often?
% of Total Thoughts

• Past only       4 %
• Present only    40 %
• Future only     14 %
How Often?
% of Total Thoughts

- Past only \(3.8\%\)
- Present only \(39.8\%\)
- Future only \(14.2\%\)
- Past and present \(2.1\%\)
- Past and future \(0.9\%\)
- **Present and future** \(12.1\%\)
- Past, present & future \(2.3\%\)
- None (no time) \(24.4\%\)
- \(+\)\(\)\(\)\(\)\(\)\(\)\(\)\(\)
- **TOTAL** \(100\%\)
So:

- People think much more about future than past
Time frame: future

- Later today: 50%
- Tomorrow: 30%
- A few days from now: 20%
- 1-4 weeks from now: 10%
- 1-12 months from now: 0%
- More than a year from now: 0%
- More than 10 years from now: 0%
- More than 50 years from now: 0%
- After life: 0%
Pragmatic

• People mainly think about the near future
Time frame: past

earlier today: 30%
yesterday: 20%
a few days ago: 15%
1-4 weeks ago: 20%
1-12 months ago: 20%
more than a year ago: 20%
more than 10 years ago: 15%
before you were born: 0%
Thoughts without Time (24.4%)

• Less meaningful
• Less under voluntary control... BUT
• Less mental fatigue
• Less exciting/arousing
• Less happy BUT
• Less angry, anxious, stress, disappointment
• More about self than others
  – Also more frequent when alone than with others, contrary to all other categories with any time aspect
• Thoughts were neither more nor less pleasant
  – (if anything, trend toward more)
Implications

• Rich human experience occurs within time
  – Meaningful
  – Emotion
  – Social life: Being with others increases temporality; alone, thoughts drift toward more about self, outside of time
  – Presence of others increases focus on the present
Thought Content...

• *What were you thinking about?*
  – *When thinking about past, present, future...*
Describing Thoughts about the Past

- regret
- replaying thoughts over and over
- happy
- sad
- disappointed
- nostalgia (appreciating / bittersweet about the past)
- proud
- relieved
- angry
- trying to make sense of it / understand
- what might have been / should have happened
- remembering a prior lesson or lesson learned
- how to deal with past event (e.g., fix problem)
- implications of the past for the future
- other (please specify):
Past: Summary

• Implications of past for future are common
  – *Single biggest category*
  – *Pragmatic*

• Also trying to understand

• Replaying, including counterfactual
  – *Thus thinking about the past has pragmatic coloring*

• Also some involuntary ruminating
Thoughts about the Past:
Nutshell Summary

• So what?
  – (Implications for future)

• and What the ***k??
  – (Trying to figure out)
Describing Thoughts about the Present

- enjoying, savoring
- surprised
- trying to figure out what is going on
- doing what I intend to do / what I am supposed to do
- bored
- getting through it
- controlling myself / inner struggle
- working through a problem
- struggle with other people
- trying to get what I want/need
- deciding/choosing
- how I look or seem to others
- feeling sorry for myself
- how things could or should be different
- enjoying the presence of other people
- paying attention/zeroed in on what I am doing
- implications of the present for the future
- other (please specify):
Thus

• Pragmatic
  – Focused on present activities, tasks
  – Figure out whazzup
  – Implications for future

• Enjoy, savor, elaborate
Describing Thoughts about the Future

- planning
- imagining
- what other people will do
- intending
- what I will do
- what you are obliged to do
- what you hope to do
- what you hope will happen
- what you fear will happen
- worries
- wondering what will happen
- possible future emotions or expected emotions
- what you will say or write
- choosing/deciding among future options
- other (please specify):
Implications: Prospection

• Highly pragmatic: planning, anticipating, preparing
• Emphasize possibilities, uncertainty
• Future as “matrix of maybe”
Planning Vs. Other Future Thoughts

• Planning is (more) meaningful and pleasant
• Lower stress, anger, anxiety
• Higher control over thoughts
• Less mental fatigue
• Highly involving
Subjective Experience and Time

• Responses extended from earlier/later the same day, to multiple days, weeks, months, years, up to “before I was born” and “after my life”

• Each thought was classified according to the farthest time from the present that it invoked
HAPPINESS

Happiness

Timespan
So, emotion is in present moment?
So, emotion is in present moment?

