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Kevin Brewer

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Orsett Psychological Services
PO Box 179
Grays
Essex
RM16 3EW
UK

orsettpsychologicalservices@phonecoop.coop

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Kevin Brewer BSocSc, MSc

An independent academic psychologist, based in England, who has written extensively on different areas of psychology with an emphasis on the critical stance towards traditional ideas.

A complete listing of his writings at http://kmbpsychology.jottit.com.

CONTENTS

1. SEEING THE WORLD SUBJECTIVELY BUT THINKING ITS OBJECTIVELY

1.1. INTRODUCTION

There is a everyday belief that humans are rational and see the world in an objective way in the main. Thus, being irrational or subjective are used as criticisms. Psychological research shows that individuals are far from rational and objective in everyday life [1]. Here are a selection of examples of the cognitive processes involved.

1.2. INATTENTIONAL BLINDNESS VERSUS PRIMING

There is too much information in the environment for the brain to process it all, so selection takes place. In the case of inattentional blindness (IB), information that is not part of the focused attention is ignored. "When one is engaged in a demanding task, attention can act like a set of blinders, making it possible for salient stimuli to pass unnoticed right in front of one's eyes" (Drew et al 2013). Most of the time this is an efficient way to process stimuli, but sometimes important information is missed (Weir 2014).

IB was most famously shown by Simons and Chabris (1999). Participants, who were instructed to count the number of passes in a video of a basketball game, missed a person dressed in a gorilla suit walk through the middle of the match [2]. However, Memmert (2006) found that basketball players doing the same task had less IB.

So being an expert in a relevant field reduces IB. Not necessarily so. For example, Potchen (2006) gave

[1] Habits are an obvious example of a behaviour that individuals do that may not be the most rational (appendix 1A).

[2] Also known as "satisfaction of search" - "detection of one stimulus interferes with detection of subsequent stimuli" (Drew et al 2013).

radiologists chest X-rays to assess, and nearly two-thirds did not notice that the collarbone was missing from the X-rays. This is missing removed information, whereas Simons and Chabris (1999) added to a scene.

Drew et al (2013) found that radiologists showed IB in this case as well. Twenty-four experts were given three minutes to study five sets of chest X-rays for nodules (appearing as small light circles). One of the sets of X-rays contained a faint (but clearly visible) outline of a gorilla in the middle. Twenty of the radiologists failed to notice the gorilla. In a control group of 25 briefly-trained non-medical individuals, none of them noticed the gorilla.

But information that is not seen consciously could still influence behaviour via a process called priming. This is "the temporary subconscious activation of an individual's mental representations by the environment and the effect of this activation on various psychological phenomena... [and] during the time it remains active, it exerts an effect on an individual, one that the individual is not aware of, and is therefore unlikely to control" (Shantz and Latham 2009 p9).

For example, Bargh (1989) asked participants to solve easy anagrams before performing an unrelated task. The anagrams produced achievement-related words, like triumph or prevail, or neutral words. Participants solving the former ones performed significantly better on the subsequent task than participants solving the neutral words. Technically, this is "supraliminal priming", where the individuals "are aware of the prime, that is, the semantic words, but not of the pattern or goal that is being activated" (Shantz and Latham 2009 p10).

Fishbach et al (2003) got participants to recognise words related to diet after sitting in a waiting room filled with diet magazines or magazines about politics. The reaction time for recognising the words was quicker after sitting in the room with diet magazines, though the participants reported not being consciously aware of the magazines in the waiting room.

Priming has been shown to affect subsequent behaviour in a number of studies, for example:

- Participants who did word puzzles containing terms related to drunkenness subsequently consumed more beer than controls (who solved word puzzles containing neutral words) (Roehrich and Goldman 1995).

- Individuals primed with stereotypical words about the elderly subsequently walked more slowly than controls primed with neutral words (Bargh et al 1996; appendix 1B).

However, there are limits to the ability to prime (or "nudge") behaviour. For instance, embedding "no smoking" signs in images seen by smokers did not reduce the desire to smoke, rather it cued them to smoke (Earp et al 2013) (table 1.1).

So public health messages that remind individuals to abstain (eg: "no smoking"; "don't drink and drive") "may well serve to trigger the very behaviours they are meant to discourage" (Earp et al 2013 p2158).

- Earp et al (2013) recruited forty-four smokers from a private university in the USA. They were shown twenty-three everyday images of which thirteen photographs contained "no smoking" signs (removed in the control condition). The task was presented as determining if the photograph was taken by a professional or amateur photographer. The independent variable was thus the presence of "no smoking" signs (priming) or not.

- The dependent variable was the motivation to smoke which was measured by a computer-based attitude test called the "joystick" paradigm (Chen and Bargh 1999). Individuals are presented with a stimulus, and they move the joystick in response as quickly as possible - away from themselves if they are motivated to avoid it or towards themselves if motivated to approach. The reaction time to do this is measured. Earp et al presented twenty-five images of which four were cigarettes.

- All participants showed a tendency to approach the cigarette stimuli compared to the other stimuli, but this difference was greater after seeing the "no smoking" images. Thus, "incidental exposure to 'no smoking' signs increases automatic approach tendencies of smokers toward smoking-related stimuli" (Earp et al 2013 p2160) [3].

Table 1.1 - Earp et al (2013).

