2005

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http://hdl.handle.net/10026.1/1919

http://dx.doi.org/10.24382/3545
University of Plymouth

THE EFFECTS OF IDEA ELABORATION ON UNCONSCIOUS PLAGIARISM

by

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A thesis submitted to the University of Plymouth
in partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

School of Psychology
Faculty of Science

In collaboration with the Economic and Social
Research Council

November 2005

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Abstract

Rates of unconscious plagiarism were investigated using Brown and Murphy's 3-stage paradigm. Initially, participants completed the creative Alternate Uses Test (generation phase) and then at test, recalled their original ideas (recall-own phase) and generated new ideas (generate-new phase). In both of the testing phases, participants plagiarised by reporting someone else's ideas as either their own idea or a new idea. Plagiarism rates increased over a one week retention interval (Experiment 2) and both active and passive participants were equally likely to plagiarise someone else's idea as a new idea (Experiment 1). When an elaboration phase was incorporated into the paradigm, following idea generation, different types of elaboration had clear and consistent effects on participant performance. Elaboration by rating ideas positively and negatively improved correct recall (Experiment 3) and rating the imaginability of ideas (Imagery-elaboration IE) and improving the ideas in three ways (generative-elaboration GE) also increased correct recall to a comparable degree (Experiment 4). In the generate-new phase, these different types of elaboration either reduced plagiarism (Experiment 4) or did not affect the level of plagiarism relative to control (Experiment 3, 5, 6, 7 & 8). However, in the recall-own phase, the GE alone consistently led to the highest levels of unconscious plagiarism (relative to IE or control, Experiment 4, 5, 6, 8). This pattern prevailed when participants were encouraged not to plagiarise by means of a financial incentive (Experiment 5) or when their memory was assessed more stringently by a source monitoring task (Experiment 9). IE did not result in such recalled intrusions, even when it was matched in terms of content to the GE (Experiment 6) or when IE was repeated (3 days after generation) and thus strengthened (Experiment 7). Also, strengthening IE did not affect plagiarism levels in a source monitoring task (Experiment 11). Strengthening GE, on the other hand served to dramatically inflate the observable intrusions in both a recall-own task (Experiment 8) and in a source monitoring task (Experiment 10). Therefore, contrary to a strength account, the probability of plagiarising another's ideas as one's own is linked to the generative nature of the elaboration performed on that idea, rather than its familiarity. The theoretical and practical implications of these findings will be discussed.

List of Contents

Publications

1) Stark, L-J., Perfect, T. J. & Newstead, S. (2005). When elaboration leads to appropriation: Unconscious plagiarism in a creative task, *Memory,13,* 561-573

2) Stark, L-J., & Perfect, T. J. (2005). Elaboration inflation: How your ideas become mine: *Applied Cognitive Psychology*, In Press.

Tables and Figures Contents

Acknowledgements

First and foremost, I would like to thank my supervisor Tim Perfect for inspiring my work and initial interest in cognitive psychology and for all of the intellectual guidance and great ideas that he has given me throughout this research programme. He has always offered me his continual support and encouragement and I feel deeply grateful and privileged to have been his student.

This research would not have been possible without the financial support of the Economic and Social Research Council and the School of Psychology. Thus, I would like to thank them for their input and also for the additional funding that permitted me to attend various conferences, especially SARMAC at the University of Wellington and my extended visit to the University of Victoria. A special thank you is also directed at Steve Lindsay for hosting me at the beautiful University of Victoria and making this trip possible. I feel very fortunate to have had these unique and valuable opportunities during the course of my studies.

Much respect goes to my various officemates and fellow psychology friends (and you Russell!), for putting up with me over the years. I thank you all for the serious discussion, light relief and all those lunches that I bullied you into -you really kept me going!

Finally, my warm thanks goes to my lovely friends and family from all over the world, but particularly to my Mum, Dad, Michael, Vanessa, John and Val and my three brothers, Daniel, Laurence and Ian for their unconditional love and encouragement. However, there is one instrumental man in my life that urged me on by way of his seemingly unlimited belief in me and his untiring support. He has provided me with more strength, motivation and happiness than he could ever imagine. Thank you so much Graeme.

Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award.

This study was financed with the aid of a studentship form the Economic and Social Research Council from October 2002 to November 2005.

This thesis is the result of the author's own investigation, carried out under the guidance of her supervisor. Other sources are explicitly referenced.

During this period of study memory group seminars, departmental seminars and conferences were regularly attended at which work was often presented. Additionally, an external institution (The University of Victoria, Canada) was attended for a one month extended visit and several papers were prepared for publication, two of which have been accepted.

Publications:

Journal Articles:

Stark, L-J., Perfect, T. J. & Newstead, S. (2005). When elaboration leads to appropriation: Unconscious plagiarism in a creative task, *Memory,13,* 561-573

Stark, L-J., & Perfect, T. J. (2005). Elaboration inflation: How your ideas become mine: *Applied Cognitive Psychology*, In Press.

External Presentations and Conferences Attended:

Stark, L-J., & Perfect, T. J. Idea Elaboration on rates of Unconscious Plagiarism. Presented at the Brain & Memory colloquium series, University of Victoria, Canada. September, 2005

Stark, L-J., & Perfect, T. J. When 50% of my ideas are yours: Repeated elaboration and unconscious plagiarism. SARMAC VI, University of Wellington, New Zealand, January 2005

Stark, L-J., & Perfect, T. J. Elaboration inflation: how thinking about someone else's idea can make you believe it was yours. Paper presented at British Psychological Society Cognitive Section Annual Conference, University of Leeds, September 2004

Stark, L-J., Perfect, T. J. & Newstead, S. E.. The effects of elaboration on unconscious plagiarism. Paper presented at the Biennial Conference of the society for Applied Research in Memory and Cognition (SARMAC) V, University of Aberdeen, July 2003.

Word count of main body of thesis: 76,115

Signed ....[signature]..........

Date ....30/04/2006..........

1. Introduction and Review of Previous Literature

1.1 Introduction to thesis

The need to correctly attribute a memory, a thought, or an idea to its origin is important for normal human interaction and is inherent in most facets of everyday life (Johnson, Hashtroudi & Lindsay, 1993). Inevitably, mistakes in this attribution process may occur in life where two information sources become confused. Memories are not objective snapshots of the past but rather subjective reconstructions of events that are vulnerable to post-event information (Loftus & Pickrell, 1995). Misinformation provided after an event may be integrated into a person's memory, modifying an individual's belief of what was personally experienced. While these modifications may be relatively minor (e.g. a stop sign becoming a yield sign; Loftus, Miller & Burns, 1978) or more acute (e.g. fictional memories of a wounded animal at a tragic bomb scene; Nourkova, Bernstein & Loftus, 2004), distinguishing the sources of these facts without corroboration can be extremely difficult (Loftus, 2002). Moreover, post-event suggestion is used in a range of techniques and has been demonstrated to plant and create entirely false memories (see Loftus & Bernstein, 2005). For example, these distortions have occurred where children, through 'strong suggestion', have been convinced that they were 'lost in the mall' when they were a child (Loftus & Pickrell, 1995). More pertinently, similar studies have shown that these powerful false beliefs can also be induced for traumatic events (e.g. being attacked by an animal; Porter, Yuille & Lehman, 1999), seemingly unlikely events (e.g. that they had witnessed a person being demonically possessed when they were a child; Mazzoni, Loftus & Kirsch, 2001) and even impossible events (e.g. meeting Bugs Bunny, who is a Warner brother character, at Disney Land; Braun, Ellis & Loftus, 2002). Remarkably for these events, participants have also confidently provided details and expressed emotion about these false memories of fabricated events (e.g. they remember hugging/shaking hands with Bugs Bunny Grinley, 2002 as cited by Loftus & Bernstein, 2005).

Recently, similar false memories have been observed in monozygotic and dizygotic twins, but without any experimental intervention. For example, such memory errors occurred where one twin was involved in an event but where both twins claimed ownership of the event memory (Sheen, Kemp & Rubin, 2001). The nature of the events in question varied from mundane events (Küntay, Gülgöz & Tekcan, 2004) to quite significant events such as running away from home (Sheen et al. 2001). What may have caused one of the twins to possess a false belief? Unconscious plagiarism is a conceptually related type of source confusion that occurs when an individual assumes ownership of an idea that is not their own. Indeed one could argue here that one of the twins has plagiarised (stolen) the other's memories. In both real life and in the laboratory, people unconsciously plagiarise experienced information by reproducing it under the illusion that it is new, or that they originally produced it. This phenomenon has particular implications for those who work in a creative discipline and strive to produce something high-quality and novel. When someone presents an idea as an original creation, can they be sure that the idea is really new and not a copy or mild alteration of something they have previously encountered?

There have been many documented cases of unconscious plagiarism over the years that include high profile cases where public claims have been made about the originality of the work. These cases are not restricted by time or discipline. For example, cases have emerged from Freud's theory of bisexuality (1901/1960), to more recent cases of music copyright infringement (Three Boys Music v. Michael Bolton, 2000)[1]. This thesis intends to explore the conceptions of unconscious plagiarism with regard to the legal system (copyright infringement) and academic institutions (unconscious plagiarism), in terms of definition, accusation and punishment. Prior experimental research will be reviewed and discussed in the context of two theoretical perspectives that seek to explain this important phenomenon.

1.2 Legal Issues

Plagiarism is derived from the Latin word 'plagiarius' meaning 'kidnapper' and has been loosely and variously defined as cheating, stealing, dishonesty, deception (Carroll, 1992) and uncritically making an idea one's own (Saalbach, 1970). Although definitions of plagiarism vary from one era and one culture to the next (Martin, 1971), unequivocally

[1] Three Boys Music v. Michael Bolton, 212 F.3d. 477 (9th Cir. 2000)

plagiarism is regarded as theft or the expropriation of someone else's work without permission or appropriate referencing of the original source (Bournemouth University, 2005). A high profile area where plagiarism is apparent is in music copyright infringement. A general guide to copyright infringement is that there are three conditions that need to be met before a defendant may be charged with 'plagiarism' in this domain (McCready, 2005):[2]

1) Does the plaintiff own a valid copyright in the material allegedly copied?

In both the UK and the USA an instant copyright infringement/violation is sought when a song is sampled without permission. The use of samples without appropriate authorisation can result in heavy penalties as the sound recording copyright (that is usually owned by an artist or their record company) and the copyright in the song itself (that is usually owned by the songwriter or their music publishing company) is violated. If a plaintiff owns a valid copyright on the material allegedly copied, then this condition is satisfied and the next two conditions are investigated before one's liability is determined.

2) Has the plagiariser had access to the works?

This is where the accused must have had a reasonable opportunity to view the plaintiff's work (Sid and Marty Krofft Television Prods., Inc. v. McDonald's Corp, 1977)[3]. A copyrighted song that had received vast media attention nationwide (i.e. via radio, television etc) would be deemed popular and accordingly, the likelihood that the accused would have been exposed to the song would be high. In this instance, one's potential access to the song is easy to establish and difficult to oppose. On the other hand, demonstrating and establishing access to a song that was only advertised on a demo record with an isolated distribution is more difficult (although not impossible); access must not be based on speculation. Fundamentally at this stage, the stronger the demonstration of access, the more easily copyright infringement is to accuse (McCready, 2005).

3) Is the copied work substantially similar?

If the conditions for access are not met then a case of infringement may still be made on the basis of the 'substantial similarity' between two musical pieces (Smith vs. MCA, Inc.,

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[2] The highlighted conditions for copyright infringement are proposed as an elementary guide because discussing absolute (complex) copyright law is beyond the scope of this thesis.

[3] Sid and Marty Krofft Television Prods., Inc. v. McDonald's Corp., 562 F.2d 1157, 1172 (9th Cir. 1977)

1987)[4]. This legal definition of substantial similarity in the USA and UK is deliberately vague, so it resides with the judge or jury to use their discretion to evaluate the extent of the similarity of each individual case, based on the context particulars. Verdicts of substantial similarity greatly differ for example, in the case of Hawkes & Sons v. Paramount Film Services (1934 as cited by Challis, 2003) twenty seconds (of 4 minutes) of a musical work used without permission, was deemed infringement. However, currently rulings appear more stringent and infringement may be regarded, if a listener can easily identify a similar sounding piece of music from one musical bar. Hence, any "recognisable" use may infringe even if the overall similarity of the pieces is questionable (Challis, 2003). Under this condition, a possible defence argument would be to advocate that the song was an independent creation. This is conceivable as there are limited note combinations. However, it is difficult to prove if the above 2 premises have been met.

Intentional plagiarism is morally and professionally unacceptable and deserves punishment. At a cursory level (or single act of infringement) a copyright infringer is liable for "statutory damages" that may range from a few hundred to a few thousand pounds. The infringed may receive 'actual damages' of harm endured if the value of their original work has suffered as a result of the infringement. However, irrespective of this, they are entitled to a (complex and variable) proportion of the profits that have been reaped from the plagiarised works (McCready, 2005). When a wilful infringement is passed, damages may reach hundreds of thousands of pounds or percentage of the artist's royalties (up to 100% of single or album sales). For example, The Verve were forced to pay the Rolling Stone's one hundred percent of the royalties from their song "Bittersweet Symphony" as the melody was claimed to be 'borrowed' without consent from the Stones song "The Last Time". Similarly, US rapper Vanilla Ice was found guilty of plagiarising the bass line from 'Under pressure" by Queen and David Bowie and he equally had to renounce one hundred percent of the album royalties (as cited by Challis, 2003). In addition, copyright owners can also obtain a court injunction forcing the infringer to cease their violation and even recall the infringing albums for destruction (Challis, 2003)

[4] Smith, 84 F.3d at 1220; Baxter v. MCA, Inc., 812 F.2d 421, 423, 424 n.2 (9th Cir. 1987).

However, there are many cases of plagiarism where the accused is adamant that they did not maliciously plagiarise others' work and that the plagiarism was entirely unintentional, not because they did not realise that the borrowing constituted plagiarism, but rather as they believed that their work was a novel creation and not based on anyone else's work. The first such case (to our knowledge) was Fred Fisher Inc vs. Dillingham (1924)[5] who was found guilty of plagiarism in 1934 but the infringement was reported to have been most likely 'unconscious'. Here no material damage was perceived to have been inflicted on the plaintiff as a result of the infringement (as the song was not popular at the time) so the accused was charged with 'the minimum statutory damages' ($250 and associated legal costs). However, the most renowned example of alleged unconscious plagiarism was the lawsuit of Bright Tunes Music Corp. v. Harrisongs Music, Ltd (1976)[6] where George Harrison was accused of plagiarising the previously popular Chiffons' hit "He's so fine", with his song "My Sweet Lord". Although, Harrison admitted in court that he had heard the Chiffons' hit, he refuted the claim that he had copied their work intentionally. The court found him guilty as a result of demonstrated 'access' to the Chiffons song and that his song bore 'substantial similarity' to theirs. He was found guilty of plagiarising the harmonies and musical essence of 'He's so fine'. The court agreed that he had not deliberately plagiarised the song and described his infringement as an unintentional copying of what was in his subconscious memory (Self, 1993). While Harrison was composing the song, he was not consciously aware of the previous hit and hence its' influence on his work (Self, 1993). Nevertheless, despite the acknowledged lack of intent this lesser verdict did not favourably affect his punishment or relieve any liability.