• **No!** Only for positive feelings.
• Negative emotions show a different picture...
Emotion Circumplex

• Valence (positive/negative)
• Arousal (excitement)
PLEASANT VS. UNPLEASANT THOUGHT

![Graph showing the relationship between content and timespan]

- The y-axis represents the content, ranging from -0.2 to 1.0.
- The x-axis represents the timespan, ranging from -10 to 10.
- The graph shows an upward trend from the left, peaking at the center, and then declining towards the right.

This graph illustrates the typical pattern of pleasant vs. unpleasant thoughts over time.
Present Focus is Better?

- Mindfulness: focus in present
- More positive emotion
- Less negative emotion
- Less stress
- Thought itself is more pleasant
MEANINGFUL

![Graph showing the relationship between meaning and timespan. The graph has a peak around a timespan of 3.5, indicating that meaning is highest at this point.]
THOUGHT WAS UNDER CONSCIOUS CONTROL
Part Summary & Implications

• Present is happy
• Future is meaningful
• Many curvilinear relationships: time travel into either past or future differs from present
• (Negative) emotion increases away from present
• The tired mind wanders in time (esp. past)
  – *It takes effort to stay focused on the present*
• The future is more exciting than present /past
  – Also more about myself
Linking Past, Present, and Future

• Combining across time ‘zones’
  – Future plus present is most common
• More meaning
• More negative emotion
Combining Past, Present, Future

• Compared to thoughts that focused on only past or present or future, thoughts that combined two or more were ...
  – More meaningful
  – More arousal / excitement
  – More anger & frustration, more stress
  – More anxiety & disappointment
  – Less happiness (though present-future comb was happy)

• *Note mainly present-plus-future vs. present and future*
Death, the Ultimate Future?

• Death inevitable...

• Theories emphasize mortality as most important fact of life
  – Prospection is ultimately a downer
Death, the Ultimate Future?

• Death inevitable
• Theories emphasize mortality as most important fact of life
  – Prospection is ultimately a downer
• Hardly any thoughts (<1% of total)
  – Not own death (often past, others)
People Are Different: Who Thinks about the Future?

• Major personality differences
• Trait predictors of % future thoughts
Personality: Who Thinks of Future?

• Trait predictors of % future thoughts
  – Most of our hunches yielded nothing
  – More differences on past than future...
Personality: Who Thinks of Future?

• Trait predictors of % future thoughts
  – Most of our hunches yielded nothing
  – More differences on past than future
  – Apparently, **Everyone** thinks about the future
    • Especially optimistic, happy people, and those who seek closure
    • *Thinking about the past is optional*
Personality: Who Thinks of Past?

• Some people think more about the past than others
  – High neurotic, low agreeable, low conscientious, low self-esteem, rumination, depression, pessimism
Personality Summary

• Everybody thinks about the future
• Thinking about the past appeals to unpleasant people:
  – Argumentative, undisciplined, grumpy, impulsive, unfriendly complainers
Now to the Laboratory

• Can study specific thought processes under controlled conditions
  – Unlike in everyday life
What Does a Future Mindset Do?

• Context: Past evidence of optimistic predictions
  • Consistent across domains, samples
    – More likely than average to have good future: success, love, health
    – Less likely than average to have bad future events
Implication of Prediction Findings

• The Future is **Bright !!!**
Putting Money Where Mouth

• Play it safe or go for high-reward, high-risk option?