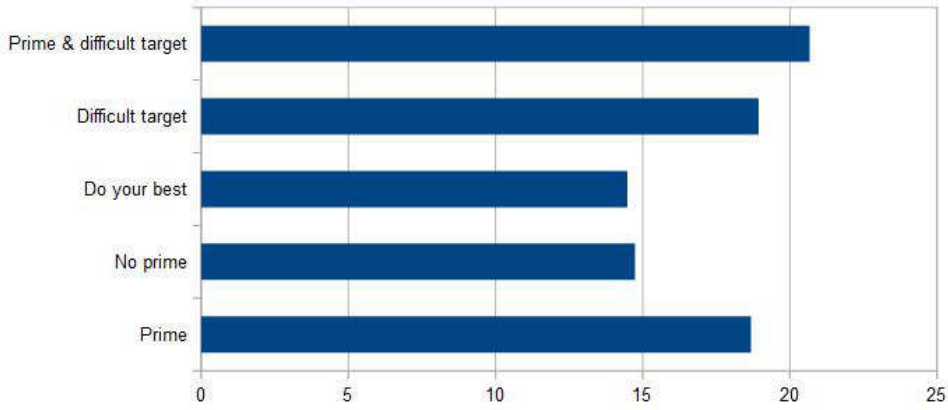
Bargh and Ferguson (2000) argued that priming (subconscious goals) is as effective as conscious set goals. Shantz and Latham (2009) tested the two types of goals in a work situation. In a field experiment, they used eighty-one employees at a call centre in Canada who were fund-raising for a university. The employees, who did not know that it was an experiment until afterwards, were given one of four sets of instructions for interacting with potential donors. in the primed goal condition, the information was printed on paper with a backdrop of a female athlete winning a race (and a control with no picture) [4]. The conscious goal conditions

[3] However, the authors themselves admitted that "we cannot conclude, on the basis of these results, whether the reflexive-approach behaviour we have captured on our joystick task would translate to actual smoking behaviour in a real-life environment" (Earp et al 2013 p2161).

[4] In a pilot study, Shantz and Latham (2009) approached fifty-two adults in the street in Canada. The participants had to think of as many uses for coat hangers in two minutes. The participants received one of three instruction sheets with a picture of an athlete winning a race (prime for achievement), random

ended the instructions with a statement urging them to do their best or a difficult target amount to rise. The amount of money raised in a three-hour shift was the dependent variable.

Primed employees raised more money than no prime, and a difficult target more than do their best. Overall, "conscious goal effects in the present study had a stronger effect on the amount of money raised than did a subconscious goal" (Shantz and Latham 2009 p14). Together both conscious and primed goals were best (figure 1.1). The experiment used only one work-shift of temporary employees because ethically the employees had to be debriefed at end of shift.



(Data from Shantz and Latham 2009 table 1 p13)

Figure 1.1 - Mean amount of money raised.

1.3. EINSTELLUNG EFFECT

The "Einstellung effect" is the tendency to use a familiar solution to a problem even when a better alternative solution is available (Bilalic and McLeod 2014) [5] [6]. Luchins (1942) showed this "functional fixedness" in a classic experiment.

Participants were asked to measure out 100 units of water, say, using three jugs (21, 127 and 3 units). The

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images of sportsplayers, or no picture. Participants reading the first instruction sheet produced significantly more uses for coat hangers (mean: 4.22) than the sportsplayers picture (mean: 3.90) and no picture (mean: 2.92).

[5] It occurs "when the first idea that comes to mind, triggered by familiar features of a problem, prevents a better solution being found" (Bilalic et al 2008 p652).

[6] It is similar to negative transfer where "previous experience makes it more difficult to adapt to a new setting than it would be without such experience" (Bilalic et al 2008). For example, participants are instructed to memorise two lists, and when asked to recall the second list, half of them are given cues that related to the first list. These individuals recalled less of the second list than participants given no cues at all (eg: Basden and Basden 1995).

solution has three steps - (i) fill the 127 unit jug, (ii) then remove 21 units using that jug, and (iii) remove two times three unit jugs. Thus: 127 - 21 - (2 x 3) = 100. After success in completing this problem, participants were given similar puzzles. But included among them was an easier problem to solve [7]. This was to measure out 20 units of water using 23, 49 and 3 unit jugs. The simple solution involves two steps - (i) fill 23 unit jug and (ii) remove three unit jug (ie: 23 - 3 = 20). Because of the "Einstellung effect", participants tended to use a three step solution - (i) fill 49 unit jug, (ii) remove 23 unit, and (iii) remove 2 times three unit jug (ie: 49 - 23 - (2 x 3) = 20).