Perhaps an even more striking case was more recently, in 2001, when Michael Bolton was found guilt of plagiarising the Isley Brothers song "Love is a Wonderful Thing". The Isley Brother's song was not released on an album and the single only reached the top 100 in the music charts twenty-five years before Bolton's song was released. Michael Bolton denied ever hearing the song, but as he had previously demonstrated admiration of

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[5] Fred Fisher, Inc. v. Dillingham 298 F. 145 (S.D.N.Y. 1924).
[6] Bright Tunes Music v. Harrisongs Music. 420 F. Supp. 177 (SDNY 1976)

the Isley Brothers' music (i.e. attended concerts) this undermined his claim of independent creation. The condition of access was met and the two songs were also deemed substantially similar. Michael Bolton and his record company Sony were fined $5.4 million which was the largest damages award ever made in connection with a music plagiarism case. Moreover, this heavy punishment followed even though the court accepted that the plagiarism was not intentional (Three Boys Music v. Michael Bolton, 2000). Consequently, three conditions guide plagiarism rulings but intent does not need to feature in such rulings. Moreover, over time, verdicts of plagiarism that implicate unintentional plagiarism appear to be having less of an impact on the courts decisions.

When a song is in production usually many people are involved throughout the different developmental stages. Therefore, it is probable that stringent checks will be made to evaluate the authenticity of the material prior to release and in light of a genuine concern the song may be changed or withheld. If a potential instance of plagiarism is not detected prior to release but detected after, the plagiariser may often opt for a 'quiet' out of court settlement (i.e. 6 figure sum paid from Mike Batt to John Cage, 2002 for plagiarising his prior song; CNN, 2002). This may follow (for both parties) as a plagiarism case is not desirable publicly or financially. For the accused, each potential case of plagiarism is unique with its own complexities and ambiguities so the incentive to avoid lengthy and expensive high-profile legal disputes with the associated personal anguish and negative publicity that they bring, is high. Further, following the Michael Bolton case, artists may be more apprehensive about a possible unconscious copying lawsuit. The plaintiff may also have a motivation to avoid a legal battle and opt for an out of court settlement, particularly if the infringed material was not, in the first instance, highly successful. The former artists may be flattered by their songs resurrection and eager to avoid an inconvenient legal dispute if a suitable financial arrangement can be made with the infringers. Hence, the number of reported cases may not reflect the true prevalence of such cases as these may be difficult to trace. Indeed cases of plagiarism may simply be dismissed for a number of reasons. For example, the case of Harold Lloyd Corp. v.

Witwer (1933)[7] was unusually dismissed on the grounds of unconscious plagiarism although unintentional copying was actionable. The plaintiff's complaint had only alleged deliberate copying so no further action was taken. Consequently, as a result of out of court settlements, case dismissals or withdrawal of the accused material, accurately calculating the total numbers of plagiarism cases is difficult, and evaluating the numbers of these cases (both reported and non-reported) where genuine unconscious plagiarism was to blame for the infringement is even more elusive as intent to plagiarise is easy to deny and difficult to detect or prove.

Moreover, this problem is not anticipated to subside as the laws governing plagiarism/intellectual property are currently 'loose' and were not written with knowledge of the current technological advancements and particularly the internet (Cauchi, 2005). Harrison's plagiarism may have been a low-tech precursor to what is currently a highly technical problem on the internet. The legal and ethical problems are not exclusive to music copyright, but relevant to many different walks of life. For example Academia, Entertainment, History, Journalism, Literature, Politics (e.g. Iraq Dossier allegedly plagiarised from a student thesis), Pop-Fiction, Science and Medicine, Theology and Religion (as cited by Lesko, 2003). Moreover, the widespread introduction of old films, music, pictures and advertising, via the internet suggests that that future plagiarism (and unconscious plagiarism) cases are perhaps all the more likely. While cases of plagiarism are quietly settled with the infringing works compensating the originals or being withdrawn from sale – although this may relieve the issues of legality - it does not recognise, understand or begin to tackle the problem of unconscious plagiarism. Is work created independently of one's consciousness really "copying" and fundamentally, can copyright law extend to the unconscious? Should unconscious plagiarism be dealt with on a par with deliberate plagiarism? This is point that we will return to later.

1.3 Plagiarism within Universities

The problem of plagiarism is also very pertinent within higher education. Academic plagiarism is widely viewed as the act of copying or including the work of someone else in

[7] Harold Lloyd Corp. v. Witwer, cert., 296 U.S. 669.65 F.2d 1, 17 (9th Cir1933.)

one's own for personal benefit, without adequate acknowledgement. At a basic level, plagiarising the work of another is a form of academic dishonesty and is not acceptable in academic circles. There are a number of reasons why an individual may deliberately plagiarise. Some of the reported reasons include a belief that one's own work is inadequate and so a motivation may be to copy to obtain higher marks. Similar motivations may stem from a belief that 'everyone' does it or one may plagiarise as a result of time constraints, lack of preparation or simply laziness (Leight, 1999). A lack of understanding about what constitutes plagiarism and a poor writing, research, referencing practice may also underlie plagiarism. University guidelines are fairly consistent in their treatment of undergraduate students that are found guilty of plagiarism. Generally speaking plagiarism is heavily discouraged and is viewed as unacceptable, with the students found guilty of such a 'crime' facing very serious penalties. The University of Newcastle states that plagiarism 'degrades academic standards, degrees and institutions' and puts 'honest students at a disadvantage'. Moreover, if students fail to learn correctly this 'negatively impacts upon professional standards and qualifications' (http://www.infm.ulst.ac.uk/~projects/com560/8). Typically students found guilty can fail the course and often the entire semester. However, some institutions do have a degree of punishment depending on the severity and/or extent of copying that was detected and the punishment may be vary and (e.g. Birmingham University http://www.studserv.bham.ac.uk/sca/exam/plag.htm) be contingent upon the academic year of the student (i.e. more lenient in the earlier years). However, as with copyright infringement, not all students who have plagiarised may have done so intentionally. Institutions' guidelines on unconscious plagiarism are incredibly variable. The University of Edinburgh (2005) quotes that 'plagiarism is the act of copying or including in one's own work, without adequate acknowledgement, intentionally or unintentionally, the work of another, for one's own benefit' (http://www.aaps.ed.ac.uk/regulations/plagiarism/intro.htm). Students from the very beginning of their course are made aware that ANY plagiarism (including incorrect referencing) regardless of intent will not be tolerated. This stance avoids the problem of students who are caught and accused of plagiarism claiming ignorance in a plea for a lesser punishment and equally those counting on a second chance if their plagiarism was detected.

However, in some cases students really believe that their work is original and profusely deny plagiarising, as in the music copyright cases discussed above (i.e. George Harrison). Is it justified that these students be treated the same as those individuals who deliberately copied work from elsewhere? The University of Canberra feel that it is not, and take a different approach to punishing this type of unintentional plagiarism. Generally the guidelines for dealing with such cases are more flexible and punishments are decided on a case to case basis during discussions with the plagiarising student and their assessor. There are three possible outcomes; the first, is that the student's mark may be reduced. This may follow only if the standard of the work is lower than required and is not regarded as a penalty as the plagiarism was void of intent. Second, the student may be permitted to resubmit the assignment or third, the tutors may choose to take no action. Importantly though unlike deliberate plagiarism, in cases of unintentional plagiarism no permanent records are kept (http://www.canberra.edu.au/secretariat/plagiarism_proc.html).

Institutions both nationally and internationally, vary considerably in terms of their stance on plagiarism and specifically, whether unconscious plagiarism is regarded as punishable at the same or lesser level as deliberate plagiarism (the University of Canberra's lenient treatment of unconscious plagiarism is not the norm). This is a very controversial point as a plagiariser's intent is very difficult to determine and prove (as in copyright infringement cases). The problem with plagiarism in general is steadily increasing in terms of the number of incidents occurring (although this is also confounded by the increasing ability to detect such plagiarism). This has been likely fuelled by an increasing number of students being recruited into higher education and the vast array of information that is so readily available and accessible on the internet. The increasing numbers of cases has also spurred the need for sophisticated software to be developed to highlight plagiarised material and help alleviate this problem. However, there are no governing rules or measurement tools that may be used to help detect such cases of unconscious plagiarism. Moreover, if cases are detected there are no consistent procedures for dealing with such individuals. Depending on the institution, lack of intent may or may not be used as a defence against plagiarism but nevertheless, unintentional plagiarism is still highly undesirable and morally unacceptable. Unconscious infringement is still infringement. Currently little is understood about unconscious plagiarism and the measures that may be taken to prevent such intrusions from occurring. This thesis intends to investigate the mechanisms by which an individual may incorrectly come to believe that something that originated elsewhere, was their uniquely their own.

1.4 Unconscious Plagiarism Research

1.4.1 Initial paradigm

In 1989, Brown and Murphy were the first researchers to examine unconscious plagiarism within a controlled generation context. Using a three-stage paradigm, they empirically demonstrated that participants can be induced to plagiarise in the laboratory:

Phase 1- Generation Phase: In an initial generation phase, groups of 4 participants took turns to generate category exemplars (e.g. fruits. See also Brown & Halliday, 1991; Macrae, Bodenhausen & Calvini, 1999). There were 4 categories and in total 16 generated exemplars for each, to a total of 64 exemplars.

Phase 2- Recall-Own Phase: Following the encoding session, participants were instructed to recall their initial responses without recalling any of the other participants' prior suggestions.

Phase 3- Generate-New Phase: Following the recall-own phase participants were instructed to generate an equal number of new responses that had not been previously been given (by anyone including themselves) in the prior generation phase.

Unconscious plagiarism was scored slightly differently in each of the phases. In the generation phase, participants plagiarised if they repeated an exemplar (i.e. type of fruit) that someone else had previously given earlier in the experimental sequence. In the recall-own phase, plagiarism was counted whenever a participant recalled an exemplar as their own, that had originally been generated by someone else. In the generate-new phase, plagiarism was counted when participants reproduced any previously given exemplars as their own, new exemplars. This followed for other participants' exemplars or their own earlier exemplars. Although stealing from oneself may not be morally akin (or have the same legal or moral connotations) with 'plagiarising' from another individual; in the conventional sense, it is nonetheless unacceptable in certain domains. For example, in academic writing, publishing research/ideas in more than one place (intentionally or unintentionally) breaches copyright and it not permitted. Moreover, stealing from oneself in other ways may in fact be viewed as embezzlement or fraud. Therefore in such cases self-plagiarism can be a very undesirable and punishable offence hence these self-plagiarism rates are also of theoretical interest.

Brown and Murphy (1989) found that unconscious plagiarism (from other participants) occurred in each of the three phases. The rate obtained in the initial generation phase was 4 %, but higher rate of 7% was obtained in the recall-own phase, when participants recalled their own exemplars and 9% in the generate-new phase, when participants generated new exemplars. The information participants were plagiarising here were category exemplars e.g. banana, orange etc. In such straightforward category generation tasks there is a danger that the 'exemplars' that were given in each of the phases may not have been plagiarised *per se* but may have been spontaneously generated, regardless of their prior exposure in the initial generation session. To account for this possibility, Brown and Murphy (1989) statistically compared the rate of solution generation against Klee and Gardiner (1976) 1.6% base rate likelihood of those generations being made in the absence of prior experience (see chapter 2). Fundamentally, in all phases, the obtained rates (4%, 7% and 9% respectively) statistically exceeded this baseline and hence plagiarism was not solely accountable in chance terms of spontaneous generations. Furthermore, in the recall-own phase, participants were more likely to plagiarise someone else's idea that they previously experienced (7.3%) as one of their own ideas, than a random new idea (2.3%) and in the generate-new phase, participants were more likely to plagiarise others' ideas as their own new ideas (8.6%) than one of their own prior ideas (inadvertent self-duplications) (only 2 instances in the experiment). This finding is consistent with generation effect, which occurs when people are better are remembering information that they had to produce (as it is more highly differentiated in memory; Macrae et al. 1999) than information that was given to them (Raye & Johnson, 1980; see also Linna & Gülgöz, 1994; Slamecka & Graf, 1978; Voss, Vesonder, Post & Ney, 1987) and also suggests that self-generated and other-generated information is monitored in different ways (Brown & Murphy, 1989).

Brown and Murphy, (1989) conducted two further experiments to investigate the veracity and generalisability of their findings. In Experiment 2, task difficulty was increased in two ways; by first increasing the number of semantic categories and second, introducing more difficult orthographic categories. Orthographic categories were deemed to be more difficult as conversations are usually processed on a semantic (as opposed to orthographic) level. Participants were required to generate from both these categories simultaneously. This hampered their ability to effectively monitor the origins of the initial information and hence, increased the observable plagiarism. The highest level of plagiarism was observed in the difficult orthographic categories. In their third experiment, rather than being tested in groups participants were tested individually, in a 'visual mode'. This dynamic removed the social interaction and accordingly, the social (memory) cues that may have been exhibited by the other participants in the previous experiments. However, this individual testing did not affect the plagiarism rates. Moreover, in each of these studies, the high rates of obtained plagiarism were accompanied by high confidence ratings. Higher participant confidence was exhibited for those ideas that that were incorrectly recalled as their own (recall-own) rather than new ideas (generate-new), although both sets of ratings were slightly lower than those ratings given for correct ideas. These findings cumulatively indicated the robust nature of unconscious plagiarism and that participants were not simply guessing but were exhibiting plagiarised errors under the confident illusion that other participants' ideas were their own or genuinely new ideas.

1.4.2 Factors that affect unconscious plagiarism

1.4.2.1 Delay:

Brown and Halliday (1991) replicated and extended the work of Brown and Murphy, (1989) by incorporating a retention interval of one day and one week between the initial item generation and testing. This delay separated the testing session with a view to investigating the magnitude of the observed effect while enhancing the generalisability of the paradigm. Essentially Brown and Murphy's (1989) methodology was maintained but a minor change at generation was that participants were tested in groups of 3 and generated 6 exemplars to each category. Brown and Halliday (1991) found that, in each task, over 80% of the participants exhibited unconsciously plagiarised errors. In the recall-own phase, the errors over the delay increased from 4.3% to13.1% and in the generate-new phase from 6.7% to13.3%. Although the levels obtained by Brown and Halliday (1991) during immediate testing were slightly lower than those obtained by Brown and Murphy (1989), following the delay rates nonetheless tripled in the recall-own phase and doubled in the generate-new phase (see also Marsh & Bower, 1993). The lower rate of initial plagiarism may however be accounted for, as Brown and Halliday, (1991) only instructed participants to recall two thirds of their initial exemplars and not all of their earlier exemplars as in Brown and Murphy (1989).