• Contemplating the future increases optimism
  – So one doesn’t worry as much about risk

• Therefore, *after prospection, people will accept high risk to pursue high reward*
  – A future mindset will increase risk taking
Exploring the Future Mindset: Experimental Approach

• Instill temporary future-oriented mindset
  – Write about your future self (compared to self now)
  – Re-write sentences referring to future (compared to present)

• Measure consequences
  – Optimism, risk-taking
  – Trust
  – Moral judgment

Investment Optimism Experiment

• Write brief message on present or future self
  – Discuss what your life is like now or what your life will be like in ten years
• After that, make investment choices
  – high-risk, high-reward vs. low-risk, low-reward
• Prediction: after thinking of future, people will favor high-risk, high-reward options
  – *Because of optimistic bias*
Future Mindset *Avoids* Risk!

- 4-item scale yields 10-point preference
  - 10 = favor risky investments
- Wrote about current self, risk = 4.94
- Wrote about future self, risk = 4.41

Thus on hypothetical choices, people shifted toward safer investments after contemplating long term

- What happened to all that optimism???
Trust Experiment

• Future mindset: read, re-write sentences referring to future or present
  – “I find myself sometimes thinking about how my life might be in the future”
  – “I find myself sometimes thinking about what is going on in my life right now”

• Trust game...
Trust game

- You get $10, can keep, invest, or divide
- Invested money is **quadrupled** and given to another player, who may keep or share
- 10 games with different partners
- One game will be selected (randomly) for real play and real money
Predictions: Future Mindset and Trust Game

• Optimism will predict more trust?
  – Or risk-averse pessimism lead to less trust?
• Or maybe it’s more complicated....
Does a Future Mindset Increase Use of Relevant Information?

• Showed picture ostensibly of the other player in each game
• Chosen from among those rated most & least trustworthy
Competing Predictions

• Thinking of future should increase optimism, confidence
  – hence high trust

• Thinking of future may make people avoid risk
  – hence low trust

• ***Thinking of future of future may cause people to use information more
  – Hence trust the trustworthy faces, distrust the others
  – (***Most interesting and adaptive prediction)
Future Mindset Reduces Trust

Amount sent to partner

Trustworthy partner

Untrustworthy partner

Present condition

Future condition
Exp 3: Future Mindset and Moral Judgments

• More forgiving?
  – Let bygones be bygones
  – Reach out, maintain relationships, confidence about future
  – Risky to tolerate?

• More punitive?
  – Judge others, uphold rules
  – *More worried about future problems?*
Experiment 3: Future Mindset and Moral Judgments

• Method: Re-write statements about present or future

• Judge 12 scenarios
  – Half morally bad, half morally good
  – Performed actions, or desired to perform them, or merely thought about them
    • E.g., setting house on fire to collect insurance
Moral judgment findings

• Future mindset intensified blame for bad acts

• Future mindset did **not** affect praise for virtuous acts
  – *Bad is stronger, and more important, than good*
  – *Thinking about future emphasizes preventing bad things from happening*

• Actions were judged more strongly than thoughts or desires
  – No interaction with future mindset
Prospection Increases Blame Only

Moral Events

Immoral Events

Moral appraisal

Present Condition

Future Condition
Implication of Moral Judgment Findings

- More concern over future problems
- Hence more condemnation of wrongdoers
Summary of Lab Findings

• Thinking about future reduced risk-taking, favoring safe investment
• Also reduced trust
  – Of both trustworthy and untrustworthy people
• Also increased moral blaming
  – But no effect on praise for virtuous acts
• General: seek safety, avoid risk

Monroe et al., J. Exp. Soc. Psy 2017
The Future is Dark ???

- Optimism, positive feelings should increase risk taking, but we found the opposite
- Future mindset creates emphasis on avoiding problems, misfortunes, loss
- How to reconcile with all the evidence of optimistic predictions?
Need New Theory?

