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# Social Exclusion: the effects of non-mimicry on self-esteem, need to belong and sociability

Elizabeth Templeman

*Project Advisor: [Natalie Wyer](#), School of Psychology, Faculty of Science and Technology, Plymouth University, Drake Circus, Plymouth, UK, PL4 8AA*

## **Abstract**

Although a great deal is known about mimicry, much less is known about non-mimicry in social interaction. The current research investigated the effects of social exclusion via non-mimicry on self-esteem, need to belong and motivation to socialise. Participants listened to music whilst nodding along to the beat, participants in an excluded condition listened to a faster version than those in an included condition causing the excluded participant to nod out of sync, creating a sense of social exclusion. Although the results found that participant's self-esteem, need to belong and sociability were not affected by the experience of non-mimicry in social interaction, the excluded participants were observed mimicking the other participants. The researcher suggests that mimicry was used to re-establish inclusion.

KEY WORDS: social exclusion, mimicry, non-mimicry, self-esteem

## **Preface**

The current research conforms to Plymouth University's Principles for the Research involving Human Participants. In compliance with informed consent, participants were briefed prior to the start of the study and were required to sign a consent form. Participants were mildly deceived as they were not informed of the full aims of the research. This was necessary as it was essential that the non-mimicked participant believed she was listening to the same music in order to create a feeling of non-mimicry and social exclusion. Participants were debriefed verbally, given a written debrief and given the full aims of the research at the end of the study. They were also given the project supervisors contact details and advised to contact them if they are concerned about anything relating to the research.

Participants were informed during the brief that they had the right to withdraw at any point during the experiment without penalty. Participants were informed during the brief and debrief that they may withdraw their data from the research without penalty by contacting the researcher or Dr Natalie Wyer at any point during or following the research. The researcher ensured no participant came into any emotional or physical harm related to the research. Participant's names were not used at any point during the research as participants were identified by a participant number.

All of the data reported in this project was collected by Elizabeth Templeman.

## **Introduction**

Humans are naturally social animals, sensitive to even the slightest social cue (Ehrlick, 2000). At one time or another you may find an interaction with another awkward, whilst not being able to put your finger on why the interaction is so uneasy. Unbeknownst to you, lack of behavioural mimicry may be the reason behind this awkwardness. Non-conscious behavioural mimicry has been identified as a way of signalling understanding and interest in the interaction partner, helping to promote effortless, positive interaction, lack of mimicry in social interaction therefore may lead to effortful and uneasy interaction (Kouzakova, Karremans, Van Baaren & Knippenberg, 2010).

Non-conscious interpersonal mimicry is a widely accepted social phenomenon occurring frequently throughout everyday human interaction. Non-conscious mimicry is broadly defined as the unintentional copying of behaviour elicited by others; this can take many forms including both verbal and non-verbal mimicry and occurs even among strangers (Chartrand & Bargh, 1999). Mimicry has been studied by scholars from a wide range of fields including social psychology, neuropsychology and developmental psychology, all of whom have stressed the critical function mimicry serves during social interaction. Interpersonal mimicry has been described as 'social glue' promoting inclusion and cooperation (Cheng & Chartrand, 2003). Previous research suggests that non-conscious mimicry communicates to the interaction partner understanding, appreciation and similarity. Non-conscious mimicry has also been demonstrated to increase feelings of liking and affiliation for the interaction partner and increases pro-social behaviour, not only to towards the interaction partner but towards others in general (van Baaren, Holland, Kawakami, & van Knippenberg, 2004; van Baaren, Holland, Steenart, & van Knippenberg, 2003). Extensive research has focused on the foundations and consequences of mimicry in social interaction;

however lack of mimicry in social interaction has been somewhat overlooked in the literature on mimicry, despite its prevalence.

The desire for positive social relationships has been identified as a fundamental human need deeply rooted in our evolutionary history (Maslow, 1943). Maslow ranked 'love and belongingness' third in his hierarchy of needs, proposing that when physiological and safety needs are met individuals strive for a sense of belongingness, taking precedence over esteem and self-actualization needs. The motivation to create strong social bonds and belong to part of a group would have been extremely advantageous and adaptive in our evolutionary history, having both reproductive and survival advantages. Maslow proposes that individuals whose love and belongingness needs are not met are motivated to seek out interpersonal relationships and create social bonds in order to fulfil these needs. If this fundamental need is not met then it has devastating consequences for the individual; negatively affecting both psychological and physical well-being. Human's fundamental need for social inclusion is demonstrated best by the consequences of exclusion; individuals who lack positive relationships may experience anxiety, depression, guilt, loneliness and failure to satisfy the need to belong may result in reduced immune system activity (Cacioppo, Hawkley, & Bernston, 2003).