In the 'real world' there is almost inevitably an extended time period between the moment an individual is initially exposed to information (i.e. a song, movie plot) and the time that that information is later plagiarised. Brown and Halliday (1991 see also Marsh & Bower, 1993) essentially observed that laboratory plagiarism rates did significantly increase over a 1 week delay. Subsequent studies have mirrored this inflated plagiarism rate following a one week retention interval (see Bredart, Lampinen & Defeldre, 2003; Landau & Marsh, 1997; Marsh & Bower, 1993; Marsh & Landau,1995; Marsh, Landau & Hicks, 1996,1997; Marsh, Ward & Landau, 1999). Moreover, as a result of the more 'real world' scenario that a delay creates, combined with the inflated rates of plagiarism that are obtained, implementing a one week delay between generation and testing has become more common in investigating unconscious plagiarism. However, to date, during these retention intervals, the cognitive processes that participants engage in have not been subject to experimental investigation. This is important as 'real life' plagiarists inevitably think about appropriated information and accordingly invest considerable time and effort into development between the time that the information is initially encoded and later plagiarised. We return to this topic in chapter 3.

1.4.2.2 Alternate generation tasks:

A series of research studies have been conducted using adaptations of Brown and Murphy's original paradigm. One of the main changes across studies is the type of task implemented at generation. Consistently high levels of plagiarism have been obtained using the traditional category generation tasks (Bredart et al. 2003; Brown & Halliday, 1991; Linna & Gülgöz, 1994; Landau & Marsh, 1997; Macrae et al. 1999; Marsh & Landau, 1995) but, Marsh & Bower, (1993) were the first to investigate the generalisability of these prior findings using a more creative task at generation. Their motivation was to create a setting that they believed would more accurately reflect scenarios that would be more conducive to unconscious plagiarism in the 'real world'. Brown and Murphy's (1989) three stages were maintained with a more creative puzzle task (the word game 'boggle') at generation that required the participants to search for creative word solutions. The plagiarism levels obtained using this task were found to be between 2 and 9 times greater than in the previous experiments (depending upon the individual task and condition) with associated high confidence attributions. They found that increasing task difficulty, by increasing the number of words in a puzzle increased (but not significantly) overall plagiarism (as Brown & Murphy, 1989) as fewer combinations of words were available. Specifically, in the recall-own phase plagiarism rates for difficult puzzles increased the most over the delay from 8.1% to 35.2% while easy puzzles increased from 6.9% to 28.4%. The generate-new phase however, produced higher levels of plagiarism, following a similar pattern to the recall-own phase. Plagiarism for difficult puzzles increased over the delay from 29.4% to 44.9% and for the easy puzzles from 10.6% to 26.1%. Moreover, 40% of plagiarised errors received a high confidence rating. Therefore, this substantial raise in plagiarism was attributed to the creative nature of the initial task and closer analogy to real world cases of unconscious plagiarism.

Since Marsh and Bower's study (1993; see also Marsh & Landau, 1995), additional creative tasks have been incorporated into the paradigm (see chapter 2 for a comprehensive review). More social tasks have been implemented where participants have been required to work together and brainstorm information. For example, participants were required to respond and generate ideas to questions, such as ways 'to improve their universities' and 'to reduce traffic problems' (Marsh et al. 1997, see also Bink, Marsh, Hicks & Howard, 1999). Despite responses to such questions being relatively constrained, later when participants generated new ideas other participants' ideas were plagiarised at a high rate of 21%. In addition, unconscious plagiarism has been investigated in a different paradigm where the participants' generation task is to produce creative drawings (non-oral paradigm). In these studies, participants design and draw space creatures (Ward, 1994; Smith, Ward & Schumacher, 1993; or their faces Bredart, Ward & Marczewski, 1998) that could inhabit a distant planet. Here, participants plagiarised by drawing creatures with 'novel' entities that were consistent with emergent properties of the examples that they were shown (and explicitly instructed to avoid) (Landau & Leynes 2004; Landau, Thomas, Thelen & Chang, 2002; Marsh et al. 1996; Marsh, Bink & Hicks, 1999). This followed when creatures were encouraged to reflect those from their wildest imagination (Ward, 1994).

To our knowledge, the only study where plagiarism was not observed following a creative task was specifically, when participants were required to devise a non-word language for use on an alien planet (Tenpenny, Keriazakos, Lew & Phelan, 1998). Following their study, Tenpenny et al. (1999) contested that plagiarism was observed when truly creative tasks were utilised. However, Marsh, Ward and Landau's study (1999), used a similar creative task that required participants to generate novel non-words for English categories, but they found that during both immediate and delayed testing, participants' words tended to conform to the orthographic structures embedded in the shown examples (both with arbitrary features and naturally occurring orthographic regularities), despite admonitions to avoid existing features. Participants had difficulty avoiding the use of this prior knowledge, despite being able to list the features they were asked to avoid. Therefore, Tenpenny et al's lack of plagiarism was subsequently attributed to the substantially increased difficulty of the task containing no inherent regularities (Marsh et al. 1999). Cumulatively, these varied creative studies (both verbal and non-verbal) have resulted high levels of unconscious plagiarism (or conformity to presented exemplars) that exceed those obtained when semantic category tasks were utilised (e.g. Brown & Murphy, 1989). This thesis intends explore unconscious plagiarism using a verbal creative task that is comparable to the widely used category generation task but that is concurrently more real and creative (than non-word generation) without being easily categorically constrained.

1.4.2.3 Testing characteristics:

Brown and Murphy (1989) found that there was little difference in the ultimate rate of plagiarism when participants were tested in groups of four or individually and this did not change when participants were tested in groups of 3 (e.g. Brown & Halliday, 1991). Brown and Murphy (1989, Experiment 1 and 2 and Brown & Halliday, 1991) observed that the plagiarised items were most likely to have been a word given in the generation phase by the person who spoke immediately before the plagiariser. This was attributed to a diminished attention just prior to the when the participant was due to speak (Brown & Murphy, 1989; Brown & Halliday, 1991) and was labelled the 'next in line' phenomenon (Brenner, 1973; Brown & Oxman, 1978). However, Linna and Gülgöz (1993) randomised the order that participants generated ideas and their study demonstrated that one's serial position does not influence the likelihood of the ideas being plagiarised by another participant. Moreover, subsequent research has tested participants in pairs (e.g. Macrae et al. 1999) or with a computer partner (e.g. Marsh & Bower, 1993) and the plagiarism intrusion rates obtained have been largely consistent. Although paired testing appears to produce higher rates of plagiarism (Macrae et al. 1999; Marsh & Bower, 1993) the definitive impact of paired testing on rates has been somewhat confounded by other simultaneous manipulations. However, when participants were tested individually rates did not differ from when participants were tested in groups (Brown & Murphy, 1989). Hence, obtaining high rates of unconscious plagiarism does not appear to be contingent upon the testing dynamics regarding the size of the group.

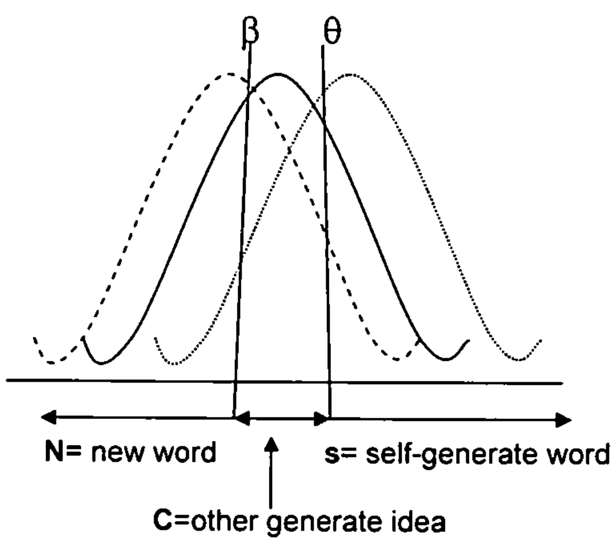
Bink et al. (1999) have demonstrated that when participants are presented with information from two sources they are more likely to plagiarise information from the 'alleged' more credible and most prestigious source (this was the case even thought there was no actual difference in source -a point we will return to Chapter 2) and Macrae et al. (1999) indicated that when participants were tested in pairs they were more likely to plagiarise from someone of the same gender as themselves. This finding complements the observations from the reality monitoring literature (the processes by which people discriminate between memories derived from perception and those that were reflectively generated via thought, imagination, dreams, and fantasy; Johnson & Raye, 1981) that when the perceptual similarity of two sources is increased, perceivers typically experience difficulty recollecting who said what (Ferguson, Hashtroudi & Johnson, 1991) and specifically, that participants are more likely to confuse the source of information when the information is given by two women than when information is given by one woman and one man (Johnson, Nolde & DeLeonardis, 1996). In the real world, people plagiarise from a variety of media, for example, information they have heard on the radio, television or read in a book, article or computer. Thus, this research programme intends to implement group testing as a means of creating an element of diversity with a more social and less experimental environment.

1.5 Theory

Two main theoretical accounts of Unconscious plagiarism; the Activation Strength Model (Marsh & Bower, 1993) and the Source Monitoring Framework (Johnson et al. 1993) have been used to illustrate why and how individuals may exhibit unconsciously plagiarised errors.

1.5.1 Activation Strength Model account of Unconscious Plagiarism

In 1993, Marsh and Bower used a simple model of the usual strength (or familiarity) theory of recognition memory to account for why individuals plagiarise (e.g. Norman & Wickelgren, 1969). They developed Johnson and Raye's (1981) model for reality monitoring. The rationale for this approach focused on the notion that items from the experiment would each differ in their levels of associated activation strength. Initially there are three classes of items, ideas that were externally generated (i.e. computer or partner ideas that were either heard or seen), ideas that the participant generated themselves (i.e. participants own ideas) and new ideas that the participant had not been previously exposed to (new ideas). Items that participants generated themselves would be the strongest ideas as a result of the effort that they exerted during the self-generation (the generation effect; Slamecka & Graf, 1978 a point that we return to). In contrast, the new or distracter items would be the weakest ideas as participants had had no prior exposure to such ideas. The strength of items from an external source (computer partner/other participant) would fall in between the two, as they would be stronger than the distracter items, as a direct result of their prior exposure to the ideas in the generation phase, but would not be as strong as their self-generated ideas as participants were not directly engaged with those ideas to the same degree. Marsh and Bower (1993) indicated that participants utilise a decision criteria to establish the information's source, based on a level of strength. Hence, if an item is below this level then an item will be regarded as a new idea, if it falls above this level it may be regarded as self-generated and if it is in between the two it would be regarded as an externally generated idea (see figure 1.5.1.1 for a pictorial demonstration). Moreover, the 'farther the items strength is from the relevant criteria the more confident subjects judgements should be' (Marsh & Bower 1993, p685).



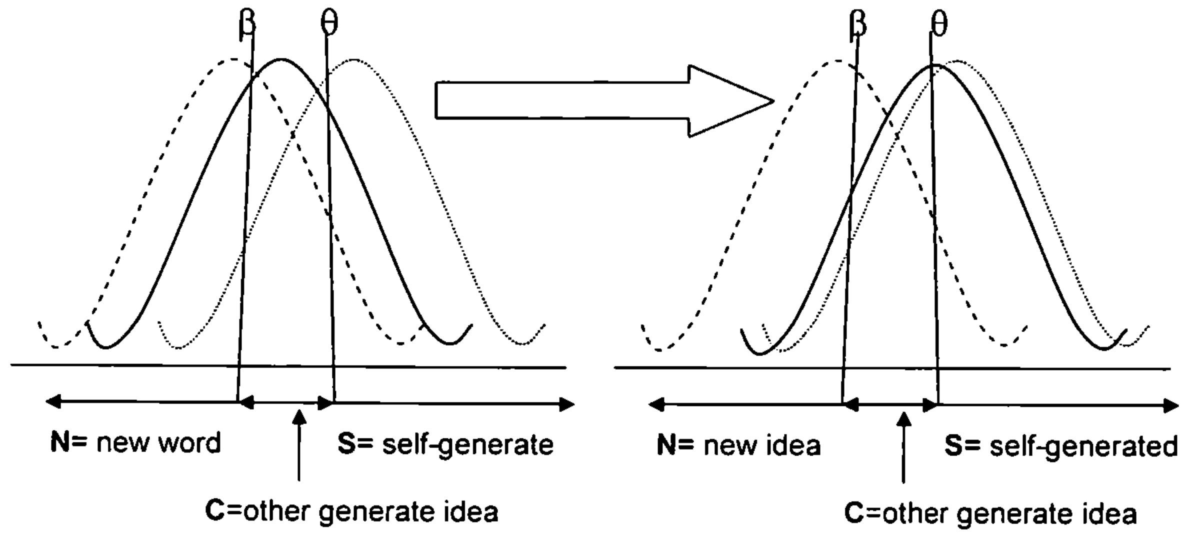
hypothetical distribution for new ideas
hypothetical distribution for others' ideas
hypothetical distribution for self-generated words
β= generate-new criterion – any item falling below will be considered as a new candidate.
θ = recall-own- item whose strength exceeds would be considered self.
n = will be labelled new idea
c = will be labelled computer (externally) generated idea
s = will be labelled self-generated ideas

Figure 1.5.1.1 Pictorial demonstration of Marsh and Bower's (1993) Activation Strength Model (p686).

Marsh and Bower (1993) used the model to account for manipulations that affect forgetting such as retention interval between encoding and testing and participant interference. The marked reduction in the number of ideas that are correctly recalled during delayed testing (relative to immediate testing), suggests that traces of item strength (both self and other generated information) weaken over time. The activation strength of such items may deplete (shift below β see figure *1.5.1.1*) to a level that is more comparable to non-presented or genuinely new items. Consequently, such ideas may have a greater probability of incorrectly being presented as new and thus plagiarised. This explanation is consistent with the pattern of results observed across studies that have investigated participant delay within an unconscious plagiarism paradigm (Brown & Halliday, 1991; Bredart et al. 2003, Marsh & Bower, 1993; Marsh & Landau,1995; Marsh & Landau, 1997; Marsh et al. 1996,1997; Marsh et al. 1999). Moreover, additional support for this idea may be derived from the incremental increasing rates of plagiarism observed within an experiment. Marsh and Bower (1993) speculated that the observable increase in plagiarism across the three tasks, from the lowest rates during generation to the highest rates in the generate-new phase, was a function of the memory traces of the respective ideas weakening over time (see also Brown & Halliday, 1991).