• Most work has emphasized prediction
• Evidence points toward *pragmatic* orientation
  – “What is going to happen?” vs.
  – “What do I want?” and “What should I do?”
• Core idea: Thinking about the future is for guiding action, dealing with practical concerns
Integrating Findings...

• Predictions are optimistic but plans are cautious

• Separate steps in pragmatic prospection
  – First think what you want
    • Focus on the positive!
    • Without the goal, pragmatism is useless
  – Then think how to bring it about
    • Be practical
    • Focus on the negative!
Two Steps?

• Step one: dream big
• Step two: get real
What are three things you want to do in the future?

1. get a girlfriend
2. rule the world
3. rule the world
Two Steps Experiment

• Fast vs. slow prediction should bring different levels of optimism
• Step one: dream big: fast responses optimistic
• Step two: get real: slow responses realistic
Method

- Two pre-registered studies, total N=500
- Predictions about future, on computer
  - Same questions to everyone
- 10-second timer
- Instructions, either...
  - Respond fast, before the 10 seconds
  - Respond slowly, after the 10 seconds
- Study 1: Estimate probabilities for future good events
- Study 2: Predict 3 specific events, self relative to others

Sjåstad & Baumeister, in preparation
Measures (Study 1)

• What is probability that you will...
  – Live past age 80
  – In five years, will
    • Be in romantic relationship
    • Have successful career
    • Achieve your most important goals
    • Future life will be better than past
Faster = More Optimistic
(Sjåstad & Baumeister, 2018)

- N=200, online experiment, USA
  - Fast (vs slow) judgments were significantly more optimistic about the future
  - $p < .01$, $d = .37$
  - Successfully replicated in Norway, both for positive and negative events (pre-registered, N=300)
Summary of Findings

• Fast responses were unrealistically optimistic
• Slow responses were more realistic
  – *though still slightly optimistic*
• Fast-optimism effect is bigger for negative events than positive ones
  – *(Suggests it really does take more time to think about bad events actually happening)*

*Sjåstad & Baumeister, in preparation*
Conclusion: Limits of Optimism

• Yes, quick predictions about the future are optimistic
• But after few seconds’ delay, that diminishes sharply
• Pragmatic prospection starts with thinking of desired outcome, then realistically making a plan to get there
Prediction vs. Pragmatic Prospection

• Prediction: Future as what *will* happen
• Pragmatic prospection: Future as what *might* happen
  – And how to produce the desired outcomes
  – Useful to predict choice points, performance demands, contingencies
Pragmatic Prospection Theory

• Purpose of thinking of future is to produce practical benefits
  – Especially by guiding action
  – Prediction is helpful but secondary
  – Predict points of uncertainty, not end results

• Thinking of future starts by asking what you want, ideally
  – Then assess whether good outcome is feasible
  – If so, make plans, deal with anticipated roadblocks

Baumeister, Vohs, & Oettingen, 2016, Review of General Psych
Pragmatic Prospection Theory Cont’d

• Backward causality (teleology)
  – Connects by meaning

• Assume multiple possible outcomes
  – Subjective indeterminacy; opportunity, threat
  – Future as matrix of possibilities ...

*Baumeister, Vohs, & Oettingen, 2016, Review of General Psych*
The Matrix of Maybe

• Prediction often assumes the future is already determined, and a particular outcome is inevitable
  – Future as a single road
  – *Destiny, fate, horoscope, scientific determinism*

• Alternatively, future is multiple alternative possibilities, only some of which will come true
  – Yet to be determined
  – Future as many crossroads
Understanding Future as Matrix of Maybe

• A recent evolutionary advance?
• Redshaw & Suddendorf: human children (2-4 yrs) vs. adult chimpanzees, orangutans, gorillas
• Method: drop treat into tube, must catch it when it comes out the bottom
Only Humans

• Human 2-year-olds struggled
• But by 3, they got it fast
• Once they solved it, they got it every time
• Apes: never figured it out
  – *Even if they stumbled onto the idea of using both hands, they didn’t sustain*
Evidence for Matrix of Maybe