Human's motivation to establish and maintain positive social relationships requires us to be sensitive to social signals in order to establish our inclusionary status. Mimicry has been established as a non-verbal social cue to inclusion. It has been proposed that whereby mimicry signals social inclusion, it follows that non-mimicry signals exclusion, therefore resulting in the same hypothesised negative consequences as social exclusion (Kouzakova, Karremans, Van Baaren & Knippenberg, 2010). Research suggests that non-mimicry of an interaction partner conveys a message of interpersonal exclusion and signals that the individual seeks to distance themselves from the interaction partner. Interactions whereby one or more partners do not engage in mimicry create feelings of social exclusion in the latter. Interactions lacking mimicry therefore lead individuals to experience negative consequences associated with social exclusion. (Kouzakova et al, 2010).

The Social Reconnection Hypothesis follows on from Maslow's theory linking motivation, deprivation and goal attainment to propose that when an individual's drive is thwarted, the individual is motivated to find another way in which to satisfy that drive. It is suggested that social exclusion is a signal to the individual that their need to belong is not being met, motivating the individual to search for alternative interaction partners in order to fulfil this need (Baumeister & Leary, 1995). Individuals have been seen to elicit behaviours which increase their likelihood to be accepted and have been seen to go to extreme lengths in order to feel socially included. Research conducted by Williams and Sommer (1997) found that following social exclusion participants reacted by increasing their efforts during a group task, attempting to appear socially desirable to the experimental group. Research has also found that individuals appear to increase similarity between themselves and others in an attempt to create positive relationships. Williams, Cheung, and Choi (2000) observed excluded participants conform to the opinions of others in order to create bonds.

Maner, DeWall, Baumeister & Schaller (2007) conducted six experiments testing the social reconnection hypothesis. Convergent findings of the research found that participants experience or recollection of some form of social exclusion lead them to

express greater interest in making new friends, increased their desire to work with others, increased optimistic impressions of others as friendly, and award greater cash rewards to new interaction partners. This research provides evidence that social exclusion leads individuals to turn to others for renewed social connection. It provides evidence that when individuals need to belong is thwarted they turn to other sources in order to satisfy the need.

Further research however has shown opposite affects, whereby individuals elicit anti-social behaviour following social exclusion. Research conducted by Twenge, Baumeister, DeWall, Ciarococco & Bartels (2007) tested the hypothesis that social exclusion would cause a significant reduction in pro-social behaviour, reflecting a fear of being taken advantage of, and a reduction in empathy towards other individuals in need of help. Social exclusion was manipulated by informing participants that they had been rejected by other participants or that they would end up alone in the future. The results of the experiment showed a substantial decrease in pro-social behaviour; participants donated less money, were unwilling to volunteer to take part in further research, following a mishap displayed less helpful behaviour and cooperated less during a game with another participant. This research suggests that following social exclusion individuals may have temporary impairment in their empathy for others, therefore leading to less cooperative and decreased pro-social behaviour.

Despite research portraying anti-social behaviour following social exclusion, generally research has observed more pro-social and socially motivated behaviour following exclusion. The experience of social exclusion has been observed to motivate individuals to reconnect with others in order to compensate for the exclusion (DeWall, Maner and Rouby, 2009). Current research suggests excluded individuals are not motivated to attempt to connect and affiliate with the individual who excluded them but others with whom they already have pre-existing, established acceptance (Karremans, Heslenfeld, van Dillen & Lange, in press). Individuals who have been excluded are not likely to view the perpetrators of exclusion as realistic sources of inclusion and research has even shown individuals aggressing against their perpetrators (Buckley, Winkel and Leary, 2004). Twenge, Baumeister, DeWall, Ciarocco and Bartels (2007) found that increased aggression following social exclusion can be eliminated by positive social contact; recalling and writing about a good relationship with a family member or friend was sufficient to blunt the hostile, aggressive reaction. The effects of mimicry and non-mimicry are not limited to the social domain; they affect us at an individual level too. Mimicry affects many critical processes including our cognitive functioning style and how we view ourselves as individuals. It has been proposed that maintaining self-esteem, much like belonging is a fundamental human need (Maslow, 1943). The importance of self-esteem has been a much studied area in psychology across many domains and many behavioural and emotional problems have been attributed to unfulfilled needs for self-esteem. Social exclusion has been identified as a threat to this need to maintain self-esteem (Leary, Tambor, Terdal & Downs, 1995).