Marsh and Bower, (1993) conducted a series of experiments to evaluate their activation strength model's ability to explain unconscious plagiarism. They used Brown and Murphy's (1989) three stage paradigm but implemented a creative puzzle task at generation, where participants generated their own words in response to the puzzles but were also exposed additional words that a computer partner produced. Their intention in Experiment 2a was to raise the strength of the others' (computer partners') ideas with a view to reducing plagiarised errors. To do this, participants were encouraged to learn their computer partner's words better, at encoding by processing the words at a deeper, semantic level. Specifically, they evaluated whether the given words were represented or associated with something 'good'. This manipulation increased the activation strength of 'others' (the computers) words and so resulted in better participant discrimination between these words and new words. This reduced the likelihood that these old (semantically processed ideas) words were incorrectly considered as new, and so reduced the plagiarism in the generate-new phase.

Experiment 2b intended to replicate this pattern (of strengthening others' words), but also to decrease participants' ability to distinguish whether words were initially partner or self-generated. This was achieved using their 'orienting manipulation', where as well as producing their own words participants were instructed to find and complete computers words hidden in the puzzle. This was anticipated to further increase the strength of 'other' (computer) ideas. With respect to their model, the anticipated affects of this manipulation were two fold: First, for those items in the generate-new phase, increasing the strength of computers items towards the level of self generated ideas would result in better participant discrimination between old and new, and reduced generate-new plagiarism (as in Experiment 2a). Second, for those items in the recall-own phase, further increasing the strength of the computers items towards the status of self generated ideas, should increase confusion between others' and self-generated ideas. Hence, the 2 distributions should overlap and accordingly recall-own plagiarism should increase (see Figure 1.5.1.2 for a hypothetical pictorial demonstration). The results supported the model and demonstrated that this orienting manipulation, as anticipated, significantly reduced plagiarism in the generate-new phase and increased plagiarism in the recall-own phase, but not significantly. Their model could also account for measures of reaction time and thinking time that participants used to complete the tasks. Participants were found to be quicker in the generate-new phase than in the recall-own phase. This followed as new distributions are better distinguished from old once they have been strengthened (right hand figure 1.5.1.2), hence speeding responding, whereas, others' ideas and self generated become more similar, hence slowing responding. Fundamentally, this model fit extremely well with Marsh and Bower's (1993) data and accounted for 92% of the variance in participants' responses.



— — — hypothetical distribution for new ideas
——— hypothetical distribution for others' ideas
.... hypothetical distribution for self-generated words
β = generate-new criterion – any item falling below will be considered as a new candidate.
θ = recall-own- item whose strength exceeds would be considered self.
n = will be labelled new idea
c = will be labelled computer (externally) generated idea
s = will be labelled self-generated ideas

Figure 1.5.1.2 Hypothetical pictorial demonstration of Marsh and Bower's (1993) Activation Strength Model following orienting manipulation in Experiment 2b to strengthen others' ideas.

Marsh and Landau (1995) subsequently more rigorously tested the assumptions of the relative strength model and assessed its ability to account for laboratory induced unconscious plagiarism. They compared Brown and Murphy's (1989) paradigm (using a category generation task) with Marsh and Bower's (1993) paradigm (using a puzzle task), but introduced a lexical decision measure of activation between the initial generation and testing phase of each study. Lexical decision tasks test participants' reaction time to the ideas, with the faster reaction times indicating a greater item strength (e.g. Johnson & Hasher, 1987). Hence, they investigated whether other-generated items that were later plagiarised demonstrated any evidence of greater strength (as demonstrated by a faster reaction time) than those ideas that were not later plagiarised. They found, first and importantly, that the rates of unconscious plagiarism obtained in these studies were in line with the initial studies that they replicated and second, that items appeared to retain different levels of activation from prior exposure. Specifically, plagiarised items were those that were more readily available in the lexical decision task.

More stringent tests of the model followed where the strength of different classes of ideas were independently manipulated. To do this, Marsh and Landau (1995, Experiment 3) developed Hoffman's, (1992 as cited by Marsh & Landau, 1995) methodology of manipulating the strength of self and other-generated information. Hoffman, manipulated the strength of pictures or words by implementing a two day retention interval between initial encoding and test. On day 1, a sub-set of participants were shown photos of objects and returned on day 3 to imagine other objects. At test, participants tended to incorrectly attribute a new idea to the external source (as an old seen idea), rather than the internal source, (a more recently imagined idea -false positives). This tendency when one is unsure of the source, to attribute an item to an external source (rather than an internal one) was termed the 'it had to be you effect' (Johnson & Raye, 1981). Marsh and Landau (1995) investigated this phenomenon by specifically manipulating the relative positions of the strength distributions of different classes of information, by alternating the sequence of tasks that participants completed. They used Marsh and Bower's (1993) boggle paradigm, but assigned participants to either a 'computer first', or a 'participant first' condition. In the participant first condition, participants generated their own words, waited 20 minutes and then heard the computers words, while in the computer first condition, participants listened to the computer words, waited 20 minutes and then generated their own words. The results demonstrated that in the recall-own phase, plagiarism was higher in the participant first condition (27.5%) than the computer first condition (16.7%). This followed as the retention interval had weakened the strength of participants words compared to the more recently experienced computer-generated words. Similarly, in the generate-new phase, in the computer first condition, computer plagiarisms were much higher (21.7%) than those in the participant first condition (15.0%) and this was due to the weakened strength of the computer words. Therefore, here it appeared that rather than the weak ideas being attributed to an external source (as Hoffman, 1992 found) the weaker ideas were attributed to the weaker source. As such, Marsh and Bower's (1993) activation strength model can neatly account for these findings. Moreover, in 1997, Hoffman reversed his initial study and found that when imagining pictures preceded seeing pictures, participants tended to attribute new items (to which they were unsure of the sources) to an imagined, weaker (internal) source rather than a seen (external) source. This finding was consistent with the strength account and consequently termed 'it had to be me effect'. Accordingly, Marsh and Landau (1995) subsequently maintained that availability underlies what information comes to mind and that failure to engage in appropriate source monitoring that ultimately leads to unconscious plagiarism.

1.5.1.1 Related Explanations: Processing Fluency and the Familiarity Attribution Model

Activation strength or variations on strength have been used to account for other phenomena. According to the 2-process theory, processing of a stimulus can be enhanced or made more fluent by recent exposures to it. Fluency may be a useful cue in a memory test, to help determine whether the information has been experienced before. In this sense, something that feels familiar and is processed fluently may be attributed to a previous encounter, but this fluent processing may also be incorrectly attributed to other sources. An example of such a cognitive misattribution was demonstrated by Jacoby, Allan, Collins and Larwill (1988). Jacoby et al. (1988) initially presented participants with a list of oral sentences. Following this, participants were represented with some of these sentences together with some new sentences that were both presented against background noise which occurred at 1 of 3 intensity levels. Participants' task was dual; they were required to repeat back the sentences and to judge the intensity of the noise. Jacoby et al. (1988) found that for very low-level perceptual judgments, participants' 'old' sentences were attributed with a lower noise level than new sentences. Hence, it appeared that participants misattributed fluent processing incorrectly to the intensity of the masking noise rather than the influence of the past sentence exposure. This misattribution pattern has been observed for those with reduced attentional capacity that may be caused by aging (Dywan & Jacoby, 1990; Dywan, Segalowitz, & Williamson, 1994) or traumatic brain injury (Dywan, Segalowitz, Henderson, & Jacoby, 1993). Moreover, participants who have been subject to dual task conditions (reduced attentional capacity) may subsequently mistake the familiarity of previously read non-famous names for real-world fame (Jacoby, Woloshyn, & Kelley, 1989). Hence, this memory illusion was accordingly dubbed the false fame effect (Jacoby, Kelley, Brown & Jasechko, 1989).

Processing fluency has also been implicated in a host of judgements that may be influenced by prior exposure. These include judgements of perceptual duration (Witherspoon & Allan, 1985), perceptual clarity (Whittlesea, Jacoby & Girard, 1990), recognition and truth (Kelley & Lindsay, 1993) and imagination inflation (Garry, Manning, Loftus & Sherman, 1996). In the imagination inflation paradigm, participants are initially given a long list of possible childhood events and are asked to indicate whether or not these events have happened to them as children. A couple of weeks later, participants are asked to imagine a few of these events that had not happened to them, such as 'breaking a window with their hands'. During this imagination, participants are instructed to think about relevant event details (of breaking the window), such as 'how they tripped and fell', 'who else was there' and 'how they felt' when they broke the window. Then at test, participants receive a list of events for a second time and indicate which events had happened. Garry et al. (1996) demonstrated that imagining these counterfactual events actually increased one's confidence that the events occurred. Subsequently, this powerful and robust effect has been replicated on numerous occasions (e.g. Goff & Roediger, 1998; Heaps & Nash, 1999; Paddock, Terranova, Kwok & Halpern, 2000; Thomas & Loftus, 2002).

The processes by which false memories occur is unclear, however, Mazzoni, Loftus and Kirsch, (2001) proposed a 3 stage model to account for the formulation of such memory intrusions. 1) An individual must believe the event is plausible, 2) An individual must believe that the event occurred 3) An individual must experience the event as if it were a real memory. Bernstein, Godfrey, Davidson and Loftus (2004) maintain that fluency (rather than imagination) may account for stages one and two of the model. For example, in their study initially, participants were given actual sentences to read or were given a sentence in which an anagram was included about a particular event. For each sentence participants either rated the likelihood that the event occurred in their lives or in the lives of an average North Americans child before the age of 10. Those who had unscrambled the sentences had an increased confidence that the event occurred to them.

This followed for those participants who had completed either type of rating. Bernstein et al. (2004) suggested that this may have occurred as when the anagram was initially experienced, it was difficult and slow to solve. However, as a result of the effort invested into the anagram throughout the problem solving process, when the solution is uncovered, participants may experience a 'rush of meaning that may be akin with an 'ahah' moment' (Schooler & Dougal, 2003 as cited by Bernstein et al. 2004 p455). Subsequently, this 'rush of meaning' may be experienced as 'surprising fluency' that may encourage the experience to feel familiar (Whittlesea & Williams, 2001). If the event feels plausible and the familiarity is incorrectly attributed to a fictional experience happening to them, instead of the anagram from which it correctly originated, a false memory may occur. A similar familiarity misattribution model may be used to explain how false memories or fictitious imagined events may be recalled as real with accompanied sensory detail and emotion (Loftus & Bernstein, 2005). In studies reviewed by Lindsay, Hagen. Read, Wade & Garry (2004) 31% of participants' false memories had accompanying sensory details.

However, while a familiarity misattribution model may sufficiently explain these findings, Bernstein et al. (2004) maintain that fluency *per se* (excluding familiarity) is insufficient to exclusively explain the participants' increase in confidence. This follows as prior exposure alone does not cause a later increase in childhood autobiographical confidence, despite the increased fluency that likely accompanies words that have been seen before. False memories were not created when prior exposure was relatively uninvolved i.e. when participants were engaged in simple vowel counting tasks but only when prior exposure was relatively elaborate i.e. anagram solving (Bernstein et al. 2004). False memories have also been created as a result of other types of elaborate processing, such as providing vividness ratings performing sentence generation, paraphrasing information (Sharman, Garry & Beuke, 2004) or explaining fictional event (Sharman, Manning & Garry, 2005). However, if this prior elaborate exposure is seen as being directly relevant to the experimental task (i.e. generating a sentence about a child) participants are likely to discount the associated misplaced familiarity (Loftus & Bernstein, 2005).

Activation strength distributions are conceptually similar to those proposed by Jacoby (Jacoby & Dallas, 1981; Jacoby, Kelley & Dywan, 1989) 'as strength distributions could be interpreted as distributions of relative fluency of processing' (Marsh & Landau, 1995, p808). Subjective experiences of remembering may reflect the operation of decision processes that attribute mental events to respective sources. Fluency or familiarity that results from processing items may be used to make source attributions about those items. In the plagiarism studies (i.e. Landau & Marsh, 1995) ideas that participants self-generated may be more easily processed and hence feel more familiar than computers responses during test. Consequently, the computer items that may be later plagiarised, may be those ideas that are processed more easily/fluently than those not plagiarised (Marsh & Landau, 1995). Kelley, Jacoby and Hollingshead (1989) have argued that fluency may drive source judgements but Marsh and Landau (1995) maintain that although fluency may provide a useful heuristic for making source decisions (i.e. distinguishing old/new ideas) it cannot solely explain unconscious plagiarism. While fluency may be able to account for plagiarised intrusions in the recall-own phase it would struggle to account for why people plagiarise in the generate-new phase. For example, if an idea was fluent/ familiar, this feeling should help participants avoid using such information as new and not promote such intrusions (Marsh & Landau, 1995). Additionally, perceptual fluency declines very slowly over short delays (i.e.15 minutes) whereas; the rates of unconscious plagiarism may be high over equivalent short delays. It is more intuitive that an activated (but not explicitly familiar) idea may be incorrectly attributed as a new generation (Marsh & Landau, 1995).

Although the reviewed data may be accounted for by Marsh and Bowers' (1993) activation strength model it may also be difficult to exclusively explain unconscious plagiarism in terms of strength. This conclusion may be drawn as the model was primarily based on recognition memory and is simplistic, as it may ignore the complexities of recall, cognition and the possibility that participants may be determining source (own/other) in alternative ways. For example, participants have their own subjective lexicons in which certain words are either unknown or rarely occur, so during testing participants may remember one of the words being previously given and hence conclude that the item was not their own but originated elsewhere (Marsh & Bower, 1993). This thesis will explore the ability of the activation strength model to account for unconsciously plagiarised errors that arise under alternate conditions.

1.5.2 Source Monitoring

Source refers to characteristics that together collectively represent the conditions under which a memory was acquired (i.e. in terms of the modality a source could be perceptual or reflect the thought processes utilised during imagination). Source monitoring is exhibited when an individual discriminates the origin of different memories. Monitoring decisions are based on the qualities of the retrieved memories that are bound to memories during encoding and the judgment processes that are utilised to evaluate this information (Johnson et al. 1993).

1.5.2.1 Memory encoding

The source monitoring framework suggests that when 'information' is experienced (i.e. generated/heard) memory characteristic features (that include source information) may be bound to the memories (Johnson et al. 1993). Johnson et al. (1993) defines five types of characteristics 1) sensory/perceptual information (e.g. sound and colour), 2) contextual information (e.g. both spatial and temporal), 3) semantic detail, 4) affective information (e.g., incorporating emotional reactions), and 5) cognitive operations (e.g. records of generating information, organizing information or imagining). Hence, the associated memorial representations that accompany a memory may differ as a result of the different encoding processes that led to that memory. Actual experienced events are typically associated with sensory, perceptual and contextual information (Johnson, Raye, Foley, & Foley, 1981; Finke, Johnson & Shyi, 1988; Suengas & Johnson, 1988). Specifically, these memories of real events tend to be rich in cues to their external perceptual origin; colours, perceptual clarity and vividness (sensory properties), and contextual information such as relative spatial location and temporal order (Johnson, Foley, & Leach, 1988; Johnson, Foley, Suengas, & Raye, 1988; Johnson & Raye, 1981; Johnson, Ray, Foley, & Kim, 1982; Suengas & Johnson, 1988). They are also more likely to give rise to supporting memories (Johnson, 1988). On the other hand, internally-generated memories may posses few perceptual memory cues but generally be more schematic (i.e. formed by expectations of familiarity with the source) and reflect the cognitive operations that were attained during creation (i.e. reasoning, inferring, imagining) (Cohen, 1981). Evidence of such cognitive operations are more difficult to contextualise than for example perceptual information. In contrast, since imagining an event requires mental effort evidence (including details) of this effort may in this case be preserved in memory.