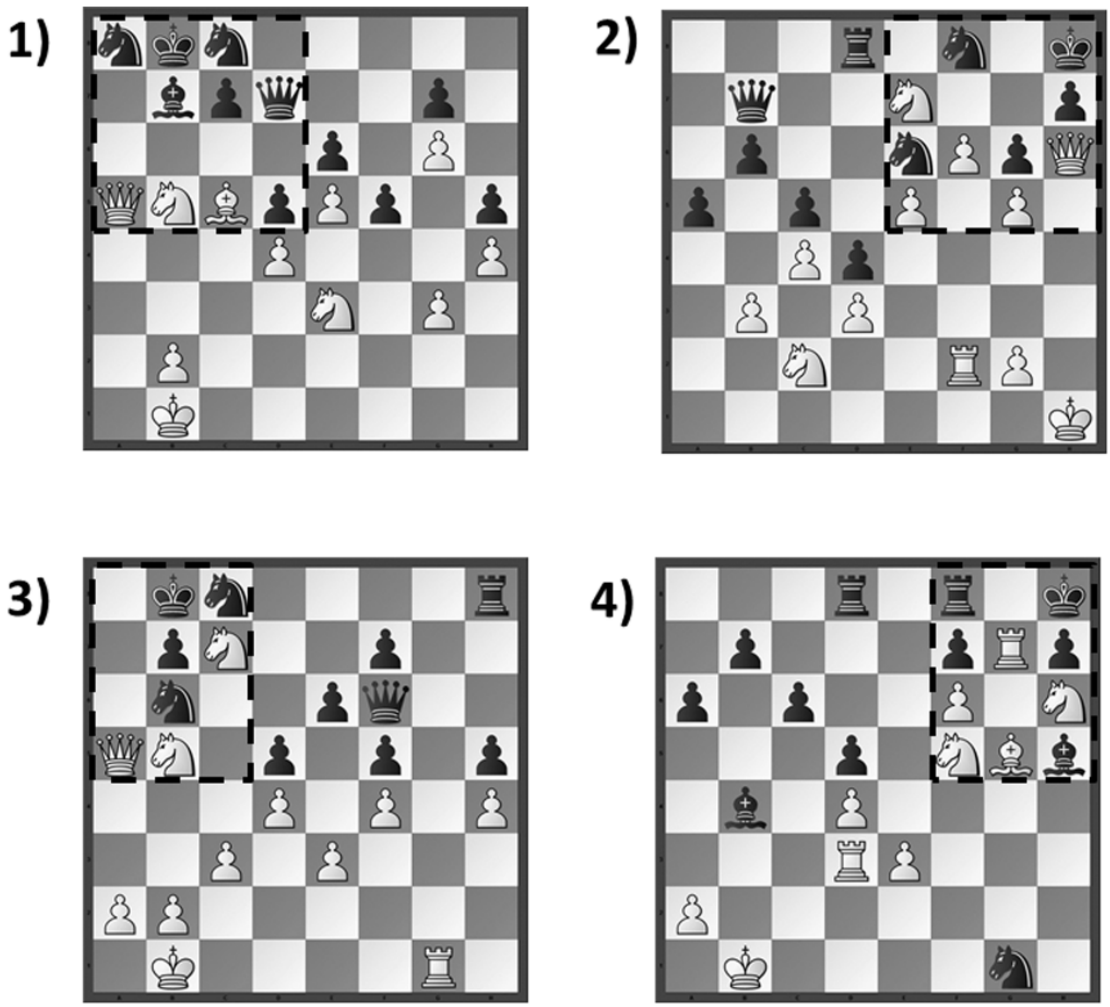
Bilalic and McLeod (2014) reported similar examples with chess players. When presented with a specific arrangement of chess pieces and asked to achieve checkmates as quickly as possible, even expert players became focused on a five move solution when a three move one was available. Eye tracking equipment showed that the players focused on the identified solution and did not change even when they said they were looking for a quicker one. This is an example of the "confirmation bias" (Wason 1960) - "even when people attempt to test theories in an objective way, they tend to seek evidence that confirms their ideas and to ignore anything that contradicts them" (Bilalic and McLeod 2014 p61).

Sheridan and Reingold (2013) developed this work with thirty-four chess players (17 experts and 17 novices) in Canada. They were presented with four experimental chess problems (figure 1.2) (each for three minutes) while wearing equipment that monitored the movements and direction of gaze of the right eye. In each problem, there was a familiar solution to achieve checkmate in one corner of the board (Einstellung solution), but a better solution elsewhere on the board. In three of the four problems, the Einstellung solution was a blunder. However in Problem 1 it was an advantageous but sub-optimal solution.

In Problem 1 expert players were more likely to choose the optimal solution. These players moved their gaze away from the Einstellung corner of the board earlier. When the Einstellung solution was a blunder, all players moved their gaze around the board.

Sheridan and Reingold (2013) stated: "One possible explanation for why the blunder moves reduced the Einstellung effect is that the blunder moves provided feedback that the familiar solution was not viable. This type of feedback may have improved performance on the

[7] Known as the "extinction" problem. The control group given only this problem could solve it while some individuals who had used the learned strategy could not.



(White is to move. The Einstellung solution is inside dotted lines)

(Source: Sheridan and Reingold 2013 figure 1)

Figure 1.2 - Four chess problems.

blunder move Einstellung problems by providing the chess players with increased motivation to search for a new solution. In contrast, such feedback was not available for the suboptimal move Einstellung problem, because the sub-optimal move was advantageous for white... which could have reduced their motivation to find a new solution. Thus, the Einstellung effect may be especially pernicious when problem-solvers are not given feedback that they are using a sub-optimal strategy..." (p7).

1.4. EMOTIONAL CONTAGION

Emotional contagion is where emotional states (both positive and negative) are transferred between individuals without conscious awareness (Kramer et al 2014). It has been observed in laboratory experiments,

and in real-life studies (eg: Fowler and Christakis 2008; appendix 1C).

Kramer et al (2014) combined both methods in a study using Facebook data. Manipulation of "News Feeds" was compared to subsequent posting behaviour by the recipient for one week in January in 2012 with nearly 700 000 users (and over three million postings). The wording of certain News Feeds were classed as positive or negative compared to controls (ie: based on words used). Individuals who had positive elements in their News Feeds used more positive words in status updates, and more negative words when News Feeds had negative context as compared to neutral updated News Feeds. The researchers concluded that the results "suggest that emotions expressed by friends, via online social networks, influence our own moods".