According to the sociometer hypothesis when individuals experience or anticipate social exclusion they also experience a decline in self-esteem. Self-esteem according to the sociometer hypothesis is an indicator of an individual's social acceptance, with high self-esteem indicating moderate to high acceptance and low-esteem indicating insufficient social acceptance. This theory assumes that all individuals have an internal

drive to build and maintain positive social relationships and that low self-esteem is an indicator that the individual is not fulfilling this drive. The sociometer constantly monitors others reactions, and searches for cues that show disapproval, rejection or exclusion and alerts the individual to changes in their inclusionary status motivating the individual to engage in behaviours which are intended to preserve relationships and accommodate exclusion (Leary, Tambor, Terdal & Downs, 1995). Many writers have observed human beings motivation to avoid exclusion and seek inclusion in social groups and attributed this motive to evolutionary survival. It has been proposed that psychological systems such as that of the sociometer evolved in order to aid individuals in maintaining some minimum level of inclusion to ensure survival and reproduction.

Research has provided support for the sociometer hypothesis by demonstrating that the experience social exclusion decreases self esteem. Research conducted by Stanley & Arora (1998) investigated the effects on self-esteem of social exclusion from friendship groups in adolescent girls. The research found that those participants who reported regular social exclusion had lower self-esteem than those girls who did not report social exclusion. Creating new social relationships was identified as one coping strategy employed by the excluded girls. A causal relationship between social exclusion and low self-esteem could not be established in this study as it was not clear from the results whether low self-esteem was a result of social exclusion or whether low self-esteem may be a factor which invites social exclusion. What is clear from the research however is that there is a correlation between social exclusion and self esteem and that socially excluded individuals seek new relationships in order to compensate for the exclusion from peer groups, providing support for both the sociometer hypothesis and the reconnection hypothesis.

Further support for the sociometer hypothesis comes from research conducted by Leary, Tambor, Terdal and Downs (1995). The researchers conducted five experiments testing hypotheses derived from the sociometer model of self-esteem. The first experiment looked at self-feelings and anticipated exclusion and inclusion. The results found that participant's ratings of their self-feelings after imagining performing sixteen behaviours mirrored their expectations regarding how others would respond to these behaviours. The second experiment looked at personal experiences involving reactions to exclusion. Participants were required to recall a recent experience of social exclusion. The results found that the more excluded participants felt in each type of situation, the less positively they indicated they felt about themselves in that setting. The third experiment looked at self-esteem in reaction to exclusion by a group. Participants were told they had either been selected or rejected from working as part of a group. The results of the third study provided evidence that social exclusion results in lowered self-esteem, at least when the exclusion was based on others' personal evaluations and preferences. The fourth study also found that social exclusion lead to significant decrease in self-esteem and that those who were accepted based on personal reasons felt more positively about themselves. Looked at together these five experiments provide strong evidence for a relationship between self-esteem and social exclusion.

Previous research has looked at the effects of social exclusion on both self-esteem and need to belong. Zadro, Williams and Richardson (2004) looked at the effects of social exclusion on individual's belongingness needs and self-esteem. They found that

the experience of social exclusion, even when those excluding were unknown lead participants to report higher levels of belonging and lower self-esteem and additionally excluded participants felt angrier and enjoyed the game significantly less than included participants. The researchers suggest that their research provides support for the position that exclusion has adaptive significance for humans. The exclusion task lasted only six minutes but had a significant impact on individual's self-esteem. Initial reactions to exclusion are proposed by the researcher to be early warning signs which are quick to perceive exclusion. These signs are suggested to provide negative reactions in order to motivate the individual to increase their inclusion, providing support for the sociometer hypothesis and for belongingness as a fundamental need thwarted by exclusion.

