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Moderating the influence of a prime: can self-focused attention inhibit response preparation behaviour in an interpersonal context?

Alexandra C. Wyatt-Barton

Project Advisor: [Natalie Wyer](#), School of Psychology, University of Plymouth, Drake Circus, Plymouth, PL4 8AA

Abstract

Research into the effects of focused attention on prime-to-behaviour effects indicates that heightened self-focus can eliminate stereotype and trait activation. The present research investigated the influence of focused attention on prime-to-behaviour effects after the exposure to a threatening social group ('hoodies'). In particular it was predicted that focusing on an irrelevant target after 'hoodie' priming would result in response preparation behaviour whereas self-focusing would inhibit it. Results revealed that self-focusing does indeed inhibit response preparation behaviour during an interpersonal context but failed to show the opposite effect for non self-focusing. This suggests that purely focusing attention away from prime related material is sufficient to produce inhibitory effects.

Ethical Statement

The current study was conducted in accordance to ethical guidelines set out by the BPS and the School of Psychology at the University of Plymouth.

Each participant was briefed about the nature and procedure of the study before agreeing to sign a consent form. It was made clear to participants that their data would be kept anonymous and confidential and that they could withdraw from the study at any point without losing their course credit for taking part.

After completing the study participants were fully debriefed and any questions answered, contact information for the researchers and supervisor was provided in case of further questions.

An ethical issue raised in this study was that participants were deceived, in that they were made to believe a confederate was an actual participant. This was done in order to measure unconscious behaviour which would have been impossible to obtain without deception. Ethical approval was given as the deception was unlikely to cause participants any harm.

All data reported in this study was collected by the author (Alex Wyatt-Barton) in conjunction with Francesca Starling and Aileen (Grace) Darlow.

Statement of Acknowledgments

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Introduction

Our environment is cognitively demanding and due to the amount of information that we have to process second by second our thoughts and behaviours can be influenced without us realising it (Eimer, 1999). Situational cues and accessible constructs such as traits and stereotypes can shape our thoughts and behaviours, and the degree to which we have control over this varies (Bargh, Chen & Burrows, 1996). For nearly half a century, social psychology research has looked into the effects primes have on people's judgements and behaviours towards others and the self. Over recent years research has tended to focus on prime-to-behaviour effects in interpersonal contexts and has shown that behaviours can be moderated to increase, decrease and reverse in line with previously primed constructs (Wheeler, DeMaree & Petty, 2007; Smeesters, Wheeler & Petty, 2009; Wyer et al., 2010). The self-concept has been shown to play an integral role in prime to-behaviour effects as environmental influences such as primes can induce alterations in the content of the active self-concept which then directs behaviour (Markus & Kunda, 1986; Wheeler et al., 2007; Smeesters, Yzerbyt, Corneille & Warlop, 2009). Due to the important role the self-concept has in guiding behaviour, recent research has investigated moderating the salience of the self versus non-self targets as a key feature in determining behaviour ensuing exposure to a prime (Dijksterhuis & van Kippenberg,

2000; DeMarree & Loersch, 2009; Macrae, Bodenhausen & Milne, 1998). The current research intends to look at the role self-focusing plays on prime-to-behaviour effects in an interpersonal context.

Research provides evidence for at least three different types of prime-to-behaviour effects; assimilation, contrast and response preparation (Bargh et al., 1996; Dijksterhuis et al., 1998; Cesario, Plaks & Higgins, 2006). Most research in the area of prime-to-behaviour effects has concentrated on assimilation, whereby an individual primed with a trait concept or stereotype is more likely to behave in a prime consistent way. Across three experiments Bargh et al. (1996) found evidence to support this, for example one experiment found that participants primed with the stereotype 'elderly' walked more slowly down a hallway than controls. The rationale behind assimilation comes from the ideomotor account which suggests that behaviour following a primed concept is a direct and unmediated outcome from the links individuals have between the concept's representations and associated behavioural representations (Wheeler et al., 2007). For example exposure to the trait concept of rudeness is sufficient to initiate consistent behavioural representations like interrupting (Bargh et al., 1996).

A second prime-to-behaviour effect emerged after Dijksterhuis et al. (1998) discovered that when individuals were primed with a concrete exemplar rather than an abstract stereotype they exhibited behavioural contrast instead of assimilation. Evidence indicates that the reason for this is that priming with exemplars can elicit judgmental contrasts through the inducement of social comparisons (Dijksterhuis et al. 1998). For example participants primed with the stereotype 'professors' outperformed participants primed with the exemplar 'Albert Einstein' on a general knowledge test (Dijksterhuis et al., 1998). Dijksterhuis et al. (1998) suggest that activating the exemplar 'Albert Einstein' encourages a comparison with the self leading to a conception of the self as less intelligent.

Arts and Dijksterhuis (2002) propose that the emergence of either assimilation or contrast behaviour following a prime is conditional on the degree to which the prime and target categories are believed to be comparable or not. Supporting evidence from Wheeler et al. (2007) implies that the extent to which the active self-concept assimilates or contrasts from a primed concept depends on whether the prime is similar or dissimilar from the self. Further evidence suggests that concepts that are dissimilar to the self but comparable heighten contrast in the active self-concept which then leads to contrast behaviour, while concepts that are similar but not comparable to the self heighten assimilation in the active self-account which then leads to assimilation behaviour (Arts and Dijksterhuis, 2002; Herr, 1986; Srull & Wyer, 1980; Stapel & Tesser, 2001; Wheeler et al., 2007).