The quality and quantity of these varied characteristics may be used by an individual to infer the original source of their memories (Johnson et al. 1993). Anything that prevents a person from fully contextualizing information at acquisition will reduce encoding of potentially relevant source information. Source monitoring assumes that unconscious plagiarism may arise 'from the same processes as do accurate classifications of memories; from processes of attribution based on the subjective qualities of experience' (Johnson, 1988 p. 390). Consequently, confusions between two sources may indicate a similarity between the qualities associated with the memories from each source (or an insufficient monitoring of the memory characteristics at test).

Moreover, general knowledge, category knowledge, beliefs and plausibility that may be external to a candidate memory trace may also aid source decisions (Hicks & Cockman, 2003). For example, if a joke was heard in a particular context, one may conclude from general knowledge that the source of the joke was an individual associated with that particular context. Experimentally this has been demonstrated where participants have been more likely to attribute information to a schema consistent source than a non-consistent source. Specifically, with regards to object schemas (e.g. a soap dish to a bathroom Bayen, Nakamura, Dupuis & Yang, 2000; Spaniol & Bayen, 2002) and professional schemas (i.e. doctor items more likely attributed to the doctor source than lawyer and vice versa). Bayen et al. (2000) explained these findings in terms of a 'guessing hypothesis' where such schemas are used by individuals who cannot remember the source. Hicks and Cockman (2003) found that schema related response bias was not random but most likely to occur during retrieval and particularly for items that were semantically related to the schemas. Moreover, in conditions where source memory is not optimal i.e. for older adults and those with a self-focus (Mather, Johnson & DeLeonardis, 1999) stereotyped information may also influence source memory (Sherman & Bessenoff, 1999).

1.5.2.2 Decision processes

Source monitoring depends on the quality encoded information but *also* on the quality of the decision processes employed to evaluate those sources (Johnson et al. 1993). Monitoring decisions are based on discriminating the qualitative differences between memory characteristics. When a memory is retrieved activated memory records are evaluated to determine source, but there is no explicit 'tag' that provides source specific information (Johnson et al. 1993). Fundamentally, there are two types of decision processes that may be employed by individuals to address and evaluate their memories and assign source (see Johnson et al. 1993). First, are heuristic processes that inspect the 'amount' of qualitative aspects of activated information (cognitive operations, perceptual detail) rapidly and without deliberation (Johnson & Raye, 2000). If a particular sort of detail (e.g. semantic, perceptual, and temporal) is prominent, then that detail has a high probability of driving the decision process (Cook, Marsh & Hicks, 2002). Source is inferred using heuristic judgements, by matching the qualities of a memory with the activated schemas that represent particular sources. For example, if a memory contains rich perceptual information the person may conclude that the 'event' was seen. The extent to which the qualities match the criteria set by a particular schema influences the likelihood that the memory is attributed to a source, (whether it is the correct source or not). These decisions are not comprehensive and are relatively automatic, so decisions can be made without conscious knowledge of the process (Chaiken, Lieberman & Eagly, 1989). As a result, errors may arise when there is reduced variability over memories from different sources and the distributions of the given features that may overlap. This may occur for memories that are atypical of their class such as a very vivid and plausible dream.

The second decision process is a more systematic process that is slower, more controlled (Chaiken et al. 1989; Posner & Snyder, 1975; Shallice, 1988) more effortful

(Hasher & Zacks, 1993) and more deliberate than the heuristic processes. Such processes may involve the retrieval of additional information, supporting memories and extended reasoning. Such decisions draw upon a person's prior knowledge, metamemory assumptions and plausibility (Cohen, 1981). For example, a person may remember an extremely vivid dream but evaluate whether 'it seems plausible given the other things they know' (Johnson et al.1993 p. 4 e.g. that money doesn't grow on trees, Johnson & Raye, 1981). Or alternatively, that the veracity of a source may be questioned on the basis of a reaction that should or should not have occurred, if the event did in reality occur. Hence, systematic processes are more thorough and believed to carefully scrutinise the available information (Johnson & Hirst, 1993) but these processes are typically, engaged in less often than the more heuristic processes (Johnson et al. 1993).

Heuristic and systematic processes can be utilised to guide and monitor one another, but the extent to which each may be utilised is contingent upon the demands of the task and the person's goals (Marsh & Hicks, 1998; Marsh et al. 1997), a point we will return to in Chapter 5. Source monitoring accuracy depends on the participant's adopted criteria. One will tend to engage in relatively automatic heuristic processes for everyday remembering, but in more systematic source monitoring processes where the cost of making a mistake is high (Dodson & Johnson, 1993) or where source ascription is a primary objective (Johnson et al. 1993).

1.5.3 Factors that affect source monitoring

In 1995, Marsh and Landau claimed that in an unconscious plagiarism paradigm, item activation underlies the information that comes to mind and is subsequently plagiarised. Moreover, they claimed that there was 'little evidence that factors that influence source monitoring may alter the incidence of unconscious plagiarism' (p.1580). This conclusion was based on three factors. The first resided in Brown and Murphy's (1989 Experiment 3) data, where no difference in plagiarism were detected when participants worked in social setting compared to solitary working with index cards. Their argument maintained that working in social settings should have contributed to richer perceptual traces that should have in turn aided source memory and reduced plagiarised errors. The second reason, was related to the findings from Marsh and Bowers, (1993 Experiment 2b) orienting manipulation study, where participants ability to discriminate own versus partner generated information was manipulated. Using a creative puzzle task, participants here were required to find and complete their computer opponent's words in the puzzle. They claimed that that if source monitoring was important, then this manipulation should have encouraged the memory characteristics of the completed-computer words to resemble their own self-generated words, as similar processes were utilise to produce both sets of words (and hence encourage source confusion). However, this manipulation did not significantly alter source confusion or accordingly, unconscious plagiarism in the recall-own phase. The third reason was directly related to their own data. In their study, they compared two unconscious plagiarism paradigms (Brown & Murphy's 1989 category generation task and Marsh & Bower's 1993 puzzle task) and evaluated the activation strength model. They anticipated that if cognitive operations influenced unconscious plagiarism then word frequency should play a role in determining which ideas get plagiarised. This follows as high frequency words are associated with fewer cognitive operations and less source information (Johnson et al. 1993) and consequently, high frequency words should be plagiarised more often. However, using a lexical decision task they found that the items with the highest activation strength constituted those ideas that were later plagiarised and word frequency did not affect this pattern. They accepted that source judgements were made heuristically in 5 out of their 6 studies but nonetheless claimed that the 'attributes of traces such as the cognitive operations proposed by Johnson et al. (1993) are not a primary determinant of cryptomnesia' (Marsh & Landau, 1995 pg 1577).

In 1997, their viewpoint concerning the importance of source monitoring on unconsciously plagiarised errors changed as a result of recognising the different memorial processes utilised in both the recall-own task and generate-new tasks (Landau & Marsh, 1997; Marsh & Bower, 1993). In the generate-new phase, participants need to make a judgement that resembles an old new judgement as they must refrain from presenting an old idea as new. Therefore, when generating new ideas, less differentiated information is required as participants can rely on judgements of item familiarity (Dodson & Johnson, 1996; Johnson et al. 1993) Therefore, in this phase, activation strength may guide performance as an increase in strength would lead to greater discrimination between old and new ideas and hence better performance/ reduced plagiarism (Macrae et al. 1999; Marsh & Bower, 1993; Landau & Marsh, 1997). However, the recall-own task is more complex as participants need to determine whether an idea was 'old' but also to determine whether the idea was originally given by themselves or another participant. Conceivably to make this decision a cursory source evaluation is required to verify an idea's origin. Therefore, while performance in the generate-new phase may not be influenced by source confusion but driven by strength, performance in the recall-own phase may be more reliant on source monitoring. Consequently, as a result of source monitoring during the recall-own phase, levels of unconscious plagiarism in the recall-own phase alone may be sensitive to factors related to the attributes of the memory representations.

Landau and Marsh (1997) suggested that the orienting condition in Marsh and Bower's (1999) experiment (finding and completing the computers' words) may not have been strong enough to induce a source confusion effect. Although the observed plagiarism in the recall-own phase following this manipulation was not significant the plagiarism trend was increased in the anticipated direction. Consequently, Landau and Marsh (1997) with the same intention as Marsh and Bower (1993) manipulated the representations of self-generated and computer-generated information. Initially, in Experiment 1, (rather than completing words) participants were required to guess the computer's responses in addition to generating their own ideas; this was anticipated to result in the two sources of ideas becoming highly confusable. They found that as similar search processes and cognitive operations were required to derive each of the ideas, information from both the sources proved difficult to differentiate and the rates of unconscious plagiarism in the recall-own phase were increased. Conversely, using the reverse logic in Experiment 2, the sources were manipulated to be highly perceptually differentiated by participants either reading the computer responses directly from the computer screen or listening to the experimenter read the computers responses. More perceptual and contextual details are associated with representations when another person reads an idea. Hence, this time, due to the increase in source differentiation and decrease in source confusion, unconscious plagiarism in the recall-own phase was reduced. Rates of plagiarism in the generate-new phase however, remained unchanged.

This finding, highlighting the potential importance of source monitoring in the recall-own phase has since been replicated and extended by Macrae et al. (1999). Macrae et al employed experimental manipulations that obstructed encoding and post encoding operations that underlie successful source monitoring. Research has demonstrated source monitoring depends on the quality of stored memorial representation and any factors that prevent or disrupt perceivers from binding memory detail together and memory traces increase source confusion and impairs source monitoring ability (Chalfonte & Johnson, 1996) (i.e. divided attention, focusing on one's own emotion rather than event detail, diagnosticity of available source information is reduced, more lax decision criteria, attention is diverted at test, or limited source judgement time). Macrae et al. (1999) varied the basis of source confusion for 3 reasons; first to investigate the generality that source confusion increases unconscious plagiarism in the recall-own phase, second to investigate the type of processing used that may increase unconscious plagiarism in the real world and third, to investigate the extent that the source monitoring framework may characterise unconscious plagiarism (Macrae et al. 1999). In the first two studies, they specifically manipulated and obstructed participant encoding. Experiment 1, investigated the affects of perceptual similarity on source confusions. Increasing the semantic similarity of two sources decreases one's ability to correctly assign source (i.e. Ferguson et al. 1992) this follows for two speakers who describe the same event (relative to different events Lindsay, Johnson & Kwon, 1991) or two speakers of the same gender (relative to another gender Johnson et al. 1996). This study explored this dynamic in the conventional three stage unconscious plagiarism paradigm. An initial category generation task was used, but here participants were either tested in perceptually similar pairs, (with someone of the same gender as themselves) or in perceptually diverse pairs (with someone of a different gender). When participants recalled their own ideas, they were much more likely to plagiarise from similar targets (same gender as themselves 24.4%) than dissimilar targets (different gender 14.5%). Experiment 2, was similar although initial encoding was obstructed by a radio playing during idea generation. Distraction was anticipated to further promote source confusion and hence increase likelihood that participants would erroneously believe others ideas were incorrectly their own. This distraction did result in significantly more recall-own plagiarism (23.5%) than when no such distraction was experienced (12.7%). Therefore, in two experiments, the results supported Landau and Marsh (1997) as source confusion negatively influenced recall-own plagiarism. However, in neither study did the experimental manipulations affect plagiarism rates in the generate-new phase (range 3.5-6.2%).

In their third Experiment Macrae et al. (1999 Experiment 3) were the first to explore the affects that manipulations imposed at retrieval would have on later recall-own unconscious plagiarism. Their rational for this was that as well as the quality of the initial encoding, the quality of the decision processes utilised or post-encoding operations can also disrupt an individuals' ability to source monitor effectively (Johnson et al. 1993; Johnson & Raye, 1981). Hence, in their last experiment participants were either tested with their initial partner (partner present) and their associated source related cues or on their own (partner absent) where no such clues were available. The rate of recall-own unconscious plagiarism in their study was significantly higher when participants were tested alone (partner absent 21.4%), relative to when their partner was present (9.7%) (c.f. Brown & Murphy,1989). This finding appears to be at odds with Brown and Murphy's finding of no affects of individual versus group testing. However, Macrae et al. (1999) indicated that the extent that one's partner may aid source memory (by providing source cues) may be contingent upon the number of ideas associated with that source. Specifically, the more ideas that are associated with a source, the stronger the source links may be, and the more memory cues that may be available to aid recall and help to avoid plagiarised errors. This may account for the differential finding between the two studies. In Macrae et al. (1999) participants were required to generate 24 ideas each, but only 16 in Brown and Murphy (1989). Therefore, in Macrae et al's (1999) study as each participant was responsible for more ideas, the associated memory links may have been stronger (between the source and their ideas) and so withdrawing such cues (the partner) may have constituted a bigger recall deficit than in Brown and Murphy (1989) where fewer ideas were associated with each participant. However, cumulatively, Macrae et al. (1999)

found that source confusion manipulations at encoding and retrieval increased unconscious plagiarism in the recall-own phase but did not increase unconscious plagiarism in the generate-new phase. Hence, they concluded that unconscious plagiarism derives from failure of basic memory operations and more specifically, is a variant of source forgetting as hindering source monitoring increases (recall-own) unconscious plagiarism.

Bredart et al. (2003) explicitly tested the memory characteristics or correctly recalled and plagiarised ideas in the recall-own phase. They found that errors of source attribution may occur when representations lacks sufficient discriminating information. They compared the phenomenal characteristics for produced and unconsciously plagiarised ideas. The traditional plagiarism domain was utilised with a category name generation task, during generation, and a recall-own task followed by an adapted version of the memory characteristic questionnaire (Johnson et al. 1988). In this test, for each of the names that participants recalled they were asked to respond to 6 questions concerning the specific circumstances of the names production. (*1. 'Do you remember what the word sounded like when you produced it?' 2.'Do you remember whether the word was one of the first (last or intermediate) items that you produced'? 3. 'Do you remember whether the word was one of the last items that you produced'? 4. 'Do you remember having a mental image while producing that word'? 5. 'Do you remember having a specific thought relating to that word while producing it'? 6. 'Do you remember using a retrieval strategy for finding the name'?* (cognitive operations) (p. 6)). They found that actual experienced information included significantly more information about qualitative features at study than plagiarised information (or new information). Specifically, correctly recalled ideas, when compared to plagiarised ideas, were reported to possess more auditory and contextual detail, more associations with a mental image, feeling or specific thought about the idea and more associations with information that related to a particular retrieval strategy. Unconsciously plagiarised ideas were purported to have poor memory of source-specifying experiential content (i.e. auditory details, list position, and cognitive operations). However, there was a high number of plagiarised names and for each of these plagiarisms participants were very confident in a minimum of one of the qualitative characteristics. Moreover, the differences between these types of memories remained for one week. Hence, Bredart et al. (2003) essentially demonstrated that plagiarised ideas and participants' own ideas differed and supported the source monitoring account of unconscious plagiarism in the recall-own phase.

