

Effects of perceived locus of causality on self-imposed delay of gratification in children.

A summary of research carried out by Michael Siepmann at the University of Stirling, under the supervision of Dr. David A. Lieberman, from September 1993 to March 1994.

To feel pangs of hunger because there is simply no food available to be eaten is unpleasant. Voluntarily to endure the same pangs when food is immediately available, because one knows that if one eats too much now one may die of starvation a few months hence, is not only unpleasant but also very difficult. However, the ability to do just that can make the difference between survival and death.

Although hopefully most people reading this will not have experienced quite such a dramatic example of the importance of delay of gratification, there are many more familiar examples one could mention, such as saving for a comfortable retirement instead of treating oneself to extra luxuries now.

What factors might help or hinder people in delaying gratification? Research in other motivational areas has pointed to the importance of *perceived locus of causality* (PLOC) for the initiation and regulation of one's behaviour. It is desirable to have an internal PLOC, since then one's behaviour is experienced as self-determined and freely chosen.

A large number of studies published since the early 1970's have shown that when the PLOC for an activity is already internal, perception of control either by external pressures (e.g. offers of reward or threats of punishment) or by internalised versions of external pressures (e.g. fear of guilt or a threat to self-esteem) can shift the PLOC from internal to external, with detrimental effects. For example, subjects given rewards for doing interesting geometric puzzles subsequently spend significantly less free-choice time playing with them than those given no rewards.

Other lines of research have been concerned with the internalisation of PLOC when it is initially external, and have also found that whether people perceive instances of their behaviour as controlled by pressures is

important. For example, children given only a very mild threat of punishment for touching a "forbidden toy" will be less attracted to that toy in future than those threatened with more severe punishment.

Since delay of gratification serves one's own self-interest, the PLOC for delaying should, at least initially, be internal. The main hypothesis in this study was that just as initially internal motivation to do things like solving geometrical puzzles can be undermined, so initially internally regulated *inhibition* of temptation to end a delay may be undermined if the PLOC for inhibition is changed from internal to external.

Method

30 children of age 8-9 years from a local primary school were individually shown a computer and a machine which could dispense miniature chocolate bars. They were told that if they pressed the space bar on the computer, the machine would give them one chocolate bar and the game would be over, or if they waited a (supposedly) randomly determined length of time the computer would give them two chocolate bars.

The control group was merely told how the game worked, whereas the 'want' and 'should' groups were also given advice stressing the idea of resisting temptation either because they would probably "want" to wait since that would make them "happier" after the game was over (internal PLOC), or because they "should" "make themselves" wait since that would be more "sensible" (external PLOC). The hypotheses were that the want group would wait longer than the control group and the should group less long.

In the first game the computer waited only one minute. This served as a dummy phase, allowing the subsequent 'real' phase to appear to the child not to be part of the experiment, to reduce demand characteristics. This was achieved by having an accomplice interrupt the session with a request for help of some kind

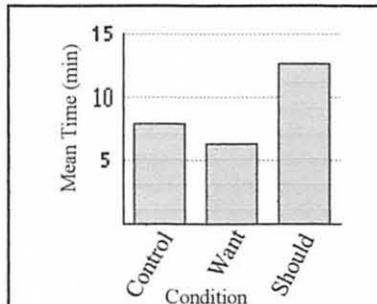


Figure 1: Mean times waited by subjects in each condition.

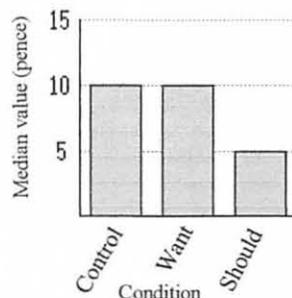


Figure 2: Median subjective value of chocolate bars by condition.

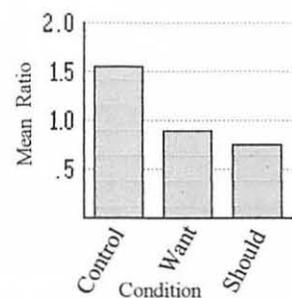


Figure 3: Mean subjective : objective time estimate ratio by condition.

while the experimenter was in the middle of asking the child a set of questions about the game. The experimenter apologised and asked the child if she or he would like to play the game again "just for fun" while he went off to help his friend. In this second game, in which the child was alone, the computer was set to wait 15 minutes before dispensing two chocolate bars, thereby providing a reasonably challenging test of ability (or willingness) to delay gratification.