The most recent prime-to-behaviour effect to emerge is response preparation, whereby priming a social group may generate behaviour associated with interacting with the group (Cesario et al., 2006; Jonas & Sassenberg, 2006; Smeesters, Wheeler & Kay, 2009; Wyer et al., 2010). Cesario et al. (2006) discovered that when participants were primed with the social target 'gay men' they showed evidence of preparing to interact (aggression) with the group rather than assimilation (femininity) or contrast effects (masculinity). Cesario et al. (2006) noted that personal attitudes and interaction goals played a crucial part in what kind of behaviour can result from a prime. For example if a person has a negative attitude towards the social group 'gay men' then their behaviour following this prime would be expected to be avoidant

and/or hostile, whilst behaviour of those with a positive attitude would be expected to be forthcoming.

Jonas and Sassenberg (2006) support the findings of Cesario et al. (2006) but suggest that priming a social target can initiate related situation models that contain standard interaction sequences, therefore when encountering a social target the situation model activates associated response behaviours. Further research into prime-to-behaviour effects conducted by Smeesters et al. (2009a) indicates that when individuals focus on a non-self target prior exposure to a primed trait their behaviour in an interpersonal interaction is associated with assigning the primed trait to the other individual rather than assimilate the trait to their self. Wyer et al. (2010) provides recent evidence to support the previous findings. Wyer et al. (2010) found that participants primed with the social group 'hoodies' prior to an interpersonal encounter resulted in behaviour consistent with interacting with a 'hoodie' rather than assimilation or contrast to the group. Wyer et al. (2010) also found that emotions associated with interacting with the social group were also induced highlighting the complexity of prime-to-behaviour effects.

Over recent years researchers have looked into whether certain prime-to-behaviour effects should be expected over others however no clear conclusion has yet been reached (Arts & Dijksterhuis, 2002; DeMarree & Loersch, 2009; Smeesters et al., 2009; Wheeler et al., 2007; Wyer et al., 2010). Smeesters et al. (2009a) observed that even though the majority of social psychology research looks at the relationship between interpersonal processes and social behaviour, most research conducted in the area of prime-to-behaviour effects focuses on intrapersonal contexts. Wyer et al. (2010) noted that a key factor in establishing the nature of prime-to-behaviour effects is the nature of the behaviour being measured. Therefore a reason why earlier research into prime-to-behaviour effects result in either assimilation or contrast effects could be due to the fact they focus mainly on intrapersonal interactions rather than interpersonal.

Where studies have utilized interpersonal interactions, the resulting behaviour is either defined by the ideomotor account or by a biased perception mechanism (Bargh et al, 1996; Srull & Wyer, 1979, 1980). The biased perception mechanism proposes that primes can influence an individual's perception of another person (Wheeler & Petty, 2001). For example Srull and Wyer (1979, 1980) found that participants primed with the trait concept 'hostile' consequently judged a target person (Donald) as more unfriendly, while those primed with 'kindness' judged Donald as more friendly. However Herr (1986) also found that participants primed with an extreme exemplar of hostility 'Mike Tyson' judged the target person (Donald) as more friendly while participants primed with an extreme exemplar of friendliness 'Peter Pan' judged Donald as more hostile. More recent supporting evidence for the biased perception mechanism found that participants primed with the trait concept 'unkind' regarded their interaction partner as less kind (Smeesters et al., 2009a). Therefore when a primed concept like a trait or stereotype is activated, an individual may show signs of behavioural change because the concept activation steers them to perceive or interpret others or the situation in another way (Wheeler & Petty, 2001).

Kay and colleagues (e.g. Kay et al., 2004; Kay, Wheeler & Smeesters, 2008) looked at the relationship between priming and perception by moderating the situational context. Kay et al. (2004) found that participants whose environment was set up with business related objects perceived a socially interactive game as less cooperative than participants exposed to neutral objects. Wyer et al. (2010) also

found that the situational construal can be influenced by primed concepts when they discovered that participants primed with the stereotype 'hoodie' displayed more interference when they were exposed to threatening words than participants who were exposed to a neutral prime. Research therefore indicates that priming can influence interpersonal interactions by biasing the perception of the self, others and the construction of the social environment (Wyer et al., 2010). Consequently Bargh et al.'s (1996) findings of the stereotype 'elderly' influencing participants to walk more slowly than controls could be construed as the concept of 'elderly' actually influenced participants to interpret the situation as more leisurely (related to retiring) rather than elderly people are slow (Wheeler & Petty, 2001).

Wyer et al. (2010) investigated a number of outcomes in order to distinguish between the three prime-to-behaviour effects in interpersonal contexts. Wyer et al. (2010) found that participants expressed avoidance behaviour and feelings of discomfort when interacting with a stranger when primed with the stereotype 'hoodie' which is consistent with response preparation put forward by Ceasario et al. (2006). However affective measures associated with characteristics of the prime itself illustrated that exposure to the 'hoodie' prime did elicit assimilative effects. Interestingly Wyer et al. (2010) found that the affective measures (e.g. interference on a threat word Stroop task and self-reported hostility) indicated a tendency to be negatively correlated with avoidance behaviour. Wyer et al. (2010) suggest that reasons for this could be dependent upon the degree to which the induced affective state is ascribed to the self or situation, proposing it less likely to bias the perception of others if perceptions of the self or situation have already been biased.

