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## Ed Boyden's blog

Ed Boyden is an assistant professor in the MIT Media Lab. His lab broadly invents new tools to engineer brain circuits, in order to treat intractable disorders, augment cognition, and better understand the nature of existence.

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Tuesday, September 02, 2008

**Averting Disasters, Preventing Problems**

Strategies to overcome the shortsightedness of the human mind.

We are terrible at solving future problems before they become big. A friend of mine who worked for decades as a governmental security advisor was once told by an official, "Unless there are bodies on the ground, we can't pay attention to it." This property of the human mind affects us at the personal, community, and global levels, whether it's dealing with diet and exercise and debt, or the future of Social Security, or global climate change--all scenarios where people must invest effort now, to solve a problem that won't hit until some time passes. Now, it's one thing to complain about how bad we are at this problem (as psychologists have been gleefully pointing out for many years). But can we do anything about it? Can we engineer new tools to enhance our judgment, and to augment our ability to objectively deal with problems?

Easy gimmicks and fixes don't work: this problem might be fundamental to the human condition. Information is not enough to enable good decision making. We need to improve how we act on information, and that means utilizing emotion as a tool. Now, emotions of the moment shape how we prioritize and act, whereas distant emotions have little or no impact on our current actions. Thus it is hard to resist that extra cheese Danish or that new car--because we feel current urges and emotions right now, while the distant emotion that would accompany a medical problem or a financial problem isn't real to us. Conversely, an immediate problem is far more painful than a future one: it is easy to procrastinate about something laborious, or to rush to solve an emergency. So immediate problems will override future ones, grabbing our attention because of the immediate anxiety and stress produced.

Thus, one possible principle of prevention is: develop tools to help yourself feel future emotions now. Create visceral visualizations of the different outcomes, so that you can feel the feelings that result from each one. Emotions are shortcuts, and while they can be destructive when gone awry, they can be harnessed to augment rational behavior, if you understand your mind. It is possible to make software tools that enable visceral visualizations of the consequences of current actions. When I schedule future activities on my to-do list, for example, I often embed appropriate emotional cues in the list, so that when the time comes to act, it's easier for me to do what I've planned. Perhaps software that enables additional visual, auditory, and other-modality cues to enhance this process--and personalizes the emotion to the

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individual--could help boost the power of the human mind, to actively prevent problems. I wonder if such a tool, properly developed, could be a true cognitive prosthetic to enable better decisions and fewer disasters in the future.

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**Tags:** health, society, contingencies, planning, disaster, emotion, preventative health, prevention, personal health

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### Oh yeah!
Great! Let's go paranoid! :)

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### diffusion of responsibility
I agree that once we recognize how strongly emotions influence our decision-making we are presented with the opportunity to manipulate ourselves for our own good. I have a hard time imagining applying it to something like climate change or social security. I don't want to get lost in the details, so here's my main point. Once you get to this meta- level of decision making, do you expect you will make rational choices about the manipulation of your emotions? You have effectively chunked all your decision making into the time window just before prosthetic intervention. I don't know the solution, and I think Dan Dennett made something like a case for pre-thinking as a basis for free will. Interesting line of thought.

One parallel area that you didn't mention is international affairs / global citizenship. I can't say what the best level of empathy for your fellow man is, but I know that too high a level would make life unbearable (Think if you actively mourned along with families of malaria or genocide victims). It's clearer how to manipulate this area though. Oxytocin release seems pretty potent. Shoot. I don't need artificial means. I watched Hotel Rwanda. It gets you and you want to do something. OTOH, maybe an empathy prosthetic is just what is needed for sociopaths. I guess I'm just trying to draw the analogy between temporal distance in your examples and social distance in mine.

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### Why are some people better at it than others? And what about risk?
Some people are better at this than others, and an important question is - what makes them different?  Do they have a greater empathy for future events, or a greater memory of pain from past events that they don't want to repeat?

My experiences also lead me to believe that aversion to risk (a very strong influence) also comes into play; many people aren't willing to invest the energy and time into a solution without a guarantee that it will work and won't cause even more problems.  And since there's no such thing as a guarantee, they prefer the known pain of the problem to the uncertain (and potentially higher pain) of an attempted solution.

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### Averting Disasters, Preventing Problems
with devastating incidents like that of hurricane

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