1.5.4 Role of Strength

Hoffman, (1997) previously found that participants tended to make source decisions on the basis of judgements of item strength. For example, in Hoffman's (1997) study participants initially complete two separate tasks; they were either shown picture on day 1 and imagined information on day 3 (PI group) or imagined information on day 1 and were then shown pictures on day 3 (IP group). Then, at test, participants were presented with information that was completely new together with the previously imagined (internally generated) or seen (externally generated) information and were instructed to recall the source. Participants were more likely to attribute new information to the weakest class of item, the task that they had completed during the first session. This was demonstrated in terms of an 'it had to be you effect' (when external source was weaker, PI condition) and an 'it had to be me' effect' (when internal source was weaker, IP condition). Bink et al. (1999) however, investigated whether the data could be alternatively accounted for from a source monitoring perspective. They specifically, questioned whether the biases that Hoffman obtained were a result of willingness to ascribe a new item to the source that posses the least diagnostic qualitative characteristics (rather than strength). For example, in the IP condition where imagination preceded picture viewing, the new ideas may be attributed to the 'imagined' source ('it had to be me') - not because 'imagined' was the weaker source - but because the imagined ideas were lacking in perceptual details, relative to the more recently, 'seen' information. A similar justification may be used for the PI condition, where the new items may be attributed to the seen (external) source ('it had to be you') on the basis of a lack of cognitive operations that would have conceivably been stronger for the imagined ideas. To investigate this possibility, the strength of the two old sources were equated by giving day 1 items a stronger trace strength. This was achieved by repeating the activity performed on day 1 (either imagined or seen) three times but by only performing the respective activity on day 3 once.

This manipulation did equalise the strength of the sources, as the recognition hit rates were the same for both. However, at test the 'it had to be you' effect (in the PI group) and the 'it had to be me' effect (in the IP group) were still observed. As such, explaining these findings in terms of strength is problematic. The findings may be more easily accounted for by Bink et al's explanation that participants make decisions on the basis of the different diagnosticity of particular qualitative characteristics (as specified by source monitoring framework; Johnson et al. 1993). For example, for old ideas, participants in the IP condition may rely more on pictorial details to make a source decision as this was the most recent class of information. If this perceptual information is lacking participants may ascribe the item to the 'imagined' source. A similar technique may have carried over for new items (reverse in PI cognitive operations). However, the pattern of data is complex as pictures called pictures had a higher accuracy than imagined called imagined.

Bink et al. (1999) also suggested alternative explanations for the prevailing effects that may be due to participant sensitivity to the (potentially higher) variability in information from day 1 (Johnson et al. 1993), or the metacognitive factors that may influence their judgements i.e. an *implicit theory* (that participants may hold) that older items are weaker in memory (not that they are in actuality). Fundamentally, Bink et al. (1999) indicated that "decision criteria may either be changed heuristically by different weightings of characteristics or more systematically by plausibility of inference and that these changes in criteria give rise to the misattributions" (p. 807). Although, these findings do not necessarily need to oppose strength they simply demonstrate that decision criteria can differ depending on the particulars of the source monitoring situation (Marsh & Hicks, 1998) and specifically, the weighting of different decision criteria based on the relative diagnosticity of different qualitative characteristics. However, although Bink et al. (1999) argued that reality monitoring was not based on strength they did maintain that strength is nonetheless a useful heuristic in unconscious plagiarism studies when someone is generating a new idea. This assertion is not at odds with the source monitoring framework.

1.5.5 Tasks used to measure retrieval

In addition to decision criteria, demands of the task have also been demonstrated to be important in guiding source monitoring by evoking different decision processes that lead to asymmetries in people's claims about the origin of their memories (Marsh & Hicks, 1998). Marsh et al. (1998) induced participants to examine their memories for evidence of the qualitative characteristics associated with the given source. In their experiment, participants were initially presented with some words (seen words) and were asked to generate the remainder of the words from anagrams (generated words). Following this, they were presented with one of the prior words (either generated/seen) and were specifically asked whether the item was originally generated *or* seen. Their motivation here was that if manipulations do not change the decision process used to arrive at a source judgement, then performance for ideas from different sources (seen and generated ideas) would be equivalent irrespective of how the question was asked (questioned about seen or generated items). The results demonstrated that focusing participants on one aspect of a source judgement changed one's ability to recognise a word as having been generated at study. For example, when participants were asked if a generated word was previously generated, participants were more accurate than when they were asked whether it was seen. Asking if the word was generated encouraged participants to focus on evaluating their memory characteristics for cognitive operations, but asking if it was seen encouraged participants to examine memory characteristics for perceptual information and less diligently for cognitive operations that might help source attributions (and vice versa). Hence, when participants were queried about whether items came from a particular source they weighed more heavily on the qualitative characteristics associated with the source specified in the question and were more accurate when source and test were matched. Similarly, Leynes, Bink, Marsh, Allen & May (2003) illustrated that source memory was better when the source and test modalities (auditory or visual) were congruent. However, here this source matching benefit was only evident for sources that differed in diagnosticity (i.e. external (seen) & internal (generated) source) and not for those that were more similar in diagnosticity (i.e. 2 external sources (heard or seen). This followed as the attributes were more equivalent the source monitoring was relatively unchanged. Source monitoring accuracy therefore may depend on the cognitive agenda when a judgement is made and the presence or absence of information may provide diagnostic information that may discern origin (Marsh & Hicks, 1998) but importantly these findings indicate that different tasks can have different implications for performance.

In unconscious plagiarism studies the recall-own and generate-new tasks have been dominantly used to investigate levels of plagiarism. Although these tasks invariably involves a source monitoring component that had been derived from task instruction, source monitoring (even in the recall-own task) is a secondary task as it is not the participants' primary objective. In contrast, source monitoring is conducted under 'best case' circumstances and is a primary objective in source monitoring tasks (Johnson et al. 1993). These source monitoring tests are usually conducted in two parts. In the initial task, information is provided by different sources (i.e. the participant (generate) or the computer (read)). This is followed by a modified recognition test where all the previously generated information is re-presented, together with new information. Participants are instructed to indicate in which of the sources (i.e. computer, themselves or new) the information initially originated (see Johnson et al. 1993 for a review). Hence, such tests directly measure source memory when participants' full attention is assigned to completing this task goal. As such, in modified recognition tests (source monitoring tests) systematic decision processes are more consciously and exclusively utilised (Marsh et al. 1997).

Marsh et al. (1997) specifically investigated source monitoring on levels of unconscious plagiarism when participants primary objective was to correctly ascribe source. In the generation phase, participants brainstormed ways to improve their universities or to reduce traffic accidents. Then, after one week, participants either completed the conventional generate-new task (generated 4 new solutions for each task) or were given a source monitoring test and were explicitly asked to state the source of the previous solutions. The plagiarism rates obtained in these two groups were compared. In the generate-new group, of the newly generated items, 21% were plagiarised from the earlier session (a rate that was in line with prior findings). However, in the source monitoring group, only 0.8% of the prior ideas were plagiarised from the earlier session (Experiment 1). Therefore, it appears that unconscious plagiarism resulted from inefficient source monitoring as participants failed to engage in systematic decision processes detailed by the source monitoring framework during retrieval (Marsh et al. 1997). Marsh et al claimed that when people devised new solutions, they utilised more resources and were thus less able to effectively monitor their information sources. Conversely, when participants made source judgements, they were motivated to use their processes efficiently and therefore the rate of unconscious plagiarism significantly decreased (Marsh et al. 1997). This conclusion was supported by data demonstrating that when participants completed testing under time pressure plagiarism rates increased and when strict instructions warned participants to avoid plagiarism (Landau, Thomas, Thelen & Chang, 2002; see also Marsh et al. 1999) or indicated that their responses would be carefully scrutinised at test, the number of intrusions decreased (see chapter 5).

The aforementioned findings illustrate the important impact that source monitoring has on unconscious plagiarism. It would appear that factors that inhibit encoding (Landau & Marsh, 1997; Macrae et al. 1999) or retrieval (Macrae et al. 1999) affects one's ability to correctly assign source and as a consequence an individual may come to believe that something that originated elsewhere was incorrectly one's own. Moreover, the findings from Marsh et al. (1997) indicate that participants may unconsciously plagiarise when utilising their cognitive resources to develop something new and creative, however this effective generation may come at the expense of effectively monitoring (or neglecting to monitor) their information sources. In contrast, individuals in the real world who are engaged in product generation (i.e. song writing, or academic writing) are highly motivated to make correct source judgements to prevent themselves from blatantly copying. However, the extent to which they are able to engage in such monitoring processes may vary and be dependent upon their current task. In plagiarism cases where unconscious plagiarism has been implicated, a common theme connecting the cases is that the artists (i.e. George Harrison) were so convinced that their composition was original that they were determined to profess their innocence and the originality of their work in court. Is it possible that these artists presented their product following a lengthy process of idea development and plagiarised as a result of failing to monitor the sources of their information? Real world plagiarists really believe in the authenticity of their work and have motivation to prevent undesirable infringement and the lawsuits that they bring.

1.6 Issues to be explored in this thesis

This thesis will investigate the effects of source monitoring on unconscious plagiarism and explore the relationship between item and source memory when participants are engaged in novel creation and evaluation. Specifically, Chapter 1 focuses on task creativity and manipulations at encoding that may affect unconscious plagiarism. To date, experimental research has investigated the effects of incorporating a retention interval between initial idea encoding and later testing. Such delays have without exception, increased the levels of plagiarism obtained (i.e. Brown & Halliday, 1991; Marsh & Bower, 1993). However, the type of cognitive effort that participants may be investing in during this period has been largely neglected. Therefore, Chapter 3 explores the effects of participant elaboration following initial idea encoding but before testing. Elaboration will be considered in different ways; that involve thinking about, evaluating or developing the idea after the initial generation phase, but before test. A number of findings suggest that elaboration should have an impact upon rates of unconscious plagiarism (e.g. Garry et al. 1996; Shaw, 1996). Moreover, it is plausible that real world plagiarists invest considerable time and effort developing their novel products (song, story, article) and hence, Chapter 5 explores the effects of repeating this idea elaboration over multiple experimental sessions. Chapter 6 focuses on manipulations at retrieval. The majority of unconscious plagiarism studies have utilised the recall-own task and the generate-new tasks in the testing phase. Few studies have implemented a source monitoring test without out the conventional recall-own and generate-new tasks preceding it. Moreover, in such studies, levels of plagiarism have been vastly reduced when participants have been encouraged to think carefully about their information sources (source monitoring tests, Marsh et al, 1997). Hence, Chapter 6 will explore the veracity of the prior findings within a elaborative paradigm where participants consider their information and are focused on avoiding plagiarised intrusions in the first instance. Moreover, these findings will be thoroughly discussed in terms of the activation strength model (Marsh & Bower, 1993) and the source monitoring framework (Johnson et al. 1993).

Chapter 2: Manipulations at Encoding

2. 1 Introduction

2.1.1 Previously Used Tasks

In 1989, Brown and Murphy developed a three stage experimental paradigm (generation, recall-own and generate-new task) that has since been consistently and successfully used to investigate Unconscious Plagiarism. Their pioneering experiment implemented a category generation task in the initial *generation phase* that involved participants generating exemplars to various semantic or orthographic category cues. The selected semantic categories (i.e. sports, musical instruments, clothing, four-legged animals) were sufficiently large and did not include temporal or spatial cues that could potentially aid retrieval (i.e. prime ministers or counties respectively) and the more taxing orthographic categories (words starting with BE, FO, MA and T) were selected from the Mayzner and Tresselt norms (1965 as cited by Brown & Murphy, 1989) as they were the most frequently occurring letter combinations at the start of written words. Participants were separated into groups of 4 and were each required to generate 4 exemplars to each of the conceptual categories in Experiment 1 (e.g. football in response to 'sport') or conceptual and orthographic categories in Experiment 2 (e.g. bed in response to 'BE'). In each experiment, there were a total of 64 exemplars generated.

Following this initial task, participants completed a short unrelated distracter task followed by the two testing phases. First, was the *recall-own phase*, where participants were represented with the category names that they initially generated to and were required to remember the exemplars that they had initially said in the generation phase, without repeating anyone else's generated word. Second, was the *generate-new phase*, where participants were represented with the categories for a second time and were required to produce new exemplars that had not been previously given by themselves or any of the other participants. Plagiarism occurred when a participant reproduced someone else's word as either their own (recall-own plagiarism) or as a new idea (generate-new plagiarism). Brown and Murphy observed plagiarism levels across both of these tests, ranging from 7-14%, with the highest levels in the orthographic task. They argued that this occurred because the orthographic task was more difficult to complete than the semantic task (as conversations are usually processed at a semantic level). As task difficulty is increased task monitoring ability to track and remember responses generated by others is simultaneously decreased (Brown & Murphy, 1989; Marsh & Bower, 1993). This has been demonstrated when task difficulty has been increase at encoding, by participants simultaneously following task instructions and hearing white noise (Gardiner, Passmore, Herriot & Klee, 1977) or listening to the radio playing (Macrae et al. 1999).

More recently, studies have been conducted that have supported and replicated Brown and Murphy's (1989) initial study. When studies have used the same semantic generative materials as Brown and Murphy (i.e. Brown & Halliday, 1991; Linna & Gülgöz, 1994; Macrae et al. 1999; Marsh & Landau, 1995; Tenpenny et al. 1998;) or very similar generative materials (that were based on name generation i.e. female first names beginning with M and foreign city names including the letter O; Bredart et al. 2003) comparable levels of plagiarism between 10 and 19% have been obtained. Across these experiments, while the fundamental methodology has been largely consistent, the number of participants tested in one session has varied. Initially, Brown and Murphy (1989, Experiment 3) demonstrated that when participants worked in a group of 4 or alone with a booklet or computer partner the plagiarism rates in the generate-new phase did not substantially differ (14% Vs 10% respectively). Hence, the social group generation did not appear to impact the ultimate plagiarism levels. However, when participants were engaged in group generation Brown and Murphy (1989 Experiment 1 & 2) observed that a plagiarised item was most likely to have been a word given in the generation phase by the person who spoke immediately before them. This was attributed to a diminished attention just prior to the when the participant was due to speak (Brown & Murphy, 1989) and labelled the 'next in line' phenomenon (Brenner, 1973; Brown & Oxman, 1978). For this reason, subsequent studies have used pairs of participants at generation to potentially maximise the obtainable levels of plagiarism (Macrae et al. 1999) because each participant is always next in line. However, this has made little difference to the observed rates of category exemplar plagiarism. Participants tested in pairs have resulted in comparable rates of plagiarism of approximately 12% (Bredart et al. 2003) and inflated plagiarism 14.5% (Macrae et al. 1999), while rates of approximately 11% have been observed with groups of 4 participants (e.g. Linna & Gülgöz, 1994), 10% with groups of 3 participants (Brown & Halliday, 1991) and 19% when participants have worked alone with a booklet (Tenpenny et al. 1998). Thus, cumulatively, the highest levels of plagiarism were observed when participants were in small (or no) groups but the differences were relatively small and not consistent across tasks (recall-own & generate-new). Moreover, the methodologies used in the studies varied in terms of number of ideas that participants were required to produce and the particular manipulations that were employed (Macrae et al.1999; found levels of plagiarism as high as 24.5%). Thus, inferences about group size and according plagiarism levels are somewhat speculative.