In order to disambiguate prime-to-behaviour effects Smeesters et al. (2009a) proposed that by moderating participants' focus on another person, biased social perceptions could mediate prime-to-behaviour effects. Smeester et al.'s (2009a) key factor in determining whether primes can affect perceptions of others and whether those perceptions could in turn guide behaviour is the focused attention towards another individual. Smeesters et al. (2009a) predicted that if an individual is 'other-focused', their behaviour in an interpersonal context would be dependent on their perception of the other person in the interaction. Smeesters et al.'s (2009a) findings were consistent with their prediction, participants in the 'high other-focus' condition (e.g. use of third person pronouns he, she, it etc...) perceived their interaction partner as less kind when primed with the trait concept 'unkind' than participants in the 'low other-focus' condition. Wyer et al. (2010) provides scope for further research into measures of potential biases (like the self, others and situation) in interpersonal interactions through the manipulation of focused attention. The previous studies therefore indicate that focused attention could be a critical moderator and predictor of prime-to-behaviour effects.

Following in line with previous research the current study investigated the mediation of biased social perceptions on prime-to-behaviour effects by moderating focused attention to the self in interpersonal contexts (Smeesters et al. 2009a; Wyer et al., 2010). Research indicates that self-focused attention through the use of a mirror can help to eliminate prime-to-behaviour effects (Dijksterhuis & van Kippenberg, 2000; Macrae, Bodenhausen & Milne, 1998). Across four studies Macrae et al. (1998) found that high self-focus induced participants produced less stereotypical descriptions of social targets than low self-focus participants, indicating that self-focused attention can lead to stereotype suppression. Macrae et al. (1998) suggested that self-focused attention only produces stereotype suppression in individuals who value stereotype avoidance. Dijksterhuis and van Kippenberg (2000)

investigated whether heightened self-focus would eliminate prime-to-behaviour effects. Their investigation uncovered that stereotype activation on behaviour completely disappeared in participants who were highly self-focused but remained in controls (Dijksterhuis & van Kippenberg, 2000). Interestingly, Dijksterhuis and van Kippenberg (2000) provide evidence to refute Macrae et al.'s (1998) finding that self-focused attention only produced suppression effects in individuals who value stereotype avoidance, in that self-focusing lead to an obstruction of undesirable behaviour in addition to an obstruction in desirable behaviour. The previous research supports the notion that self-focusing can override prime-to-behaviour effects irrespective of desirability (Dijksterhuis & van Kippenberg, 2000).

Dijksterhuis and van Kippenberg (2000) proposed the reasoning for their findings is twofold. The first being that self-focusing brings about salencies in alternative behavioural cues (Carver & Scheier, 1981, as cited in Dijksterhuis & van Kippenberg, 2000). With the second being that dominant behavioural cues will actively inhibit activation of competing cues (Norman & Shallice, 1986; Powers, 1973, both as cited in Dijksterhuis & van Kippenberg, 2000). Indicating that the reason why prime-to-behaviour effects result in normal conditions (low self-focus) is due to the fact that the activated stereotype is the only relevant behavioural cue available to guide behaviour, whilst in heightened self-focus conditions alternative cues are made salient which then dominate thoughts and guide behaviour instead of the prime (Dijksterhuis & van Kippenberg, 2000).

More recent research discovered that self-focusing can lead to a change in perceptions and that subsequent behaviour generally follows (DeMarree & Loersch, 2009). DeMarree and Loersch (2009) investigated whether the perceptions of the self or another target would be biased by a prime following focused attention. Results revealed that self-focused participants exposed to either an aggressive or neutral prime assimilated themselves to the prime through self ratings and behaviour during a Prisoner's Dilemma game (DeMarree & Loersch, 2009). DeMarree & Loersch (2009) discovered that when participants focused their attention to their best friend after exposure to an aggressive prime, ratings of the best friend were found to be more aggressive than if they'd focused on themselves. These findings follow in line with Smeesters et al. (2009a) in that focused attention to a target after exposure to a primed concept can affect perceptions of that target.

In light of the reviewed research the current study examined the effects of moderating focused attention on behaviour following a primed stereotype. Focused attention research indicates that self-focusing can inhibit prime consistent behaviours; hence the present study manipulates attention to focus on the self or an irrelevant target (Dijksterhuis & van Kippenberg, 2000; Macrae et al., 1998). Examination of prime-to-behaviour effects in interpersonal contexts suggest that the most likely behaviour to emerge is response preparation (Smeesters et al., 2009a; Wyer et al., 2010) Most research into interpersonal contexts don't actually employ a real person in the interaction, for example Wyer et al. (2010) and Smeesters et al. (2009a) simply imply that another person exists. Therefore the current study investigated prime-to-behaviour effects under an interpersonal context through the use of a confederate. Using the same 'hoodie' stereotype prime as Wyer et al. (2010) the current study aimed to replicate the findings of Dijksterhuis and van Kippenberg (2000) and predicted that self-focusing would inhibit response preparation. It was also predicted that non self-focusing after the exposure to the primed stereotype of a 'hoodie' would give way to response preparation (avoidance behaviour) during the interpersonal encounter (Wyer et al., 2010). The present study

also examined whether mood would be different across conditions, predicting that non self-focusing would encourage a response preparation affective state. A final hypothesis was that extraversion scores would alter across conditions, in particular it was predicted that extraversion scores would be lowest for the prime vs. non self-focus condition.

Method

Participants

Seventy-two (9 male and 63 female) psychology undergraduates from the University of Plymouth volunteered to participate in the study to gain a course credit.

Materials

On arrival participants were given a printed handout briefing them about the experiment. The study used a computer based programme disguised as a spatial awareness task which aimed to implicitly prime the participants. Instructions were given on screen. Instructions for the target of thought task were issued on screen after the completion of the spatial awareness task; participants recorded their answers on a blank piece of paper then filed them in an envelope. The Differential Emotions Scale (DES) (Izard et al., 1971) was used to determine the participant's mood and the extroversion scale taken from the Big Five Personality Test (<http://ipip.ori.org/>) was used to measure the introversion/extroversion aspect of personality. A 5 metre tape measure was used to determine the distance between the confederate's chair and the participant's chair. All participants were fully debriefed.