This study has drawn criticism because the participants were not aware of the manipulation of their News Feeds (ie: no informed consent was obtained). The editors of the journal (Proceedings of the National Academy of Sciences) expressed concern "that the collection of the data by Facebook may have involved practices that were not fully consistent with the principles of obtaining informed consent and allowing participants to opt out" (Verma 2014). However, the article was published because "as a private company Facebook was under no obligation to conform to the provisions of the Common Rule [8] when it collected the data used by the authors, and the Common Rule does not preclude their use of the data" (Verma 2014).

1.5. SPORT AND COGNITIVE BIAS

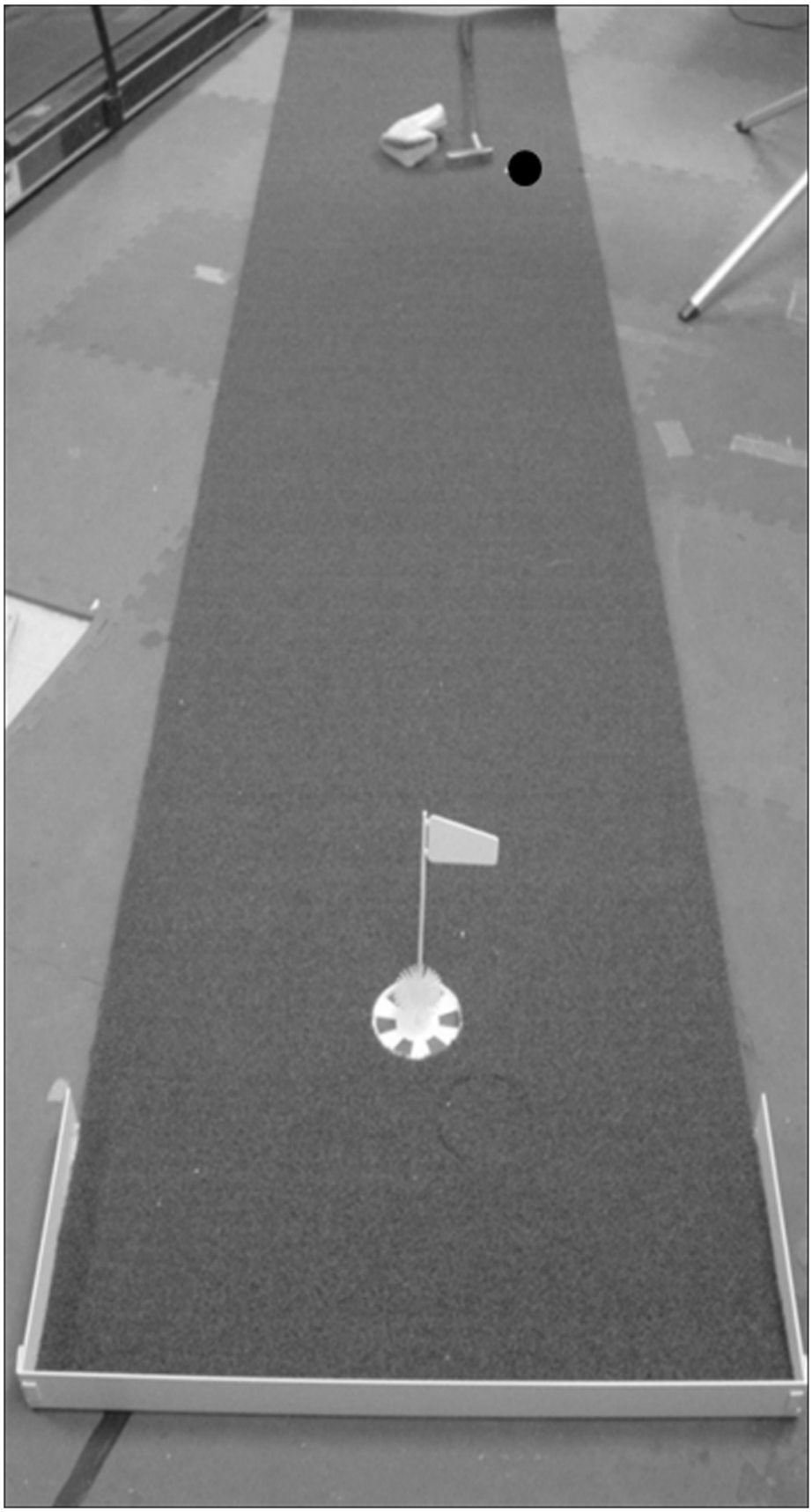
Lee et al (2011) asked forty-one golfers at the University of Virginia, USA, to make ten two-metre putts (figure 1.3) with a putter that they were given. Half of the participants were told that the putter belonged to a particular professional golfer [9] and half were told nothing (control group). The former group sank significantly more putts than the control group (mean: 5.30 vs 3.85; $p = 0.04$) [10].

Linkenauger (2012) described this as "positive contagion" - the belief that a professional's ability has

[8] Common Rule = obtaining of informed consent and the right of participants to opt under the US Department of Health and Human Services Policy for the Protection of Human Research Subjects, and adherence to the rule is a policy of the journal (Verma 2014).

[9] US professional golfer Ben Curtis.

[10] The perceived value of an object increases the placebo effect (Lee et al 2011).