Despite these small differences, the findings highlight the consistent nature of the task in producing unconsciously plagiarised errors when utilising this three stage paradigm. Plagiarising in a category generation task however, differs fundamentally from instances of plagiarism that appear in the court room (e.g. musical essence of a song). Although word retrieval from semantic memory is sufficient here to complete the task goal, creative thought is absent and it is this creativity that is ultimately required when developing something 'new' (a point we will return to later). Hence, control for unconscious plagiarism in these tasks is ambiguous and problematic. Should all repetitions be classified as 'plagiarism'? Or, could some of these semantic repetitions be genuine spontaneous generations arising through (for example) an initial lack of idea processing (in terms of experiencing a brief lapse in attention at encoding or simply hearing the word incorrectly) such that the generation is genuinely new? Various control measures have been proposed and evaluated to address this possibility (see Brown & Murphy, 1989). One method focused on statistical comparisons of obtained plagiarism rates against participants' incidental self-repetition rates. Previously, in 1970 Bousfield and Rosner conducted a simple free recall task consisting of 20 pre-generated, unrelated words and observed a repetition rate of 2.6%. Later, this figure was subsequently increased to 5.7% when instruction encouraged latter list ideas to be reported first (Gardiner & Klee, 1976) but was reduced to 1.6 when the recency effect was reduced through retrieval requests in serial order (Klee & Gardiner, 1976). However, in these tasks, episodic categories were implemented that were more restricted in size than those utilised in plagiarism studies (e.g. fruits). Also, in the incidental tasks participants had fewer items to remember, less time to recall them, and more pertinently, were explicitly instructed not to reproduce any previously given ideas. Therefore, these obtained repetition rates may potentially over-estimate repetition in plagiarism tasks and although these findings constituted a good guide to incidental repetition rates they must be extrapolated to the plagiarism domain with caution. Consequently, Brown and Murphy (1989) used Klee and Gardiner's (1976 see also Grunewald & Lockhead, 1980) reduced rate of repetition of 1.6% as an appropriate reference point (for generated plagiarism) for the purposes of their research. Levels of plagiarism attained by Brown and Murphy and subsequent research (e.g. Linna & Gülgöz, 1994) have consistently surpassed this baseline (7% recall-own 14% generate-new), and so it is unlikely that all these plagiarisms are accountable simply in terms of chance or spontaneous generations.

Moreover, Brown and Halliday (1991 see also Marsh & Bower, 1993) observed that these laboratory plagiarism rates increased over a 1 week delay, with generate-new plagiarism doubling and recall-own plagiarism trebling (see also Bredart et al. 2003; Marsh & Bower, 1993; Marsh et al. 1996; Marsh et al. 1999). Their motivation for incorporating such a delay was drawn from real world cases of plagiarism in which several years may separate initial information encoding and later plagiarism of that information. Various documented time periods over which real world plagiarism develops have varied enormously, spanning a couple of years (e.g. Freud, 1901/1960) to a couple of decades (e.g. Jung, 1905/1957).

However, despite these high levels of plagiarism, completing the category generation task and subsequently plagiarising those generated words, still constitutes an instance of semantic word repetition. So moving away from category generation as an initial task, Marsh and Bower (1993) developed the three stage paradigm and assessed the impact of standard learning variables on unconscious plagiarism. This move was made as the most significant cases of unconscious plagiarism arise when participants are engaged in a creative pursuit, such as writing or composing, rather than producing an item from semantic memory. Hence, rather than category generation, participants were administered with creative puzzle tasks that they had to solve by searching for appropriate 'creative' solutions (see also Marsh & Landau, 1995). Puzzle Tasks consisted of 16 letters arranged in a 4 x 4 matrix, in a similar style to the word game 'boggle'. Each valid solution had to contain at least 3 'touching' letters that could be adjoined in any direction. Rules prevented noun generation, letters in the matrix being used twice in the same word and word roots being duplicated with the addition of a prefix or a suffix. Participants completed this task with virtual participants (computer players) who generated 12 words while the participants each generated 4 solutions to each of the 4 puzzles.

The rates of plagiarism obtained during immediate testing did not differ from those obtained by Brown and Murphy's (1989). However, following the retention interval, rates far surpassed those that they obtained in their semantic categories (i.e. nine times in recall-own & nearly three times in generate-new) and in their orthographic categories; (i.e. twice as high in recall-own & nearly twice as high in generate-new). Plagiarism rates were different in the two tasks, showing an increase from the recall-own task to the statistically highest rates seen in the generate-new task. Moreover, confidence values indicated that participants strongly believed that the ideas they had plagiarised were initially their own in the recall-own phase or were genuinely new in the generate-new phase. Therefore, it appeared that implementing a perhaps more creative task, which is arguably more ecologically valid task than category generation, inflated levels of plagiarism.

However, in this study, although participants at test were engaged in a more generative, creative task than category generation, they were still ultimately plagiarising a word from semantic memory. Therefore, the absolute complexities that may be involved in real world plagiarism were still perhaps not appropriately considered. Tenpenny et al. (1998) contested that unconscious plagiarism occurs when truly novel information is created and denied that previous work in unconscious plagiarism was creative but rather only novel within the context of the experiment. Furthermore, they stipulated that distinctions between these two types of creativity are crucial for useful real life generalisations to be made. They argued that implicit memory from a previously generated word may cause someone to repeat it inadvertently, but were sceptical that this constituted a true instance of plagiarism. Tenpenny et al. (1998) therefore implemented a completely novel task that encouraged participants to devise non-words for potential use in an alien language (fictitious category) to investigate whether implicit memory could be a source of unconscious plagiarism.

While they replicated previous findings in their replication semantic condition, no plagiarism was observed for fictitious categories. This finding was not explainable in terms of strong explicit memory for the previous suggestions, as participants were only able to recall 1/6th of their initial suggestions. Conversely, low level encoding would also not suffice as an explanation as when participants learned definitions for the fictitious suggestions at generation, despite recalling twice as many non words as the control group, there was still no plagiarism. A perceptual identification test revealed that non-word repetition priming had occurred and participants were shown to be influenced by the unintentional correlation between spelling and category membership but the experimental participants did not repeat the key letter combination more than baseline. Consequently, as plagiarism and partial plagiarism was absent in this condition it appeared that implicit memory, in this case, was not a source of unconscious plagiarism when people tried to produce novel information. This absence of plagiarism throughout their research programme indicated that although plagiarism prevailed in real categories, it did not when a creative stimulus was used, despite demonstrations of implicit memory for the words. They deduced that previous studies had overestimated the prevalence of unconscious plagiarism and conceded that it does not occur when people are trying to be original. This is a statement that is in stark contrast to documentation of real world cases of plagiarism.

This result was surprising as previous demonstrations of unconscious plagiarism appeared quite robust. A potential reason for Tenpenny et al's (1998) finding is that although producing non-words requires creativity, it is cognitively demanding to generate novel words that have no semantic associations in memory and is not a pragmatic task. Marsh et al. (1999) demonstrated that over a series of 4 experiments when participants were shown example non-words from English categories, they tended to generate novel words that conformed to regularities inherent in the examples, by including arbitrary/mismatched features, or naturally occurring orthographic regularities. Therefore, participants expressed earlier learning in their novel products when easier non-word generation tasks were implemented. This was inherent even when participants were made aware of the rules and the exemplars to avoid were actively available (participants could list this information when requested) or clearly displayed. They concluded that prior knowledge plays an overwhelming role in structuring otherwise 'novel' ideas (see also Perkins 1988). Marsh et al's.(1999) findings therefore, do not oppose those of Tenpenny et al. (1998) as their materials did not systematically incorporate rules that could be learned by participants. When Marsh, et al (1999 Experiment 1 and 2) used 'inconsistent groups' where the given non-words did not conform to any specific orthographic rules, they like Tenpenny et al. (1998) observed little plagiarism. Therefore, although complete non-words are not plagiarised (Tenpenny et al, 1998) consistent aspects of the given examples (if they are there to be learned) tend to be difficult to avoid and thus, subsequently included in generated novel products (Marsh et al. 1999).

This idea that people have difficulty avoiding features from the given examples is not new but complements the findings that people rely on longstanding categorical information when generating novel entities. For instance, in related studies when participants were required to draw space creatures to inhabit a distant planet (Ward, 1994) or the creature's faces (Bredart et al. 1998), human attributes were incorporated into their designs (such as appendages and eyes, nose, mouth etc respectively). This was the case even when they had to use their 'wildest imagination' (Ward, 1994) and when they were informed that their space creatures should be 'wildly different' to earth creatures (Ward & Sifonis, 1997). Similar results were also obtained when participants designed new fruits and their tendency to incorporate the typical features such as stems, pips and skin (Ward, Saunders & Dodds, 1999).

Ward, (1994) investigated the universal cognitive mechanisms that underlie creative novel idea production and theoretically explained these findings in terms of 'Structured Imagination'. This is where individuals who are solving a creative problem may use the 'path of least resistance' to formulate their solution. For instance, when presented with a novel task, the highly accessible, domain specific information (or an existing solution) may be retrieved and then modified in an acceptably novel way (Ward 1994 for a similar argument see Perkins, 1981, 1988). This would account for the regularities in creative thought and explain why reported solutions are rarely novel but contain relics of prior solutions (Jansson & Smith 1991; Smith et al 1993; Ward, 1995) and even non-optimal prior solutions (Jansson, Condoor and Brock, 1993). This idea of the 'path of least resistance' was empirically substantiated by Ward, Patterson, Sifonis, Dodds & Saunders (2002) who demonstrated that across different domains (animals, tool and fruits), two thirds of participants who were instructed to imagine novel instances reported that they relied on examples from that domain.

Marsh et al. (1996) adopted the Smith et al (1993) and Ward (1994), paradigm to assess the degree to which incorporating features of old solutions would in fact constrain people's creativity. When participants were shown 3 examples that all contained 3 common features (e.g. tail, antennae and 4 legs) these features were far more evident in those participants' subsequent designs than those who had not been given such examples. Hence, they found that (in creative activities) providing examples may ultimately alter the nature of the creative product and increase conformity (see also Smith et al. 1993). Moreover, when space creature examples were related to the concept of hostility the participants subsequent creations contained hostile features that were not part of the given examples (Marsh, Bink & Hicks, 1999). Hence, participants designed novel entities that were consistent with emergent properties of shown examples and this conformity was not affected by explicit instructions to avoid using these features. This is a finding that is also pertinent within the unconscious plagiarism studies.

The reviewed studies tend to indicate that plagiarism does emerge when tasks are completed that demand creativity. Drawing space creatures strongly indicates that this is the case but at the same time it does not easily lend itself to attaining a verbal (written/spoken) measure of unconscious plagiarism. The intent of the present research was to develop a straightforward creative task that could be experimentally substituted for the more traditional tasks with easy incorporation into the 3-stage paradigm. A task that is more applicable to this end and has been used in unconscious plagiarism studies is a participant brainstorming task (Landau & Marsh 1997 see also; Marsh et al. 1997). During the initial generation phase Marsh et al. (1997) provided participants with questions to which they had to generate solutions. These questions included; 'what are some ways in which the university may be improved?' (Paulus, Dzindolet, Poletes & Camacho, 1993) and 'how can the number of traffic accidents be reduced?' (Diehl & Stroebe,1991). (see also Bink et al. 1999). In groups of varying sizes participants were required to offer solutions to these given problems. Participants offered between 3 and 8 suggestions, each to a total of 15/16 ideas. When generating the new ideas, 21% of the previous ideas were re-presented and hence, plagiarised. This is a high rate of obtained plagiarism that is comparable to earlier studies of semantic plagiarism (e.g. Macrae et al, 1999). This is also more analogous to real world scenarios where plagiarism may later emerge, such as, in a creative office or academic environment. However, when participants were shown the ideas from the generation phase and were asked to indicate which ideas were initially theirs or someone else's, the level of plagiarism fell to about 1%. Consequently, it appeared participants had information that could prevent these intrusions but they did not use that information when they were generating new ideas (generate-new phase) (see also Marsh et al. 1999). Landau, Thomas, Thelen and Chang, (2002) suggested that when creativity is the goal participants may 'bypass many of the prototypical features and rely on activated features unless there is some compelling reason to avoid them' (p.196). Therefore, in this case, did plagiarism either occurred as a result of participants failing to evaluate whether accessible information was relevant or applicable to the given task, or because participants were unable to avoid the influence of this information. These possibilities will be thoroughly reviewed and considered in chapter 5)

Aside from this, the brainstorming tasks were creative and effective at inducing plagiarism when participants completed the generate-new tasks. However, Marsh et al. (1997) found that during generation some participants did not provide their own solutions. This may have been for various reasons but could have been due to the difficulty of the task in producing a large number of solutions (to questions such as how can traffic accidents be reduced?) or abstaining responses due to social pressures in producing 'good' and quite complex ideas in front of the other group members. Thus, in the present research, a creative task was required that could easily be completed (like category generation), without being too specific or easily constrained in terms of the given responses (as the brainstorming type task was).

The chosen task was the Alternate Uses Test (Christensen, Guilford, Merrifield & Wilson, 1960). In this test participants were given the name of an object (i.e. a brick) and were told that they had to generate novel uses for that object (e.g. a brick as a heat-proof mat). This task was designed to represent an expected factor of 'flexibility of thinking' in an investigation of creative thinking and is advertised as a means of measuring ability to spontaneously produce ideas in response to object names (Buros Institute of Mental Measurements, 2005). This task is comparable to category generation and can easily be administered and completed within the 3-stage paradigm and hence enables comparison to previous studies.

The limitations of using this task to investigate creative thinking are however recognised. The Alternate Uses Task provides a measure of divergent thinking and tasks such as these have been criticised in their approach, as they may 'underemphasise the existence of common cognitive processes and representations that support creative thinking' (Marsh et al. 1996, p. 669). However, we are not advocating that this task can be used to measure creativity (and are aware of its restrictions) but rather that it can be used to easily evoke creative thought that can then be subsequently manipulated throughout this research programme. The Alternate Uses Test is a quick and structured task that is relatively simple to administer, complete and score the given output. Moreover, the potential generated uses for each given object (i.e. brick, paperclip etc) are not constrained and may be very diverse.