Kouzakova, Karremans, Van Baaren & Knippenberg (2010) hypothesised that lack of mimicry in social interaction would decrease non-mimicked participants implicit self-esteem, proposing that such a decrease in self-esteem would be mediated by an increase in need to belong. The researcher conducted three experiments to test their hypothesis. The general results extended previous research that showed that non-mimicry functions as a subtle exclusion cue that gives rise to enhanced need to belong. The research demonstrated that non-mimicry lowers individuals implicit self-esteem, motivating individuals to seek reconnection with significant others. Following an interaction which lacked mimicry individuals suffered decreased implicit self-esteem particularly as a result of strengthened negative self-evaluations. The research also found that enhanced need to belong was the underlying cause of reduced self-esteem, showing that lack of mimicry in social interaction was an indicator of subtle social exclusion.

The researcher also studied the self-esteem recovery process by allowing participants to regain a sense of belonging by upgrading a long standing relationship. Non-mimicked participants were observed to raise their implicit self-esteem to a similar level to that of the mimicked participants after psychologically turning to their longstanding relationships. This highlights the need for individuals to restore their belongingness following exclusion and the impact this has on implicit self-esteem. This research provides support for the social reconnection hypothesis by showing that psychologically reconnecting with significant others is enough to restore individuals belongingness needs which in turn increases implicit self-esteem.

The literature on the effects of social exclusion on self-esteem provides evidence that individual's implicit self-esteem is negatively affected by the experience of social exclusion. Previous research has linked self-esteem and need to belong, suggesting that the underlying cause of decreased self-esteem is a heightened need to belong; however the effects of this on individuals motivation to reconnect with others is mixed. Research on non-mimicked individual's reaction to social exclusion portrays motivation to avoid further rejection, to the extent that they may turn aggressive or anti-social, whilst eliciting behaviours which promote positive relationships, fulfilling the need to belong.

The current piece of research aims to investigate the effects of social exclusion via non-mimicry on participant's self-esteem, need to belong and motivation to socialise and reconnect. Based on previous research the researcher hypothesises that those individuals who are in the excluded condition will have increased need to belong and in turn will be more motivated to engage in social behaviours than the included

participants in order to fulfil this need, however will feel hostile towards the perpetrators of the exclusion. The researcher hypothesises that the experience of social exclusion via non-mimicry would affect participant's implicit self-esteem and in particular predicted that participants in the excluded condition would have decreased implicit self-esteem compared to participants in the included condition.

## **Method**

### **Participants**

The participants included thirty six female undergraduate students from Plymouth University studying Psychology at degree level. Participant age ranged from 18 to 30 with the average being 20. Participants were recruited via an online site whereby participants sign-up to experiments in exchange for course credit. Each half hour experiment consisted of three participants at one time.

### **Design**

The experiment employed a between-subjects design, whereby participants were randomly assigned to one of two conditions; exclusion or inclusion. The independent variable was the condition which the participant was assigned to. The dependant variables were participants need to belong, self-esteem, feelings towards the other participants and participant's motivation to engage in social activity.

### **Materials and Procedure**

Participants were informed that they would be taking part in a study investigating the effects of listening to music with others on mood. Participants were randomly assigned to one of two conditions; two participants were assigned to an inclusion condition and one participant was assigned to an exclusion condition. Participants were asked not to talk or make contact with one another during the experiment. In concordance with ethical procedures participants were briefed and required to sign a consent form. The written brief is located in Appendix A.

The experiments took place in two separate research laboratories at the University of Plymouth. During the first task participants listened to music through headphones attached to an audio splitter device which allowed one output to receive one piece of music whilst allowing the remaining two outputs to receive a slower version of the same piece of music. The participants in the included condition listened to exactly the same piece of music to each other whilst the excluded condition listened to a faster version. To ensure participants did not recognize they were listening to different music the audio device was hidden in plastic casing. Participants nodded along to the beat of the music and were asked to look at one another throughout this task. The music was played for a total of three minutes.

For the second task participants were taken to another room where they were separated by a division to ensure privacy whilst completing the questionnaires. Firstly participants were asked to answer 9 questions using a 1-10 scale. The first three questions required participants to think about how much they believed the other participants liked each other, how much they would enjoy meeting each other again and how similar these people were to each other. Participants were then asked how much they liked each participant, how much they would enjoy meeting them again and

how similar they are to the person, firstly about the participant on their left and then about the person on their right.

Participants were then asked to write down 10 different responses to the question “What would I like to do *right now*?” with the instruction not to worry about evaluating the logic or importance of their responses—just write the answers as they occurred to them. Participants were given five minutes to complete this task. The ‘What would I like to do *right now*’ response sheet is located in Appendix B.

Participants then completed an implicit self-esteem IAT. The implicit IAT is a computerised categorization task that measures automatic associations of self-related words with positive and negative words. Participants pair "self" and "other" words with words of positive and negative valence.