The experimenter returned shortly after the second game had ended, and asked the remaining questions, including one about how much pocket money the child would spend to buy one of the bars, and another asking for an estimate of the length of time the child had been away from the classroom.

Results

Contrary to the hypotheses, the 'should' group waited longer than the other two groups. (Figure 1. One-way ANOVA: $F(2,25) = 2.875, p < 0.08$)

The 'should' manipulation also seems to have led children to devalue the bars, being willing to pay only 5p for one bar, compared to 10p for the other two groups. (Figure 2. Kruskal-Wallis non-parametric ANOVA, $\chi^2 = 13.42, p < 0.01$ [corrected for ties].) Valuing the bars less was associated with waiting longer, $r = -0.412, df = 27, p < 0.05$, two-tailed.

Both kinds of advice made time seem to pass somewhat faster. (Figure 3. ANOVA: $F(2,24) = 2.958, p < 0.08$). There was a marginally significant indication that, as one would expect, children for whom time seemed to pass faster waited longer, $r = -0.265, df = 26, p < 0.10$, 1-tailed.

Discussion

Previous research on delay of gratification has shown that the avoidance of arousing thoughts about the rewards is of critical importance in determining length of self-imposed delay, and that one way of avoiding such thoughts is to be distracted. The attentional hypothesis of subjective time perception (which has received considerable empirical support)

proposes that being distracted also makes time appear to go faster. So, the time estimate results in this study suggest that both forms of advice provided distraction.

That the 'want' group were apparently more distracted than the control group, but did not wait longer, suggests that the 'want' advice may have directly encouraged arousing thoughts, cancelling out the benefit of distraction. That the 'should' advice led to significantly lower valuing of the rewards suggests that it may have had the opposite effect, actively helping children to avoid arousing thoughts. (See Figure 4)

It is possible speculatively to interpret these results as being in partial accord with the predictions. The advice manipulations may have affected PLOC not for

waiting but for being enthusiastic about the rewards. After all, which sounds more attractive - something that you "should" wait for or something you would "want to" wait for?

So, in a delay of gratification situation it may, paradoxically, be better *not* to be highly motivated to wait, since it may make it harder to avoid arousing thoughts about the rewards. The best strategy may be to convince oneself temporarily that one really doesn't care much (e.g. by pretending that one is waiting because someone else thinks one "should"). But one must then be sure to reactivate one's enthusiasm when the waiting period is over. The 'should' group in this experiment gained greater rewards, but apparently at

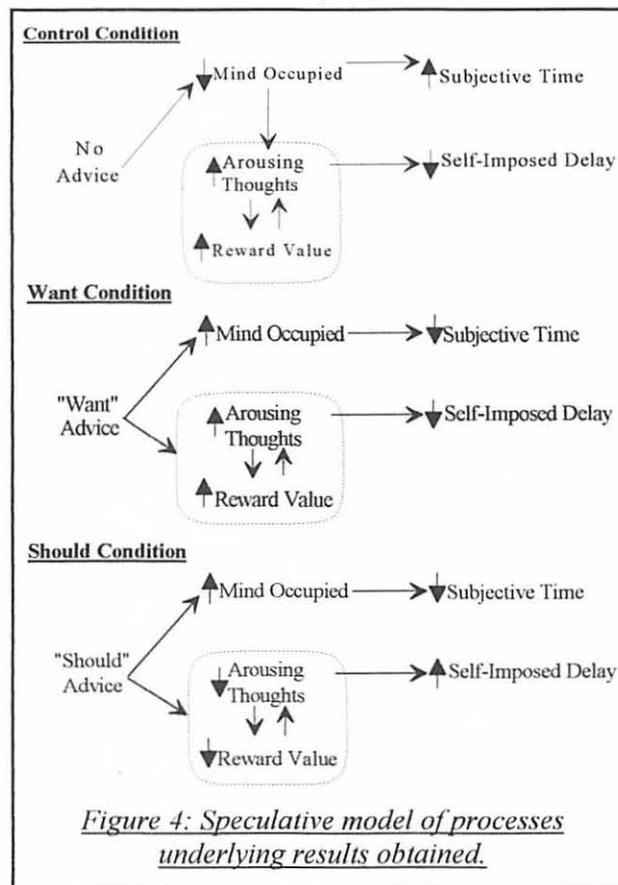


Figure 4: Speculative model of processes underlying results obtained.

the expense of enjoying them less.

Further Reading

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- Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989). Delay of gratification in children. *Science*, 244(4907), 933-38.