Design and Procedure

A between subjects design was used in which participants took part in a three-phase-experiment. Participants were tested individually and randomly assigned to the conditions of a Prime (neutral vs. hoodie) x Target of Thought (self vs. non-self).

The first phase of the experiment took place in a computer room whereby participants were asked to complete a computer based task, which was introduced as a 'spatial awareness task'. This was actually an implicit priming task adapted from Cesario, et al. (2006) which was designed to subliminally prime participants while they determined whether there was an odd or even number of circles displayed on the screen. The programme consisted of 100 trials. Each trial started with a string of 10 asterisks (*) shown for 1,000ms followed by a priming stimulus (neutral or hoodie) for 11ms, two pattern masks – the first was a display of hash marks (#) in the same position as the priming stimulus and shown for 11ms, and the second contained circles of varying size and proportion on a grey background for 30ms. Finally the target picture (blue and purple circles on a grey background) was presented for 2,000ms. Participants were asked to judge whether the number of coloured circles were odd or even by pressing the corresponding key on the keyboard.

Participants in the neutral prime condition were presented with a greyscale photograph of a young man in neutral attire and participants in the hoodie prime condition were presented with a greyscale photograph of a young man dressed in the style of a hoodie. These were the same primes used in Wyer et al.'s (2010) study.

For the second phase of the experiment participants completed a writing task lasting for three minutes. Participants in the self-focus condition were asked to write about what makes them unique and those in the non self-focus condition were asked to write about a recent news event. This was the target of thought task and was designed to direct the participant's thoughts to a specific target, either themselves or away from themselves. As this task only intended to direct participants' thoughts, their responses were not needed for analysis so were disposed of appropriately.

During the first and second phase of the experiment, two experimenters were present in the same room as the participant. At some point during the first two experimental phases, one of the experimenters left the room letting the other know that they are going to check on the 'other participant'. This was said loud enough for the participant to hear without distracting them. The 'other participant' was in fact a confederate so it was important that the participants didn't suspect so.

For the third phase of the experiment participants were shown to another room containing tables and chairs. Sat at one end of the table was the confederate, posing as 'the other participant' by filling out questionnaires. It was therefore important to decrease suspicions about the confederate by previously making participants believe that the confederate was in fact a real participant. The room was set up so that the participant had complete control over where they sat. The experimenter issued the following instructions:

"Please take a chair from the stack and go and sit at the table. I'll sort out your questionnaires and bring them over to you with a pen."

This then gave the experimenter time to organise the marker used to measure how far away from the confederate participants chose to sit. After the participant sat down the experimenter approached them, and crouched down next to their chair and gave them the DES (Izard et al., 1971) and the extroversion scale (<http://ipip.ori.org/>) delivering the following instructions:

"Please fill in both questionnaires as honestly as possible. If you have any questions please don't hesitate to ask and just let me know when you've finished."

Whilst issuing these instructions the experimenter covertly placed the marker on the floor on the inside back chair leg closest to the confederate. When the participants had finished the questionnaires they were fully debriefed and any questions answered. The distance between the marker and the confederate's chair was then measured and recorded.

Results

Debriefing revealed that one participant knew about the confederate as they were informed by a friend prior to the study, and that one participant actually saw the hoodie prime during the spatial awareness task. The latter participant's data did not affect the overall results so were included in analysis but the former participant's data was withdrawn and excluded from further analysis, therefore leaving a final sample of seventy-one participants. A significant result for gender was obtained Prime $F(1, 41) = 5.84, p < .05$ however due to the unequal sample the effect was not investigated further.

Descriptive statistics for the distance participants choose to sit away from the confederate in all four conditions are given in Table 1.

Table1 Means and standard deviations for the distance (in centimetres) participants chose to sit away from the confederate in all four conditions (hoodie self-focus n = 19; hoodie non self-focus n= 16; neutral self-focus n= 18; neutral non self-focus n=18).

Condition	Mean Distance (cm)	Standard Deviation (cm)
Hoodie Prime		
Self-Focus	83.10	15.29
Non Self-Focus	89.50	12.63
Total	86.03	14.30
Neutral Prime		
Self-Focus	85.72	18.40
Non Self-Focus	87.55	16.79
Total	86.64	17.38
Total		
Self-Focus	84.38	16.69
Non Self-Focus	88.47	14.79
Total	86.34	15.83

Table 1 indicates that the effect of focused attention after being subjected to a prime on avoidance behaviour (distance) was in the direction predicted. Table 1 shows that the distances participants chose to sit away from the confederate were very similar in both the Neutral and Hoodie conditions for the Self-Focus conditions. However, only small differences can be seen between the Non Self-Focus conditions.

Mean distance between the participant and confederate are given in Figure 1.