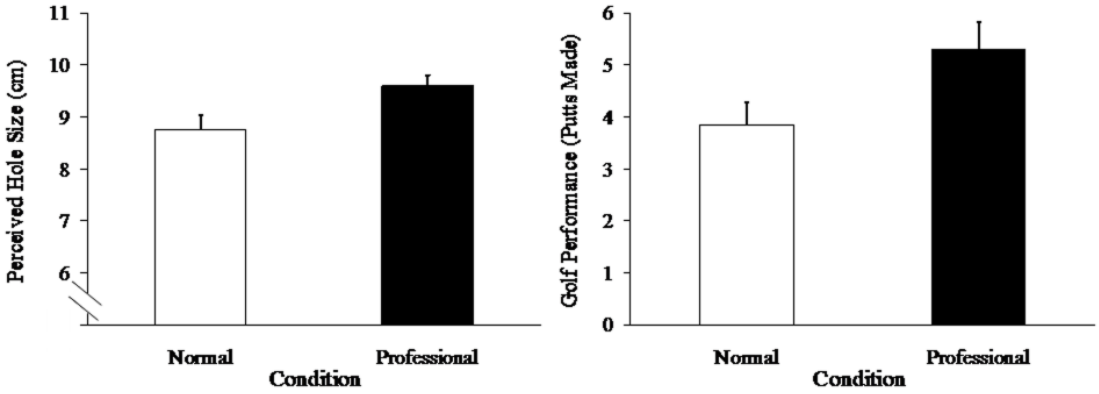


(Source: Lee et al 2011 figure 1)

Figure 1.3 - The putting mat.

rubbed off on a piece of equipment [11]. This belief increases confidence and self-efficacy, which improves performance.

The group using the professional's putter also estimated that the hole as significantly larger in diameter beforehand (mean: 9.60 cm vs 8.75 cm; p = 0.02) (figure 1.4).



(Source: Lee et al 2011 figure)

Figure 1.4 - Perceived hole size before putting (a) and putts made (b).

In another experiment, images of holes were projected around the real hole (5 or 10 cm in diameter). Either smaller holes (3.8 cm diameter) to make the real hole appear larger or larger holes (28 cm) to make it appear smaller [12] (figure 1.5). Thirty-six participants sank twice as many putts in the former case (Witt et al 2012).

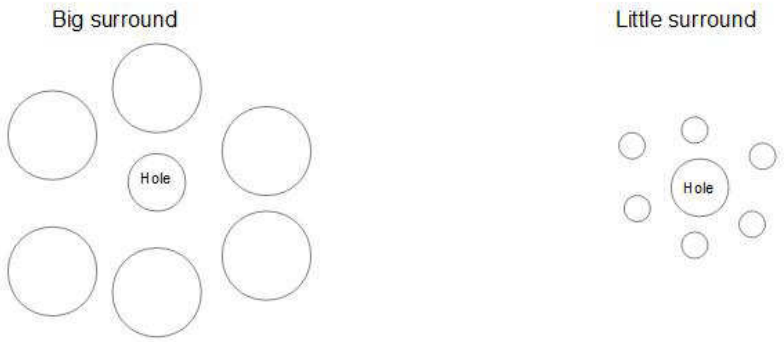


Figure 1.5 - Ebbinghaus illusion.

[11] Contagion generally is the belief that "there can be a permanent transfer of properties from one object (usually animate) to another by brief contact" (Rozin et al 1986 quoted in Lee et al 2011).
[12] This is known as the Ebbinghaus illusion.

This is different to research that shows that individuals perceived a target as larger after success at hitting it with a dart, say, than those who were unsuccessful (Lee et al 2011). Likewise with the perception of hold size in golf.

Witt et al (2008), in their Study 1, asked forty-six golfers who had just finished a round at a golf course in Richmond, Virginia, USA, to estimate the size of the hole. They were offered nine paper circles to choose from (varying between 9 to 13 cm in diameter, while the actual size of the hole was 10.8 cm). Golfers who had played better (ie: lower score for their round of golf) chose larger paper circles for the hole size (ie: negative correlation).

Witt et al (2008) pointed out: "While we found a significant correlation between perception of hole size and golf performance on that day (as assessed by course score), we did not find a significant correlation between perception of hole size and how good a player is (as assessed by handicap). This result implies that a highly skilled player such as Tiger Woods does not always see the hole as bigger just because he is a terrific player, but rather, any person can see the hole as being bigger on those days in which he or she is playing well".

In Study 2, Witt et al (2008) varied the distance to putt to see if this variable would influence perception of the hole size. Forty University of Virginia students who played golf performed ten putts from 2.15 m (hard condition) or 0.4 m (easy condition) away (with a hole 9.52 cm in diameter). Afterwards, they estimated the size of the hole by drawing it from memory. Participants in the easy condition perceived the hole as larger.

Study 3 had the same procedure except that the participants made the drawing of the hole sat by the hole (ie: they could look at the hole as they were drawing). The participants in the easy condition still drew a larger hole than participants in the hard condition.

Overall, Witt et al (2008) admitted: "Although these results suggest that a relationship exists between performance and perception, the causal direction of this finding is unclear. For example, do golfers putt better, and therefore, see the hole as bigger, or do they see the hole as bigger, and therefore, putt better?".

Other research has found that individuals who are performing well also judge an object differently to individuals performing badly. For example, softball players who were hitting well perceived the ball to be bigger than players hitting poorly (ie: positive correlation). After the game, players were asked to recall the size of the ball (Witt and Proffitt 2005).

1.5.1. Placebo Effect

The placebo effect is sport is "a positive outcome resulting from the belief that a beneficial treatment has been received" (Beedie et al 2008 p166).