Participants completed a trait need to belong scale which taps into individuals desire to be accepted by other individuals and groups (Leary, Kelly, Cottrell, & Schreindorfer, 2005). Participants rated 10 statements such as “I try hard not to do things that will make other people avoid or reject me” on a five point scale indicating to what extent they agreed or disagreed with the statement (1=strongly disagree, 6=strongly agree). The Need to Belong questionnaire is located in Appendix C.

After completing the questionnaires participants were handed a written de-brief and were also de-briefed verbally. The written de-brief is located in Appendix D. Participants were then asked whether they believed they were the individual in the excluded condition listening to the faster version.

## Results

### Need to Belong

Cronbach’s alpha was calculated at .72, showing a good level of internal consistency.

The Shapiro-Wilks test of normality was non-significant  $p > .05$  ( $p = .246$ ) therefore the data comes from a normally distributed population. The Levene’s test tells us that the assumption of homogeneity of variance is valid  $p > .05$  ( $p = .560$ ), therefore the variances are not significantly different. Parametric tests could therefore be used.

**Table 1:** Descriptive Statistics for responses to the Need to Belong Questionnaire

Condition	<u>M</u>	<u>SD</u>
Excluded	3.42	.62
Included	3.56	.59

An independent-samples t-test was conducted to compare need to belong scores in exclusion and inclusion conditions. There was no evidence of a significant difference in the need to belong scores for participants in the exclusion condition ( $M = 3.42$ ,  $SD = .62$ ) and participants in the included condition ( $M = 3.56$ ,  $SD = .59$ );  $t(26) = -.59$ ,  $p > .05$  ( $p = .56$ ). These results suggest that the experience of exclusion did not affect participants need to belong.

### Sociability

The Shapiro-Wilks test of normality was non-significant  $p > .05$  ( $p = .143$ ) therefore the data comes from a normally distributed population. The Levene's test tells us that the assumption of homogeneity of variance is valid  $p > .05$  ( $p = .840$ ), therefore the variances are not significantly different. Parametric tests could therefore be used.

**Table 2:** Descriptive Statistics for responses to the 'What I would like to do now Questionnaire'

Condition	<i>M</i>	<i>SD</i>
Excluded	3.10	1.59
Included	2.28	1.53

An independent-samples t-test was conducted to compare sociability in exclusion and inclusion conditions. There was no evidence of a significant difference in sociability for participants in the exclusion condition ( $M = 3.10$ ,  $SD = 1.59$ ) and participants in the included condition ( $M = 2.28$ ,  $SD = 1.53$ );  $t(26) = 1.344$ ,  $p > .05$  ( $p = .190$ ). These results suggest that there was no evidence that the experience of exclusion increased participants desire to socialise.

### Implicit Self-Esteem

Two participants from the included condition and one participant from the excluded condition were not included in the data analysis due to over 20% incorrect responses. Responses whereby the response time was under 300ms or over 3000ms were also removed from the data set.

The Shapiro-Wilks test of normality was non-significant  $p > .05$  ( $p = .673$ ) therefore the data comes from a normally distributed population. The Levene's test tells us that the assumption of homogeneity of variance is valid  $p > .05$  ( $p = .590$ ), therefore the variances are not significantly different. Parametric tests could therefore be used.

**Table 3:** Descriptive Statistics for reaction time on the IAT

Condition	<i>M</i>	<i>SD</i>
Excluded	147.78	140.89
Included	206.69	125.99

An independent-samples t-test was conducted to compare implicit self-esteem in exclusion and inclusion conditions. There was no evidence of a significant difference in implicit self-esteem for participants in the exclusion condition ( $M = 147.78$ ,  $SD = 140.89$ ) and participants in the included condition ( $M = 206.69$ ,  $SD = 125.99$ );  $t(23) = -1.076$ ,  $p > .05$  ( $p = .293$ ). These results suggest that there is no evidence that the experience of exclusion decreased participant's implicit self-esteem.

### Additional Questions

The researcher split the data from the additional questions into two sections; firstly questions which asked how the participant believed the other participants felt about

each other, labelled 'Others' and secondly questions which asked the participant how they felt about the other two participants, which was labelled 'You'.