• People bet more on future than past (even if all else is identical): future seen as changeable
• Anticipated emotions are helpful guides
  – Actual current emotions often cause trouble
• People moralize the future especially
• Voters prefer optimistic leaders
  – They like the rosy future
• Potential is valued over achievement (!)
• Keeping doors open

Baumeister, Maranges, & Sjåstad (2018) Psych and Consciousness
Planning

• **Essentially** pragmatic
  – Both in purpose and in actual effects
  – Advantage: can decide calmly, not in heat of moment

• Assumes multiple possible outcomes

• Teleology

• Anticipated emotion is the main purpose of emotion?

• Action planning vs. coping planning
  – *Action planning helps get started, coping planning increases long-term success*
Peace of Mind vs. Stress

• Intrusive thoughts about unfinished tasks
  – Zeigarnik effect
Why Do Those Thoughts Intrude?

- Thoughts of goals that have not been completed
- Two main theories
  - First: The unconscious is taking care of business, and it just keeps the conscious mind informed
  - Second: The unconscious needs consciousness to help get it done, so it nags the conscious mind until the job is finished
Turns out, it’s a third reason

• Make plans, in form of “implementation intentions”
  – Research program by Gollwitzer

• Specific plan: what to do and when to do it. The more precise (on both!), the better.
Testing for Zeigarnik Effect

• Effect vanishes if you merely make a plan
  – Even though you haven’t reached the goal
    • *Even though you haven’t made any actual progress!*

• Thus, *intrusive thoughts occur because the unconscious is nagging the conscious mind to make a specific plan for action.*
Implications

• Thus, why do you have those annoying thoughts about stuff you need to do? To quiet them, so you can relax at night, it helps to have made a specific plan of when you will do those things.

• It’s not that you will keep having those interfering thoughts until everything is done – “Everything is done” – never happens
The Power of Planning

• Some of stress is intrusive thoughts about things needing to be done
• These occur because the unconscious needs conscious thinking to make a specific plan
• Make a plan, and the intrusive thoughts subside
  – “If/when X, I will do Y”
Planning Takes Mental Effort

- Forming
- Revising
H1: Decision fatigue will cause planning aversion (i.e. lower willingness to plan)

• “If you had 20 minutes for your disposal right now, please tell us how much you would like to do each activity below by rating each of them on a scale from 0 (Not at all) to 10 (Very much so).”
  – Take a relaxing “time out”
  – Make a plan for the next four weeks

• Aspiration level (goals): Compared to how you live your life right now, what are your goals for the next four weeks? Health/Private economy/Moral concern, Pro-sociality (0=Much worse, 10=Much better)
Field-Experiment (N=112, Bergen, Norway)

Decision fatigue caused planning aversion; did not influence aspiration level (goals)
Findings: Planning Takes Effort

- Laboratory ego depletion manipulation reduced willingness to plan
- Effort avoidance mediates
- Depletion had no effects on desire to relax or on level of aspiration (goal setting)
- Low self-control people do less planning

Emotions and Prospection

• Anticipated emotions guide behavior
• So... do people adjust their emotional expectations, in order to motivate themselves...???

DeWall et al. (2016), Emotion Review
Emotion: Managing Expectations

• Aesop’s fox and the sour grapes:
  – Revising anticipated emotion?
  – Or, are lofty goals (“greener grass”) all the more motivating?
• Method: Ps did first test of “intuitive intelligence”
  – Told they got 2 or 5 of 6 right
• Prepare for second test
  – Told would be prize to get all 6
  – How happy would you be to score 6?
• Then actually took test and received perfect score of 6 correct
• Measured actual happiness
  – Aesop vs. boost from pleasant surprise
Pilot Study

• Predicting how others would react
• Predicted people would be happier to improve from 2 to 6 than from 5 to 6
• Thus opposite of Aesop’s hypothesis
  – Greener grass across the fence is better
But when predicting for self...