But not all individuals show it. Beecher (1955) believed that about one-third of the population would respond, while more recent studies suggest a higher number [13]. For example, over 70% of participants in 10 km laboratory cycle time trials improved their performance when given a placebo that they believed was a performance-enhancing substance (caffeine) (Beedie et al 2006).

Beedie et al (2008) studied fourteen competitive male cyclists in fourteen weekly, 40 km time trials. After six baseline trials, the participants underwent eight experimental trials randomised for: (i) informed that given caffeine tablet beforehand, and actually given it; (ii) informed caffeine but given placebo; (iii) informed placebo but given caffeine; and (iv) informed and given placebo. This was a repeated measures design. An improvement in performance from the baseline in conditions (i) and (iii) is expected from the performance-enhancing effect of caffeine, but an improvement in condition (ii) is evidence of the placebo effect.

Five cyclists showed improvements in condition (ii), and these were classed as placebo responders. On a personality measure, these individuals scored higher on extraversion, openness to experience, and agreeableness than non-responders. But a high score on neuroticism was associated with the greatest improvement in condition (ii).

1.6. APPENDIX 1A - HABITS

Habits are studied in rats, for example, by rewarding them with food after they press a lever. After the behaviour is well established, the reward is devalued either through allowing the rat to eat as much of the food as they want (ie: oversatiation) or making them mildly nauseous after eating (with a drug). Rats that continue to press the lever have formed a habit (Graybiel

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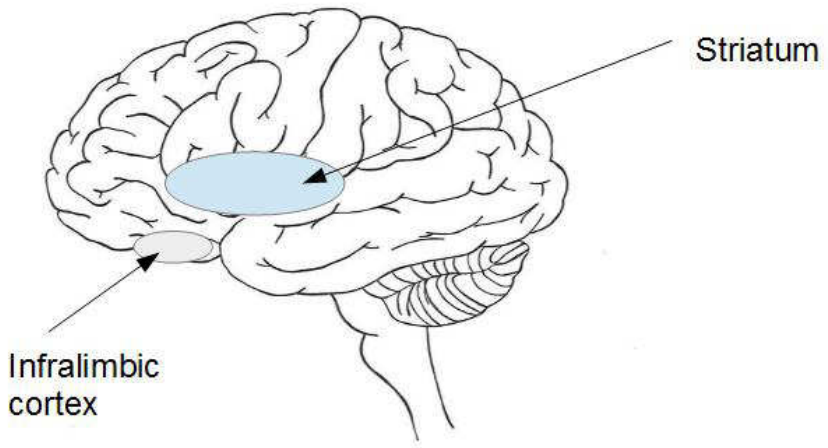
[13] The number of responders to the placebo effect has implications for drug trials: "if the number of placebo responsive participants in the experimental group in a placebo controlled study substantially exceeds the number of placebo responsive participants in the control group, all else being equal, an over-estimation of true effect will result (the opposite case, in which a bias towards placebo-responsiveness in the control group might reduce the apparent magnitude of observed effects, also holds true,... In repeated measures designs, in which individual difference variables such as placebo-responsiveness are expected to be balanced over conditions, variability in placebo response might still reduce the apparent reliability of the measure" (Beedie et al 2008 p166)..

and Smith 2014).

Recording of brain activity in rats during learning has found that the striatum is involved (figure 1.6). At the start of learning the striatum is active throughout the process. But when a habit is formed (eg: rats going down a maze and turning left), the striatum is only active at the beginning and end of the process. "It is as though the striatum sets up boundary markers for chunks of behaviour - habits - that the internal evaluation process has decided should be stored. If true, this manoeuvre would mean that the striatum essentially helps us combine a sequence of actions into a single unit" (Graybiel and Smith 2014 p26).

The infralimbic cortex is also involved in helping the striatum lay down the habit as "a semi-permanent brain activity", but also to control when to engage in the habit. Shutting down this region in rats can suppress deeply ingrained routine behaviours (Graybiel and Smith 2014).



(Original drawing of brain by Magda Královenská; areas of brain based on Graybiel and Smith 2014 p26)

Figure 1.6 - Position of striatum and infralimbic cortex in left side of brain.

1.7. APPENDIX 1B - REPLICATIONS OF BARGH ET AL (1996)

Bargh et al (1996) got participants to unscramble words which were related to old age, and then their walking speed was measured by an observer using a stopwatch as they left the experiment. A prime (old age) activated a stereotype (old people are slow) that led to a behaviour (walking slow).

Bargh et al (1996) is important in establishing that "priming may occur automatically and influence behaviour

with little or no awareness" (Doyen et al 2012) [14], but also controversial with limited replication.

For example, Aarts and Dijksterhuis (2002) asked participants to rate the walking speed of a cartoon character after being primed with words related to speed (eg: cheetah or tortoise). Those who were primed with words related to slower speeds predicted a slower walking speed for the cartoon. Doyen et al (2012) were critical - this study "only tells us of a bias in judgments of speed" [15].

Doyen et al (2012) challenged Bargh et al's (1996) methodology in three ways:

i) The walking speed was measured by an observer who was blind to the priming or not of the participants. But the experimenter knew, and this could have influenced the participants' behaviour via expectations.

ii) The walking speed was measured by a stopwatch (ie: manually), which could produce errors.

iii) The participants were asked after the experiment if they had been aware of the priming. "However, it remains unclear exactly what participants claimed to be unaware of. As Nisbett and Wilson [1997] famously pointed out, participants can remain (1) unaware of the stimulus, (2) unaware of their response, or (3) unaware of the fact that the stimulus importantly influenced the response" (Doyen et al 2012).