### Others

The Shapiro-Wilks test of normality for the dependant variable 'others' was non-significant  $p > .05$  ( $p = .103$ ) therefore the data comes from a normally distributed population. The Levene's test tells us that the assumption of homogeneity of variance is valid  $p > .05$  ( $p = .854$ ), therefore the variances are not significantly different.

**Table 4:** Descriptive Statistics for responses to the additional questions about 'others'

Condition	<i>M</i>	<i>SD</i>
Excluded	4.49	1.78
Included	4.14	1.39

An independent-samples t-test was conducted to compare participant's perceptions of how much the other participants liked each other in exclusion and inclusion conditions. There was no evidence of a significant difference in perceived liking for participants in the exclusion condition ( $M = 4.49$ ,  $SD = 1.78$ ) and participants in the included condition ( $M = 4.14$ ,  $SD = 1.39$ );  $t(26) = .578$ ,  $p > .05$  ( $p = .568$ ). These results suggest that there is no evidence that the experience of exclusion affected participant's perceptions of how much the other participants liked each other.

### You

The Shapiro-Wilks test of normality for the dependant variable 'You' was non-significant  $p > .05$  ( $p = .773$ ) therefore the data comes from a normally distributed population. The Levene's test tells us that the assumption of homogeneity of variance is invalid  $p > .05$  ( $p = .008$ ), therefore the variances are significantly different. The researcher used the statistics from the Equal variances not assumed column in the SPSS output.

**Table 5:** Descriptive Statistics for responses to the additional questions about 'you'

Condition	<i>M</i>	<i>SD</i>
Excluded	4.77	.69
Included	5.20	1.29

An independent-samples t-test was conducted to compare participant's liking for the other participants in exclusion and inclusion conditions. There was no evidence of a significant difference in liking for participants in the exclusion condition ( $M = 4.77$ ,  $SD = .689$ ) and participants in the included condition ( $M = 5.20$ ,  $SD = 1.29$ );  $t(25.99) = -1.15$ ,  $p > .05$  ( $p = .262$ ). These results suggest that there is no evidence that the experience of exclusion affected participants' liking for the included participants.

## **Discussion**

The experiment aimed to investigate several effects of social exclusion via non-mimicry. Firstly the experiment aimed to investigate social exclusion effects on need to belong. The researcher hypothesised that those individuals in the exclusion condition would have higher need to belong than those in the included condition. The results indicated that there was no evidence of a difference in need to belong between participants in the included and excluded conditions; therefore the experimenter's hypothesis was rejected.

These results are inconsistent with previous research outlined in the introduction such as that conducted by Kouzakova, Karremans, Van Baaren & Knippenberg (2010) which found that socially excluded participant's experienced enhanced need to belong. One potential reason why the data from the current experiment is inconsistent with previous research findings may be due to potential downfalls of the method used to elicit sense social exclusion; the use of indirect, nonverbal cues to exclusion may not have been strong enough to elicit a strong sense of exclusion, thus the negative consequences of social exclusion such as heightened need to belong may not have been apparent. These potential downfalls are discussed in further detail later in the discussion.

A further aim of the research was to investigate social exclusion affects on motivation to socialise. The researcher hypothesised that those participants who had been excluded would have increased motivation to engage in social activities. The results of the experiment do not support this hypothesis, no significant difference was found between included and excluded participant's preference for social activities. Previous research on excluded individual's motivation to socialise and reconnect with others is mixed. The current research findings are inconsistent with findings of research such as that conducted by Maner, DeWall, Baumeister and Schaller (2007) which found that excluded participants expressed greater interest in making new friends, increased their desire to work with others and increased their liking for others. One possibility for the lack of an increase in motivation to socialise may be that excluded participants were fearful of further rejection, consistent with Twenge, Baumeister, DeWall, Ciarocco and Bartels (2007) whose results suggested excluded participants had a reduction in pro-social behaviour reflecting fear of being rejected further.

All references to social activities in the current study included a specified already established relationship, for example 'take a walk with my boyfriend' or 'call my mum'. None of the social preferences were specific to meeting new people and creating new social bonds, providing further support for Kouzakova et al's (2010) findings that individuals turn to long standing relationships when their inclusionary status is threatened, as opposed to seeking entirely new social bonds. This observation could relate to the finding that excluded participants were no more motivated to engage in social activity perhaps due to fear of being rejected further as this fear would not be apparent when engaging in social activity with pre-existing relationships.