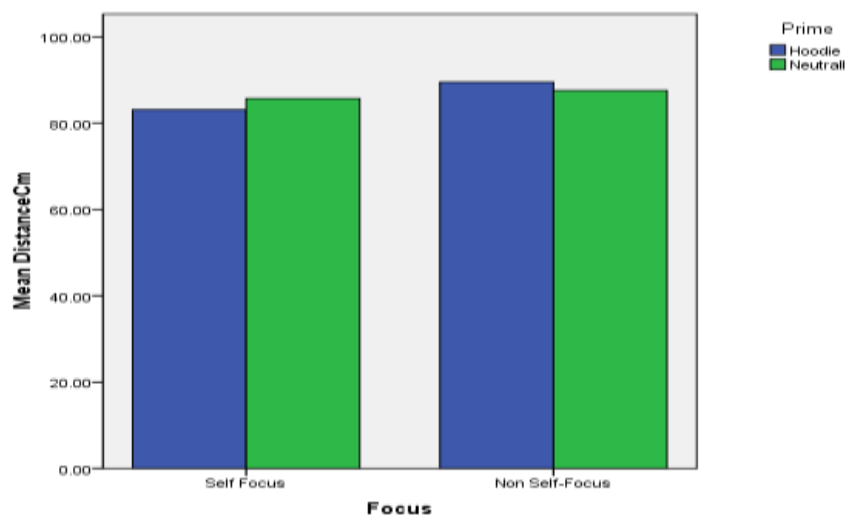


Figure 1 Means for the distance (in centimetres) participants choose to sit away from the confederate in all four conditions.

Figure 1 shows that on average participants in the Hoodie Non Self-Focus condition sat further away from the confederate than participants from all other conditions. Figure 1 also shows that on average participants in the Hoodie Self-Focus condition sat closer to the confederate than participants in all other conditions. Figure 1 also indicates that participants who were self-focused sat closer to the confederate than participants who were non self-focused.

Scores for the behavioural measure of avoidance were submitted to a Prime (neutral vs. hoodie) x Target of Thought (self-focus vs. non self-focus) ANOVA. The two way between subjects ANOVA revealed no significant difference for the main effect for Prime $F(1, 67) = .01, p > .50$ or for Target of Thought $F(1, 67) = 1.17, p > .15$ and showed no significant interaction between Prime x Target of Thought, $F(1, 67) = .36, p > .50$.

The reliability of the DES III and the extroversion scale from The Big Five Personality Test were analysed using Cronbach's Alpha. Cronbach's Alpha for the DES III = .87, and Cronbach's Alpha for the extroversion scale = .88. Therefore both questionnaires show good internal consistency and were reliable measures.

The critical moods that were measured using the DES III were, Joy, Distress, Anger, Shyness and Fear. Descriptive statistics for participants' moods in all four conditions are given in Table 2.

Table 2 Means and standard deviations of participant's moods in all four conditions. The highest score for each mood=5 and the lowest score for each mood =1.

Mood	Condition	Mean	Standard	Deviation
Joy	Hoodie Self-Focus	3.40	.80	
	Hoodie Non Self-Focus	3.42	.74	
	Neutral Self-Focus	3.57	1.01	
	Neutral Non Self-Focus	3.39	.94	
Distress	Hoodie Self-Focus	2.25	.47	
	Hoodie Non Self-Focus	2.52	.93	
	Neutral Self-Focus	2.24	.85	
	Neutral Non Self-Focus	2.18	.71	
Anger	Hoodie Self-Focus	2.17	.90	
	Hoodie Non Self-Focus	2.39	.83	
	Neutral Self-Focus	2.05	.72	
	Neutral Non Self-Focus	2.15	.83	
Shyness	Hoodie Self-Focus	2.12	.60	
	Hoodie Non Self-Focus	2.62	.99	
	Neutral Self-Focus	1.91	.77	
	Neutral Non Self-Focus	1.93	.70	
Fear	Hoodie Self-Focus	1.73	.59	
	Hoodie Non Self-Focus	2.08	1.11	
	Neutral Self-Focus	1.72	.96	
	Neutral Non Self-Focus	1.72	.71	

Table 2 indicates that the effect of focused attention after being subjected to a prime on mood was in the direction predicted. Table 2 shows that for each mood there is not much variation across the four conditions. However, mean scores for Distress, Anger, Shyness and Fear are seen to be at their highest for participants in the Hoodie Non Self-Focus condition.

Scores for the affective measure of mood were submitted to a Prime (neutral vs. hoodie) x Target of Thought (self-focus vs. non self-focus) ANOVA. Five two way between subjects ANOVAs were carried out, one for each mood. The only significant difference on mood to emerge was the main effect for Prime on Shyness $F(1,67) = 6.27, p= 0.15$. No significant difference was found for the main effect of Target of Thought on Shyness $F(1,67) = 2.03, p>.15$ or for the for the interaction between Prime x Target of Thought , $F(1, 67) = 1.74, p>.15$. No other significant differences were found for mood.

Descriptive statistics for participants' extroversion levels in all four conditions are given in Table 3.

Table 3 Means and standard deviations of participant's extroversion levels across all four conditions. Higher scores indicate higher levels of extroversion.

	Condition	Mean	Standard Deviation
Extroversion	Hoodie Self-Focus	67.00	13.19
	Hoodie Non Self-Focus	62.87	12.04
	Neutral Self-Focus	66.17	11.28
	Neutral Non Self-Focus	66.55	10.03

Table 3 indicates that the effect of focused attention after being subjected to a prime on extroversion was in the direction predicted. Table 3 reveals that there are not any considerable differences in extroversion between the four conditions. However Table 3 also shows that participants in the Hoodie Self-Focus condition were the most extroverted group and participants in the Hoodie Non Self-Focus condition were the least extroverted group. Table 3 also shows not much of a difference between both the Neutral conditions but a slightly larger difference between the Hoodie conditions.

Scores for the trait measure of extroversion were submitted to a Prime (hoodie vs. control) x Target of Thought (self-focus vs. non self-focus) ANOVA. The two way between subjects ANOVA revealed no significant difference for the main effect for Prime $F(1, 67) = .26, p>.50$ or for Target of Thought $F(1, 67) = .45, p>.50$ and showed no significant interaction between Prime x Target of Thought , $F(1, 67) = .66, p>.15$.