Doyen et al (2012) performed two experiments to replicate and develop Bargh et al (1996) taking into account these methodological issues.

Experiment 1

One hundred and twenty undergraduates at a university in Belgium unscrambled thirty anagrams which contained words related to old age (prime condition) or neutral words (no-prime condition). Subsequently, the speed of walking of the participants after they had left the experiment was measured automatically by two infra-red sensors 9.75 metres apart. Then the participants were called back, and debriefed, particularly asking them if they were aware of the priming and their behaviour.

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[14] Doyen et al (2012) questioned whether information not consciously seen can actually influence behaviour. They stated: "the salience of a concept such as 'being old' seems too weak to automatically prime a behaviour that is further only indirectly related to old age (ie: through the concept of slowness), in the absence of any contextual cues relevant to this trait".

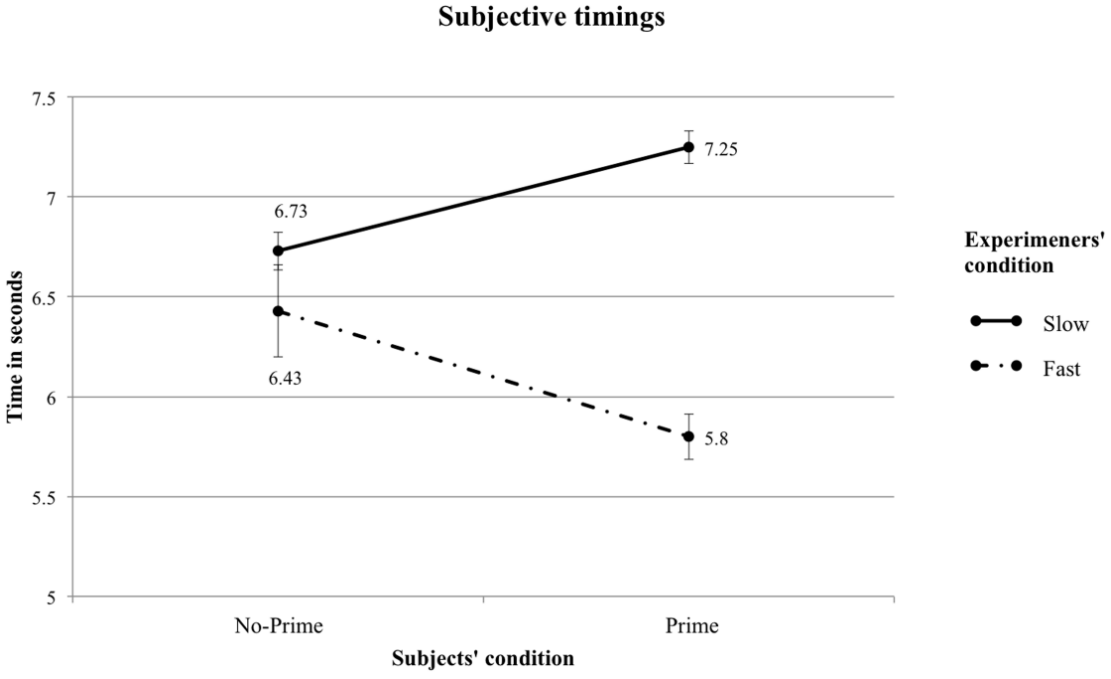
[15] Cesario et al (2006) was a closer replication of Bargh et al (1996).

There was no significant difference in walking speed between the prime and no-prime conditions (mean: 6.27 vs 6.39 secs). Thus, this is a failure to replicate Bargh et al's (1996) findings.

Experiment 2

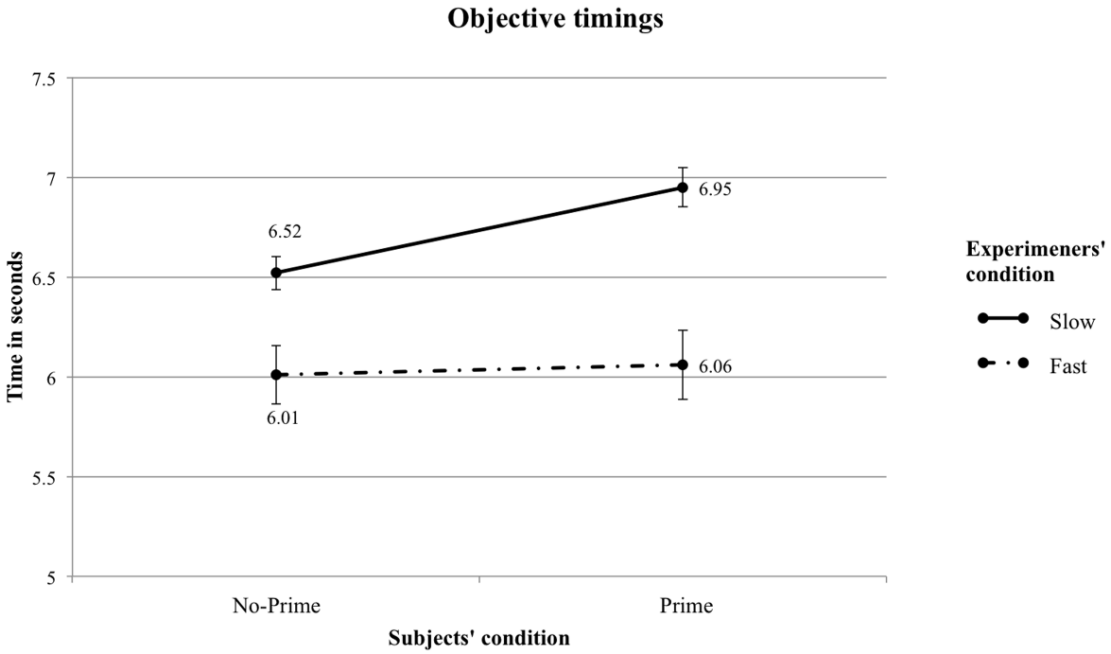
This experiment used fifty more undergraduates in the same procedure with two modifications. Firstly, the expectations of the person administering the experiment ("experimenter") were manipulated by telling half of them that the primed participants would walk faster (fast condition), and half that they would walk slower (slow condition). Secondly, the "experimenter" was asked to time the walking speed with a stopwatch, though the infra-red sensors were also used (ie: subjective and objective timing).