The finding that there was no significant difference between excluded and included participants motivation to engage in social activities may also be explained by the proposed link between need to belong and motivation to reconnect. Maslow (1943) proposed that only when individuals need to belong is not met do they seek to reconnect with others, as the results showed that excluded individuals need to belong

was not heightened following exclusion then it follows that their motivation to reconnect would also be unaffected.

Investigation of the affects of social exclusion on implicit self-esteem was a further aim of the current research. The researcher hypothesised that participants in the excluded condition would have decreased implicit self-esteem compared to participants in the included condition. The results did not support this hypothesis, although participants in the excluded condition had lower mean IAT scores, indicating lower self-esteem, the t-test showed that the difference was not significant. These results are inconsistent with previous research that shows that exclusion leads to a significant decrease in self-esteem such as that conducted by Zadro, Williams and Richardson (2004).

Twenge, Baumeister, DeWall, Ciarocco and Bartels (2007) found that negative effects of social exclusion such as anti-social behaviour can be eliminated by recalling and writing about a strong relationship with another. The 'what I would like to do now' questionnaire was administered to participants prior to the IAT task. When analysing the 'What I would like to do right now' questionnaire responses the researcher noted that all of the reported social activities referred to a particular individual e.g. mum, boyfriend, housemate etc, suggesting that during this task participants were recalling already established relationships. Recollection of these relationships may have affected the results of the IAT as if excluded participants self-esteem was negatively affected by the experience of exclusion, the recollection of already established positive relationships may have restored excluded participant's self-esteem prior to the self-esteem IAT task. The order in which the questionnaires are administered should therefore be considered in further research. The question of whether recalling pre-established relationships can restore individuals self-esteem following exclusion is open to further investigation.

The researcher hypothesised that individuals in the excluded condition would feel more hostile towards the other participants than those in the included condition. The results of the experiment do not support this hypothesis, no significant difference was found between included and excluded participants liking for the other two participants. The results also found that there was no significant difference between the excluded an included condition on how much they believed the others liked each other. This result is inconsistent with previous research which has shown excluded individuals feel hostile and even have been seen to aggress against the perpetrators of their exclusion (Buckley, Winkel and Leary, 2004). Referring back once again to the criticisms of the method by which the exclusion was administered, if the non-mimicry was not strong enough to elicit a feeling of exclusion then excluded participants would not expect to feel any more hostile towards their fellow participants than those in the included condition.

Kouzakova, Karremans, Van Baaren & Knippenberg (2010) found support for a link between self-esteem and need to belong. The results of their research supported the hypothesis that decreased self-esteem was mediated by an increase in need to belong. Following this logic if increased need to belong is the underlying cause of decreased self-esteem then no change in need to belong would lead to no change in implicit self-esteem, a result which was found in the current study. Kouzakova et al's (2010) research also provided evidence for a link between increased motivation to seek reconnection with significant others with increased need to belong and decreased implicit self-esteem, thus in concordance with Kouzakova et al's results it is

not surprising that where there was no evidence of a significant difference between excluded and included participants self-esteem and need to belong in this study then it follows that motivation to socialise and reconnect also did not differ between conditions.

Previous research such as that conducted by Stanley and Arora (1998) has studied exclusion in a real world setting, whereby the exclusion happened over a substantial period of time. Although Zadro, Williams and Richardson (2004) found participants had higher need to belong and lower self-esteem following exclusion of only six minutes in a laboratory setting, the exclusion task in the current research lasted only three minutes, perhaps suggesting this is not a sufficient amount of time for exclusion to affect self-esteem and need to belong. Having only one very short experience of social exclusion may not be enough to significantly lower an individual's self-esteem, it may be more likely that re-current or longer experiences of social exclusion increases need to belong and lowers self esteem. Longitudinal research which measures individual's self-esteem and need to belong pre-exclusion and continues to measure these variables over a period of time where participants are experiencing regular exclusion could provide stronger support for a causal link between exclusion, self-esteem and need to belong. Such research could also identify whether one instance of social exclusion is enough to significantly affect self-esteem and need to belong or whether this is a continuous process over a period of time.

The method by which the exclusion was administered may not have been strong enough to elicit a strong feeling of social exclusion. Previous research has used more direct and explicit cues to social exclusion, leaving less ambiguity regarding whether an individual is being excluded or not; such as having participants obviously ignoring the excluded individual. The present research used the non-verbal, indirect cue of non-mimicry to signal social exclusion. One potential criticism of this method is that participants were not directly mimicking each other's behaviour but all eliciting their own interpretation of the music, which perhaps did not signal to the excluded individual that they were the only one not being mimicked. Excluded participants may not have interpreted the others behaviour as mimicking one other, thus may not have felt non-mimicked and in turn not experienced the intended exclusion. The cues which are used to determine whether an individual has been excluded or not need further consideration.