Discussion

The effect of focused attention on prime-to-behaviour effects was both consistent and inconsistent with the hypothesis made. One hypothesis made was that self-focusing after exposure to the 'hoodie' prime would inhibit its activation therefore eliminating response preparation effects. This hypothesis was confirmed as

no difference in seating distance was found between the 'neutral' or 'hoodie' primes, thus supporting previous research into the influence of self-focusing on prime-to-behaviour effects (Dijksterhuis & van Kippenberg, 2000; Macrae et al., 1998). The hypothesis that predicted non-self focusing after exposure to the 'hoodie' prime would give way to response preparation effects was found to be in the direction predicted but failed to reach statistical significance. No difference in seating distance or mood was found between the 'neutral' or 'hoodie' primes. This finding does not support previous research into prime to behaviour effects (Cesario et al., 2006; DeMarree & Loersch, 2009; Dijksterhuis & van Kippenberg, 2000; Macrae et al., 1998; Smeesters et al., 2009; Wyer et al., 2010). Another hypothesis predicted that there would be a difference in mood across conditions. Even though results were in the direction predicted in that participants primed with a 'hoodie' rated higher for negative moods and lower for positive moods than 'neutral' primed participants, the only mood to produce a significant result was shyness. Suggesting that the 'hoodie' prime made participants feel less confident and more timid than participants in the 'neutral' prime condition, indicating self-focusing did not completely inhibit response preparation effects. Another hypothesis was that there would be a difference in extroversion scores across conditions; however this also failed to reach statistical significance but did reveal that on average participants in the 'hoodie' vs. non self-focus condition averaged the lowest scores.

Previous research highlights the direct and powerful influence of prime-to-behaviour effects (Wheeler et al., 2007). Activation of stereotypes and traits through priming demonstrates that behaviour can be influenced without conscious awareness and has shown to improve performance on general knowledge tests, make individuals act aggressively, and walk slowly (Dijksterhuis et al., 1998; DeMarree & Loersch, 2009; Bargh et al., 1996). However further research indicates that self-focused attention can inhibit these effects (Dijksterhuis & van Kippenberg, 2000; Macrae et al., 1998). The current study found that self-focusing does indeed inhibit previously found prime-to-behaviour effects supporting previous findings by Dijksterhuis and van Kippenberg, (2000) and Macrae et al. (1998). Importantly however, the present research is believed to be the only study to date to establish that self-focusing inhibits prime-to-behaviour effects in an interpersonal context.

Self-focusing is believed to inhibit prime-to-behaviour effects due to an activation of multiple alternative cues which may dominate consciousness overruling unconscious cues to guide behaviour (Dijksterhuis & van Kippenberg, 2000). Due to the vast amount of individual differences in conscious cue activations, results would likely produce the null effects obtained in the present research.

Recent research by Corcoan, Hundhammer and Mussweiler (2009) into reducing stereotypes by comparative thinking found that stereotype activation is inhibited when comparative thinking is employed. Participants who focused on similarities between two pictures displayed prime-to-behaviour effects whilst those who focused on differences did not (Corcoran et al., 2009). The present study utilized such thinking in that participants in the self-focus condition were asked to write a description about what makes them unique thus enhancing comparative thought proposing another alternative as to why and how self-focusing inhibits prime-to-behaviour effects.

DeMarree and Loersch (2009) recently found that self-focusing did not inhibit prime-to-behaviour effects but alternatively gave way to assimilation. DeMarree and Loersch (2009) proposed that self-focusing causes a disambiguation of the prime as the self which encourages a change in the active self-concept towards a biased self

perception. It is important to note that the present study does not refute DeMarree & Loersch's (2009) findings, as prime (hoodie) consistent behaviour was not measured in the current research.

Wyer et al. (2010) illustrate the importance of the nature of the behaviour under scrutiny on determining the nature of prime-to-behaviour effects. Smeesters et al. (2009) found that focusing on the third person leads to a prime biased perception of another person in an interpersonal context, resulting in response preparation behaviour. DeMarree and Loersch (2009) also uncovered assimilative effects for aggression ratings of a best friend only when focused attention was directed to the best friend (DeMarree & Loersch, 2009). Wyer et al. (2010) also uncovered assimilation effects, participants' self-report of traits associated with hoodies (e.g. hostility and irritation) was higher after the subliminal 'hoodie' prime than the 'neutral' prime. Smeesters et al. (2009) suggest that perceptions can mediate prime-to-behaviour effects, considering the current study used a similar priming programme to Wyer et al. (2010) and self-focus task to DeMarree and Loersch (2009) assimilation effects could have occurred during the present study, however this was not tested. This provides researchers with a future avenue of research, in that self-directed perceptions could be effected through self-focusing (DeMarree & Loersch, 2009).

Previous research indicates that low or no self focusing can result in prime-to-behaviour effects; however the present study found evidence to suggest otherwise (Dijksterhuis & van Kippenberg, 2000; Macrae et al., 1998; Wyer et al., 2010). The present study found that focusing on a recent news event was as effective at inhibiting prime-to-behaviour effects as self-focusing. Smeesters et al. (2009) found that participants who were highly focused on 'another' prior to a prime altered their perception of the other person in an interpersonal context in accordance to response preparation behaviour. While behaviour of participants who were low other focused was no different for each prime suggesting that low other focus inhibited response preparation behaviour.