- Took first test
- Told either 2 or 5 correct, out of 6
- Predicted happiness if got 6 on second test
- Also measured actual happiness when it came true
Study 2: Sjastad, Baumeister & Ent, in preparation

Predicted and Actual Happiness

![Bar chart showing predicted and actual happiness for low- and high-achievers.]

- **Happiness Forecast**:
  - Low-achievers: 5.46
  - High-achievers: 6.41

- **Happiness Experience**:
  - Low-achievers: 7.17
  - High-achievers: 7.10
(Results)

- Those who got 2 right predicted less happiness (if they would get 6 next time) than those who got 5
- In the event, they were equally happy
- **Conclusion**: People adjust expectations downward, assume unreachable goal will not bring joy
Moral Reward and Punishment

• Deserve reward for your good deeds?
  Past  5.16
  Future  6.37

• Deserve punishment for your misdeeds?
  Past  5.34
  Future  6.85

Thus, future is morally more important than past

Sjastad & Baumeister, 2015/ unpublished
Conclusions: Moral Asymmetry

• Deserve more praise, blame for future actions than for past
• Pragmatic orientation: Future can still be changed
• Moralizing the future!
Main Conclusions

• **Primacy** of prospection
  – Much more thought about future than past
  – Future plus present also important
  – Even when think of past or present, often focus on implications for future
Main Conclusions: Pragmatic Prospection

• Present and fairly near future
• Focus on multiple possibilities, not certainties
• Emphasis on what I will do
• Links to present
• Planning...
Main Conclusions: Happy vs Meaningful

• (Mindful) happiness: focus on present
• Meaningfulness: focus on future
• Or, especially, link past-present-future
Main Conclusions: Planning

• Planning (vs. other future thoughts)
  – Meaningful
  – Emotionally positive
  – Takes effort, control
  – Alone or with others (equal)
Main Conclusions: Planning

• Focusing on the present removes anxiety, increases happiness
• But making a plan reduces anxiety over future
  – Also reduces stress, intrusive worries
• The unconscious mind wants very specific plans
• Pragmatic prospection is about preparing what to do
  – Not just predicting what will turn out
Thinking about Future

- Pragmatic prospection has two steps
  - First, what you want: *dream big*
  - Second, how to reach that: *get real*
- Both are important
- Future as matrix of maybe
  - Don’t just think about best-case scenario
Final Thoughts

• The past can be known, but the future can still be shaped and changed
• Basing actions on the future rather than the past is adaptive
Chicago Bulls player who signed a $95 million contract removed the rearview mirror in his car so that he can't look 'back'

By Scott Davis
October 20, 2015 9:39 AM
The End!
Notes from 10/2018

- BetterUp conf
- About 5 min too long – skipped the Aesop study; condensed the Ikea but conveyed gist
Thoughts about the Past: Nutshell Summary

- So what?
- and What the ***k??
Has This Happened to You?

• You are involved in something, maybe even something fun, but you keep getting annoying thoughts popping into your mind that there are things you need to do. Work, duty, etc.

  – You know you will take care of those things in due course; there’s nothing you can do now. But those intrusive thoughts keep disturbing and distracting you.
Peace of Mind vs. Stress

• Intrusive thoughts about things you need to do
• Meet Bluma Zeigarnik
(What is the Unconscious?)

• Freud: a dungeon full of your naughtiest thoughts, that you cannot acknowledge
  – Or a seething cauldron of wicked impulses that could wreak havoc if let loose
What is the Unconscious?

• Freud: a dungeon full of your naughtiest thoughts, that you cannot acknowledge
  – Or a seething cauldron of wicked impulses that could wreak havoc if let loose

• Modern: your support staff that runs the show while you focus on the big picture or get distracted
“Don’t bother.”