The participants who took part in the research were all female Undergraduate students at the University of Plymouth. Similarity has been identified as a variable which increases individuals' liking for others, promoting affiliation (Park and Schaller, 2004). Thus individuals in the excluded condition may have felt increased liking for the other students due to similarity in gender, course choice, university choice, age etc, which could have lessened the effects of the exclusion. Participant similarity should be a consideration for further research.

University students may be considered more sociable than the general population, which may in turn suggest they have a considerably higher number of strong social bonds than perhaps the general population. Maslow's hierarchy of needs suggests that it is only when individuals belongingness needs are not met an individual's seeks to reaffirm and create new social bonds, perhaps suggesting that those individuals with sufficient belongingness may not be affected as greatly as those individuals whose needs are not met. This study raises questions about how individual's current

social relationships with regards to number and strength affect how much an individual is affected by social exclusion in terms of need to belong, self-esteem and motivation to reconnect. Further research on the affects of social exclusion on individuals with varying amounts of social bonds would further our knowledge on the need to belong and how it can be affected.

Although the results of the research did not support the experimental hypotheses observation of participant behaviour during the music task identified several interesting findings. Of the ten participants in the excluded condition seven of those participants started the music task nodding out of sync with the other participants however rapidly became in sync with the other participants despite listening to a faster beat. Of all of those participants in the exclusion condition only one participant identified herself as the out of sync participant following the debrief, therefore suggesting that those individuals who began to nod in sync with the other participants did so on an unconscious level.

Another interesting observation came from a confederate who took part in three of the experiments in order to fill in empty participant slots. Without instruction, presumably due to her interpretation of the instructions, the confederate nodded her head from side to side as opposed to up and down. In all three of the experiments she took part in all of the other participants nodded from side to side; an observation which was not seen in any of the other experiments that the confederate did not take part in. This suggests that the participants in the experiment whereby the confederate was present were mimicking her behaviour - a result which was not anticipated.

Being rejected or excluded has been shown to increase individual's sensitivity to social cues. Research conducted by Lakin, Chartrand and Arkin (2008) examined non-conscious mimicry as an automatic response to social exclusion. The researchers proposed that excluded individuals use automatic non-conscious mimicry to recover from the experience of being socially excluded. They conducted two studies in order to explore whether social exclusion increases non-conscious mimicry. The results of the first study found that excluded participants mimicked their interaction partner more than included participants, suggesting that excluded participants are more motivated to mimic others in order to make up for the exclusion. The results of the second study found that in-group-excluded participants showed heightened mimicry of an in-group confederate's behaviours. This research shows that the relationship between exclusion and mimicry suggests that individuals may be able to establish themselves in desired groups by mimicking the behaviours of group members and to re-establish themselves in groups from which they have been excluded by mimicking representative group members. This could provide an explanation as to why a large majority of participants in the current study began nodding out of sync but after only a short period, mimicked the behaviour of the other individuals, even though that meant nodding out of sync to the music they could hear. If as it has been suggested participants can restore their sense of inclusion and belonging by mimicking in group member, the fact that participants did mimic in group members may be a reason as to why those individuals did not report increased need to belong as they had compensated for this by unconsciously mimicking the other participants. Following on from this, if that is the case then according to previous research if participants need to belong was not threatened then participant's self-esteem would also be unaffected.

Further observation found that the majority of those participants in the excluded condition nodded significantly less dramatically than those in the included condition and two participants even stopped nodding altogether, perhaps suggesting that those participants felt the exclusion on an unconscious level. Two participants in the excluded condition laughed throughout the music task, even when their fellow participants did not do so, perhaps again suggesting that they felt uncomfortable in the situation which may have been a consequence of the unconscious feeling of exclusion.

Although the current research doesn't provide further support for the effects of social exclusion on self-esteem, sociability and need to belong, what it does provide support for is the critical role mimicry plays in social interaction. In particular this study provides evidence for mimicry as a way of re-engaging and re-establishing inclusion when individual's inclusionary status is threatened.

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*Appendices for this work can be retrieved within the Supplementary Files folder which is located in the Reading Tools menu adjacent to this PDF window.*