Apart from focused attention and the use of a confederate, the current study followed the same procedure as Wyer et al. (2010). The inhibitory effects gained for non self-focused participants suggests that either the non self-focus target itself, the use of the confederate or a combination of both are responsible for the non significant results gained.

Wyer et al. (2010) found that affective measures were negatively correlated with response preparation behaviour suggesting that once an affective state is attributed to the self or situation, a biased perception of another individual in an interpersonal context is unlikely to occur. As the current study asked participants to focus on a recent news event the likelihood of the information being emotionally arousing is high (Uribe & Gunter, 2007), therefore an effective state may have been attributed to the situation due to the focus of the news event leading to the likelihood that the perceptions of the confederate were uninfluenced by the prime, resulting in an inhibition of response preparation behaviour.

Research into the effect of emotional and stereotypic thinking on social judgment produces varying evidence (Bodenhausen, Kramer & Susser, 1994a; Bodenhausen, Sheppard & Kramer, 1994b; Ric, 2004). Bodenhausen and colleagues (e.g. Bodenhausen et al.1994a,1994b) found that happiness increases a reliance on stereotypes whilst sadness decreases it. However Ric (2004) found opposite effects, sadness increases a reliance on stereotypes and happiness decreases it. As the present study asked participants to focus on a recent news event, the event they focused on could have aroused happiness or sadness

depending on the subject matter. This may have caused participants to attribute an affective state to the situation, causing the inhibition of a biased perception of the confederate (Kay et al., 2004,2008; Wyer et al.,2010). However, as the responses to the target of thought task were not reviewed and disposed of, the present study offers no insight as to whether emotions were guiding behaviour rather than the prime. In future it would be important to look into the responses that individuals give during a descriptive focus task to determine whether their actual target of focus is in line with the instructions and if the way individuals' focus influences behaviour.

Arts and Dijksterhuis (2002) investigated the effects of extreme exemplars on behaviour and found that they can result in comparison standards which lead participants to contrast a target person with the prime. Herr (1986) found that participants primed with an extreme exemplar of hostility or kindness produced contrast effects on social target judgments. As the type of prime used in the present study was a picture of a hoodie, this may have been perceived as an extreme exemplar opposed to priming with words associated with the 'hoodie' group. The social group of 'hoodies' are seen as antisocial and intimidating so when the participant met the confederate in the other room they may have unconsciously contrasted them away from the hoodie and sat closer to them than they would of done if they were engaging in a response preparation manner.

In most interpersonal context studies the other person is not necessarily real, for example Srull and Wyer (1979, 1980) only use an imagined target called Donald, while Smeesters et al. (2009a), Wyer et al. (2010) and Corcoran et al. (2009) don't actually use another person they simply imply that one exists. As the present study actually employed a confederate, an actual interpersonal context was enabled to be accessed and examined. Stapel and Koomen (1997) proposed that extreme exemplars provide a comparison relevant for a social target to be judged against. Stapel and Koomen (1997) suggest that if a primed exemplar and the social target are believed to be comparable the more likely an individual is to contrast perceptions of the prime away from the social target. In the present study the confederate and hoodie may have been perceived as comparable in that they are both young adults which may have led participants to contrast the confederate away from the prime and perceived them as less hoodie like. This indicates that during the actual interpersonal encounter response preparation behaviour may have been cancelled out.

Smeesters et al. (2009b) suggest that individual differences in self-concept accessibility can determine an individual's susceptibility to prime-to-behaviour effects. Smeesters et al. (2009b) found that participants with a high accessible self-concept were less susceptible to prime-to-behaviour effects than low accessible self-concept participants. As self-concept accessibility was not measured in the current study the possibility that participants in the non self-focused condition had highly accessible self-concepts making them less vulnerable to the prime's influence cannot be overlooked.

Ruys et al. (2007) found that when an interpersonal context is activated, automatic comparison to the social self can moderate evaluations made to the social target. Ruys et al. (2007) found that salient categories such as gender and ethnicity can induce a comparison to the self. Therefore if the social target is similar to the participant they are unlikely to behave in accordance to the previously primed stereotype. In reference to the present study, the majority of the participants were white, young females and the confederate was always a white, young and female. As the confederate could have potentially been assimilated to the participant, the

likelihood that the primed stereotype was used to guide behaviour would have been reduced, resulting in response behaviour effects being suppressed.

The present research reaches the conclusions that self-focusing after the exposure of a primed stereotype does inhibit prime-to-behaviour effects, supporting previous research (Dijksterhuis & van Kippenberg, 2000; Macrae et al., 1998). Although most results were found to show no significant difference in behaviour for each prime, a significant result for shyness revealed that self-focusing does not completely eliminate prime-to-behaviour effects and suggest that rebound effects may occur due to the stereotype suppression (Macrae et al., 1998). The current study also indicates that focusing in general inhibits prime-to-behaviour effects as focusing on an irrelevant target also revealed no difference in avoidance behaviour across primes. This finding was not predicted and does not support previous research (Dijksterhuis & van Kippenberg, 2000; Macrae et al., 1998); however it is to be believed that the present research is the only study that currently looks into focused attention on prime-to-behaviour effects in an actual interpersonal context.

As non self-focusing led to an inhibition of prime-to-behaviour effects further research should be carried out to establish what type of focused attention inhibits and what enhances prime-to-behaviour effects. Further research should also look into whether self-focusing can actually enhance assimilation effects as proposed by DeMarree and Loersch (2009) in interpersonal contexts. As the current study's predictions were both consistent and inconsistent with previous research no solid conclusions can be made therefore generating interesting avenues for future research.