It was found that the primed participants walked significantly slower than the no-prime participants when timed by an "experimenter" in the slow condition (mean: 7.25 vs 6.73 secs), but significantly faster in the fast condition (mean: 5.8 vs 6.43 secs) (figure 1.7). Objective timing confirmed the former only (figure 1.8).



(Source: Doyen et al 2012 figure 1)

Figure 1.7 - Mean time in seconds to walk 9.75 metres as timed by the "experimenter".



(Source: Doyen et al 2012 figure 2)

Figure 1.8 - Mean time in seconds to walk 9.75 metres using objective timing.

So, Bargh et al's (1996) findings were replicated when the "experimenter" expected the primed participants to walk slower. Doyen et al (2012) concluded: "Our results, however, cannot be explained solely in terms of a pure self-fulfilling prophecy effect, as the primed participants did not walk faster when tested by an experimenter who believed they would walk faster. Therefore it seems that the primes alone are not sufficient and must be in line with environmental cues such as the experimenters' behaviour in order to elicit the effect on walking speed".

1.8. APPENDIX 1C - FOWLER AND CHRISTAKIS (2008)

Fowler and Christakis (2008) looked at emotional contagion in a real-life situation, but analysing happiness among participants of the Framingham Heart Study. This was begun in 1948 in Framingham, Massachusetts, USA, and is continuing today with the original survivors, their offspring, and grandchildren.

Fowler and Christakis (2008) used the extensive data to investigate the social networks and interactions of individuals. An individual ("ego") is connected to various others ("alters") - ie: 5124 egos gave over 53 000 social ties.

Happiness was measured by self-reports taken at various times during the study (between 1971 and 2007),

and "happiness clusters" were mapped (ie: connections between egos and alters in terms of happiness). Simply, "happy people tended to be connected to one another". An individual was fifteen times more likely to be happy if a closely connected alter (eg: spouse) was happy, five times so with distant alters (eg: distant relative). Distance here referred to physical geography as much as psychologically.

Fowler and Christakis (2008) stated: "While there are many determinants of happiness, whether an individual is happy also depends on whether others in the individual's social network are happy... Happiness, in other words, is not merely a function of individual experience or individual choice but is also a property of groups of people... Happy people might share their good fortune (for example, by being pragmatically helpful or financially generous to others), or change their behaviour towards others (for example, by being nicer or less hostile), or merely exude an emotion that is genuinely contagious..." (pp7-8).

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2. CHILDHOOD PERSONALITY AND ADULT WELLBEING

Childhood personality traits influence adult wellbeing (eg: health) (appendix 2A). "Adult wellbeing is the result of a complex web of biological, social, and psychological influences unfolding over the life course, which makes it challenging to trace the causal paths connecting early childhood personality traits to adult outcomes" (Hampson 2008 p264).

Conscientiousness (including industriousness, orderliness, and self-control) appears to be a key childhood trait. "Adults who were low on conscientiousness in childhood are less likely to achieve scholastic and career success and to stay married or employed, and they are more likely to endanger themselves and others by unhealthy, risky, or even criminal behaviours" (Hampson 2008 p264). For example, children high in conscientiousness at eleven years old were about one-third less likely to die in any given year of adulthood than children low on the trait (Friedman et al 1995).

Hampson (2008) proposed three mechanisms by which childhood traits influence adult wellbeing:

i) Health behaviour - eg: less conscientious individuals engage in more unhealthy activities, like smoking, and this increases the negative health risks for later life (Hampson et al 2006; 40-year longitudinal study).

ii) Self-regulation - eg: self-control influences the likelihood of risky behaviours with long-term consequences.

iii) Stress - eg: a hostile child evokes hostility from others, which produces stress over the childhood with consequences for adulthood.

APPENDIX 2A - WELLBEING

Wellbeing is a concept that is commonly used in relation to health, but it is not without its difficulties in defining and measuring it. UNICEF (2007) defined wellbeing as "having the basic things you need to live and being healthy, safe and happy", while the OECD (2006) saw individuals as having it with "the satisfaction of their wants according to their own preferences" (quoted in Walker 2012). Objective wellbeing is being defined here (Walker 2012).

Walker (2012) described wellbeing as a state of mind

(subjective wellbeing) comprising three components - affective (eg: "happiness"), cognitive (judgment on life as it resembles the ideal), and conative ("personal, intentional, deliberate, goal-oriented or striving component of motivation, the pro-active (as opposed to reactive or habitual) aspect of behaviour").

Wellbeing is related to but different from concepts like quality of life (this is more about satisfaction with physical environment), life satisfaction (similar to the cognitive element of wellbeing), and wellness (similar to the affective element of wellbeing) (Walker 2012).

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