References

- Arts, H., & Dijksterhuis, A. (2002). Category activation effects in judgement and behaviour: The moderating role of perceived comparability. *British Journal of Social Psychology*, 41, 123-138.
- Bargh, J.A., Chen, M., & Burrows, L. (1996). Automaticity of social behaviour: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology*, 71, 230-244.
- Bodenhausen, G.V., Kramer, G.P., & Susser, K. (1994). Happiness and stereotypic thinking in social judgement. *Journal of Personality and Social Psychology*, 66, 621-632.
- Bodenhausen, G.V., Sheppard, L.A., & Kramer, G.P. (1994). Negative affect and social judgment: The differential impact of anger and sadness. *European Journal of Social Psychology*, 24, 45-62.
- Cesario, J., Plaks, J.E., & Higgins, E.T. (2006). Automatic social behaviour as motivated preparation to interact. *Journal of Personality and Social Psychology*, 90, 893-910.
- Corcoran, k., Hundhammer, T., & Mussweiler, T. (2009). A tool for thought! When comparative thinking reduces stereotyping effects. *Journal of Experimental Social Psychology*, 45, 1008-1011.
- DeMarree, K.G., & Loersch, C. (2009). Who am i and who are you? Priming and the influence of self versus other focused attention. *Journal of Experimental Social Psychology*, 45, 440-443.
- Dijksterhuis, A., van Kippenberg, A. (2000). Behavioural indecision: Effects of self-focus on automatic behaviour. *Social Cognition*, 18, 55-74.

- Dijksterhuis, A., van Kippenberg, A., Spears, R., Postmes, T., Stapel, D.A., Koomen, W., & Scheepers, D. (1998). Seeing one thing and doing another: Contrast effects in automatic behaviour. *Journal of Personality and Social Psychology*, 75, 862-871.
- Eimer, M. (1999). Facilitatory and inhibitory effects of masked prime stimuli on motor activation and behavioural performance. *Acta Psychologica*, 101, 293-313.
- Herr, P. (1986). Consequences of priming: Judgment and behaviour. *Journal of Personality and Social Psychology*, 51, 1106-1151.
- Izard, C. E., Dougherty, F. E., Bloxom, B. M., & Kotsch, W. E. (1971) Differential Emotions Scale. (Unpublished).
- Jonas, K.J., & Sassenberg, K. (2006). Knowing how to react: Automatic response priming from social categories. *Journal of Personality and Social Psychology*, 90, 709-721.
- Kay, A.C., Wheeler, S.C., Bargh, J.A., & Ross, L. (2004). Material priming: The influence of the mundane physical objects on situational construal and competitive behavioural choice. *Organizational Behaviour and Human Decision Processes*, 95, 83-96.
- Kay, A.C., Wheeler, S.C., & Smeesters, D. (2008). The situated person: Effects of construct accessibility on situation construals and interpersonal perception. *Journal of Experimental Social Psychology*, 44, 275-291.
- Macrae, C.N., Bodenhausen, G.V., & Milne, A.B. (1998). Saying no to unwanted thoughts: Self-focus and the regulation of mental life. *Journal of Personality and Social Psychology*, 74, 578-589.
- Markus, H., & Kunda, Z. (1986). Stability and alleability of the self-concept. *Journal of Personality and Social Psychology*, 51, 858-866.
- Ric, F. (2004). Effects of the activation of affective information on stereotyping: When sadness increases stereotype use. *Journal of Personality and Social Psychology*, 30, 1310-1321.
- Ruys, K.I., Spears, R., Gordijn, E.H., & de Vries, N.K. (2007). Automatic contrast: Evidence that automatic comparison with the social self affects evaluative responses. *British Journal of Psychology*, 98, 361-374.
- Smeesters, D., Wheeler, S.C., & Kay, A.C. (2009a). The role of interpersonal perceptions in the prime-to-behaviour-pathway. *Journal of Personality and Social Psychology*, 96, 395-414.
- Smeesters, D., Yzerbyt, V.Y., Corneille, O., & Warlop, L. (2009b). When do primes prime? The moderating role of the self-concept in individuals' susceptibility to priming effects on social behavior. *Journal of Experimental Psychology*, 45, 211-216.
- Srull, T.K., & Wyer, R.S. (1979). The role of category accessibility in the interpretation of information about persons: Some determinants and implications. *Journal of Personality and Social Psychology*, 37, 1660-1672.
- Srull, T.K., & Wyer, R.S. (1980). Category accessibility and social perception: Some implications for the study of person memory and interpersonal judgments. *Journal of Personality and Social Psychology*, 38, 841-856.

- Stapel, D.A., & Tesser, A. (2001). Self-activation increases social comparison. *Journal of Personality and Social Psychology*, *81*, 742-750.
- Uribe, R., & Gunter, B. (2007). Are 'sensational' news stories more likely to trigger viewer's emotions than non-sensational news stories? *European Journal of Communication*, *22*, 207-228.
- Wheeler, S.C., DeMarree, K.G., & Petty, R.E. (2007). Understanding the role of the self in prime-to-behavior effects: The active-self account. *Personality and Social Psychology Review*, *11*, 234-261.
- Wheeler, S.C., & Petty, R.E. (2001). The effects of stereotype activation on behavior: A review of possible mechanisms. *Psychological Bulletin*, *127*, 797-826.
- Wyer, N., Calvini, G., Miles, N., & Nash, A. (2010) Priming in interpersonal contexts: Consequences for affect and behaviour. Manuscript under review.

Electronic References: International personality item pool: A scientific collaboratory* for the development of advanced measures of personality and other individual differences. (n.d.) retrieved 24/Nov/09 from <http://ipip.ori.org/>