2.2 Experiment 1

2.2.1 Introduction

The main intention of this exploratory study was to investigate whether the Alternate Uses Test would produce levels of plagiarism that are congruent with prior findings. The generate-new task was utilised during the testing phase as previous studies have consistently demonstrated that this phase led to numerically the highest rates of plagiarism (see Brown & Halliday, 1991; Brown and Murphy, 1989; Linna & Gülgöz, 1994; Tenpenny et al. 1998).

In this study a further sub issue was explored that investigated different types of participation. Predominantly, previous studies have only investigated unconscious plagiarism for participants who are actively engaged in the generative task and to date, only Brown & Halliday (1991) have explored plagiarism exhibited by participants who exclusively observe the generation phase (and did not actively participate in generation, at any point). They found plagiarism in the generate-new task was 'considerably higher' for observers than generators but suggested the outcomes of observers tested in other (similar) types of generative tasks were often inconsistent.

This follows, as in related studies, results have indicated that participants who actively contribute to the initial task have subsequently suppressed recall levels (Brown & Oxman, 1978) or improved recall levels (Slamecka & Graf, 1978) relative to those who merely observe the generative process. Suppressed recall has been explained in terms of an arousal framework (Kleinsmith & Kaplan, 1963). This is where attention to the experimental procedure and uncertainty of participation resulted in high arousal during learning and thus a reduced level of initial processing (Brown & Oxman, 1978). On the other hand, enhanced recall was explained in terms of the 'generation effect'. This is where items generated by 'self' possess additional information in terms of the cognitive operations that were acquired during idea production. Consequently, this information may act as a retrieval cue and thus elicit a memory advantage during recall (for these generated ideas) (Slamecka & Graf, 1978). However, this benefit would not prevail for those who simply listened to or observed the word production.

This act of self-generation (active participation) has also been reported to improve recognition memory (Raye & Johnson, 1980; Slamecka & Graf, 1978; Voss et al. 1987). In 1980, Raye & Johnson had pairs of participants who alternately generated free or constrained responses to various cues (generators) or participants who only listened to (observers) or recorded the spoken responses (recorders). On a later source identification test, generators were found to perform better than the listeners or recorders (who did not differ). Hence, they found that it was easier for individuals to discriminate between an observed/ externally generated idea, (that may be associated with perceptual, contextual and sensory detail) and a self/ internally generated idea (that may be cognitively rich), than to discriminate between two externally generated memories (Raye & Johnson, 1980). Altogether, these studies demonstrate that although active participation appears to differentially affect recall it more consistently appears to enhance source monitoring ability (Raye & Johnson, 1980; Voss et al. 1987). These findings are interesting in light of those found in the plagiarism literature (see Brown & Murphy, 1989) where generators of category exemplars later exhibited unconsciously plagiarised errors across tasks, despite their initial active participation. This study investigated the roles of active and passive participation simultaneously (within-subjects) within the plagiarism paradigm. In this study, participants were required to generate-new ideas that were not previously experienced (generate-new phase) and although recall was not explicitly tested here, participants needed indirect memory of the initial ideas to prevent themselves from incorrectly re-producing those ideas as new. Previous findings indicate that exclusive passive participation, relative to active participation at generation results in higher levels of later plagiarism (Brown & Halliday, 1991). Hence, more errors may be expected within the passively observed categories than the categories that received active generation. However, similar predictions cannot be deduced from previous related recall or source memory studies as the findings are somewhat less clear. Findings from source monitoring studies indicate that passive participation may lead to poor source memory (Johnson & Raye, 1980; Slamecka & Graf, 1978; Voss et al. 1987) and as such potentially enhanced plagiarism. Findings from recall studies may serve to support this assertion through findings that demonstrated decreased recall (Brown & Oxman, 1980) or contravene it through findings that have demonstrated increased recall (Slamecka & Graf, 1978). Consequently, predictions regarding generative errors with regards to active and passive participation are elusive.

Fundamentally, there 2 were questions of interest in this study. First, if the Alternate Uses test was implemented in the generation phase would plagiarism be later observed in the generate-new phase? Second, to what extent would passive participants (who do not actively participate to particular categories in the generation phase) later exhibit unconsciously plagiarised errors?

Active (generating ideas) versus more passive participation was investigated. Two types of passive participation ensued; participants either listened to the generated ideas (observed) or they processed the ideas more deeply at encoding by rating how easy to imagine and how effective they thought the ideas were (rated). Rating here was anticipated to further strengthen item memory at encoding. In total six categories were used of which 2 were generated to, 2 were listened to and 2 were rated and so, participants were tested in groups of 6. Additionally, retention interval was investigated. Participants either completed the testing phase immediately after the generation phase or following a 1 week delay. In line with past research, this extended retention interval was anticipated to generally inflate the rates of plagiarism (see Brown and Halliday, 1991; Marsh & Bower, 1993).

2.2.2 Method

2.2.2.1 *Participants*

Eighteen final-year A level students volunteered to participate in this study. In addition, forty seven undergraduates from the University of Plymouth volunteered and received partial course credit for their participation. Participants were randomly assigned to each group and a position within each group. All the participants were tested in groups of six. The session lasted approximately 30 minutes.

2.2.2.2 *Design and materials*

A mixed design was employed. The within-subjects variable corresponded to the level of participant involvement for each idea (generate, listen or rate). The between subjects factor was the delay between the encoding and testing phase (immediate Vs. 1 week)

2.2.2.3 *Procedure*

The participants were randomly assigned to each group of six. The participants were briefed and informed that would hear a list of items (e.g. a newspaper) and for each they would be required to do one of three tasks to generate novel, non-conventional uses for a given object (e.g. to swat flies or make a paper hat) to listen to ideas generated by other participants or to rate the quality of the other participant's ideas. This required rating the ideas using two, 5 point Likert scale, one in terms of idea effectiveness (1=not effective – 5=very effective) and one in terms of imaginability (1=difficult to imagine – 5=easy to imagine). The order the tasks were conducted was fully counterbalanced. Participants were given a booklet instructing them which task to complete first.

After the experimenter read the first item (e.g. brick, paperclip, button, shoe, key or car tyre), the 2 participants who were required to generate the responses were given approximately 30 seconds and then asked to share their answer with the group (the generation phase). They were given explicit instructions to listen to each other's ideas to prevent themselves from re-producing the same or similar suggestions. The two raters recorded and rated the ideas while the other two participants listened to the ideas. Meanwhile, the experimenter also kept a record of the ideas produced. For each of the 2 different objects, the generating pair of participants would alternately generate a total of 10 uses. Hence, in total 60 ideas were generated (10 to each object) across all the categories.

Participants in the immediate condition initially completed a 5 minute unrelated distracter task (puzzle task) before testing, while those in the delayed condition were dismissed and asked to return the following week to complete the testing phase. In the testing phase (generate-new phase), participants were given the 6 object names for a second time and were required to generate 3 completely new novel uses that neither themselves, nor any of the other participants had previously generated. Although participants here had fewer items to generate at test per object (3), than in prior studies (i.e. 4, Brown & Murphy, 1989) there were more categories included in the design. Hence in total, participants generated 18 ideas which is in line with past research (i.e. 16, Brown & Murphy, 1989).

2.2.3 Results

In the initial generation phase, no previously generated ideas were re-produced by any of the other participants so no plagiarism was observed. In the generate-new phase where participants generated three new ideas per category cue unconscious plagiarism was evident, and was classified in two ways. First, a 'self'-plagiarism, that occurred through an inadvertent reproduction of the participant's own, previously given ideas, and second, an 'other'-plagiarism that occurred through a reproduction of an idea initially generated by another participant.

2.2.3.1 *Immediate Testing*

In total, 637 ideas were generated and of these 567 were new ideas (89%). There were 62 (9.7%) plagiarised ideas that had previously been generated by someone else but only 8 (1.3%) instances of self plagiarism. Across participants, 86.1% (31 of 36) plagiarised at least one idea and 52.8% (19 of 36) plagiarised more than one idea. The effects of type of task on plagiarism rates during the immediate testing can be seen in Table 2.2.3.1.1. A within-subjects ANOVA revealed a significant main effect of task $F(2,70)= 3.47$, $p<.05$. Numerically, observing by listening to others' suggestions resulted in the highest levels of plagiarism while there was little difference between the raters and generators. However, after Sidak adjustments for multiple comparisons, these differences were not significant.

	Encoding Task					
	Generate		Rate		Listen	
	Mean	SD	Mean	SD	Mean	SD
Immediate Testing	.50	.70	.39	.60	.83	.97
Delayed Testing	.97	1.09	1.17	.97	1.21	.94

Table 2.2.3.1.1 Experiment 1: Study: A graph showing levels of generate-new plagiarism for each task in the immediate and delayed testing conditions

2.2.3.2 *Delayed Testing*

Following a 1 week delay 516 ideas were generated of which only 398 were new ideas (77.1%) a much lower number than in the immediate testing group. This was due to the substantial increase in plagiarism. Following the delay there were 97 plagiarised intrusions (18.8%), this almost doubled the rate that was obtained following immediate testing. There were also slightly more instances of self plagiarism, 21 (4%) however, the rate of these intrusions was still low and they were not significantly effected by type of task or retention interval, $F<1$. Implementing a retention interval also increased the overall numbers of participants that exhibited plagiarised errors. All but 2 participants, 93.1% of participants (27 of 29) reproduced an old idea that had been previously generated by another group member, and 89% (26 of 29) made two or more of these intrusions. The effects of task and retention interval on rates of these errors can be seen in Table 2.2.3.1.1 however, a within-subjects ANOVA revealed no significant main effect of task $F(2,56)=.459$, $p=.634$.

2.2.3.3 *Immediate and Delayed Testing combined*

The listeners performed worst overall (as in the immediate testing) but the largest deterioration across the delay was exhibited by the raters. In immediate testing the raters made fewest errors but after the delay they equalised with the listeners. Crucially, however after the delay there was little difference in plagiarism levels across all three tasks and a repeated measures ANOVA revealed no significant main effect of task $F(2,126)=1.94$; $p<.149$ or significant interaction of task and delay $F(2, 126)=.94$; $p=.392$. Importantly however, plagiarism rates significantly increased over the 1 week retention interval $F(1,63)=18.79$; $p<.001$

2.2.4 Discussion

The main finding in this study was that when the Alternate Uses Task (Christensen, et al 1960) was implemented in the initial phase of Brown and Murphy's, (1989) 3-stage paradigm, plagiarism was observed at a rate that was consistent with previous studies. Overall, in the immediate testing condition participants reproduced on average, 10% of the initial ideas (originally other participants ideas) from the generation phase as their own 'new' ideas. However, in the delayed condition where testing was administered after a retention interval of 1 week the rate almost doubled to 19%. This is a rate that is equivalent to or higher than previous studies (Bredart et al. 2003; Brown & Halliday, 1991; Brown & Murphy, 1989; Linna & Gülgöz, 1994; Tenpenny et al.1998)

Before the delay, it appeared that passively 'observing' ideas resulted in the highest rate of plagiarism, with generating and rating providing the lowest levels of plagiarism (and thus the best performance). The trend of these findings supported Brown and Halliday (1991) who found the same pattern with participants who exclusively observed the generation phase (see also Johnson & Raye, 1980, Slamecka & Graf, 1978; Voss et al. 1987). However, following a 1 week delay, this active (or rate) advantage did not help participants to avoid plagiarised intrusions and rates of plagiarism were increased and comparable to those obtained from the passive participants. Thus, although enduring a one week retention interval between generation (generation phase) and testing (generate-new phase) increased plagiarised intrusions relative to immediate testing, the type of task performed during generation had no subsequent effect on these absolute levels. Therefore, active or passive encoding did not affect participants' later propensity to plagiarise, following a one week retention interval.

Essentially in this study, the Alternate Uses Test was easily administered, completed and importantly, generated high levels of score-able plagiarism. Consequently, the Alternate Uses Task is a suitable, creative task that can be utilised to further investigate unconscious plagiarism within the forthcoming research programme. Here we observed plagiarism levels of 19% when participants generated new ideas. The next step was to investigate levels of recalled plagiarism that would be obtained when the recall-own phase was implemented. This was explored in Experiment 2.

2.3 Experiment 2

2.3.1 Introduction

Experiment 1 indicated that when the Alternate Uses Test was used in a 2-stage paradigm (generation and generate-new phase) unconscious plagiarism occurred at a rate of 19%. Therefore, when participants were generating new ideas, one fifth of the time they reported another participant's initial idea as their own novel idea. In previous studies, higher levels of plagiarism has been observed in this generate-new phase, than in the recall-own phase, when participants try to recall their original ideas.

Marsh and Bower (1989) indicated that the elevated 'theft' of others ideas as new, relative to one's own was a function of a weakening in idea strength across the sequential task completions. Nonetheless, using this alternate measure of plagiarism has yielded significant levels of self-appropriation of others' ideas (e.g. Brown & Halliday, 1991; Brown & Murphy, 1989; Linna & Gülgöz, 1994). Hence, this study will incorporate the recall-own phase into the design to determine what degree participants' believe others' creative ideas were originally their own (this issue will be further investigated in Chapter 3).

In this study, the 3-stage paradigm will be employed (generation, recall-own and generate-new phases) with the Alternate Uses Test administered at generation (creative task). This will replicate and further the findings from Experiment 1. Additionally, a second condition will be included that constitutes a replication of Brown and Murphy's (1989) study, with the traditional category generation task implemented at generation. Consequently, it would be possible to make a direct comparison across the three stages between the traditional and creative tasks. This task was chosen for comparison as it was the original task used within this paradigm and although not creative, has since featured and been manipulated in a large proportion of the studies investigating unconscious plagiarism (see e.g. Brown & Halliday, 1991; Brown & Murphy, 1989). Our goal was to further investigate the Alternate Uses Test as a suitable task for subsequent studies.

In this study, methodological factors were consistent with Brown and Murphy's initial study. First, four participants were tested in a group. Although they found that individual testing did not substantially reduce the measurable intrusions (14% vs. 10% Experiment 3), group testing was employed here to create an element of group dynamics that would accordingly increase the external validity of the study. This follows as initial group interaction may promote a scenario more analogous to real life interactions that may potentially lead to unconscious plagiarism. Second, consistency was maintained during generation by presenting four categories at generation to which each participant generated four exemplars. However, participants generated in a random order, to reduced the likelihood of the 'next in line' phenomenon'. In addition to these, there were a further four objects presented at generation to which each participant generated four novel uses. The specific categories (taken from Battig & Montague, 1969 category norms) and the novel uses were randomly selected. Moreover, two sets of materials were used for control purposes and to investigate the generalisability of the task. Third, consistency was maintained during testing by instructing participants to recall the 4 exemplar (and 4 novel uses) that *they* initially generated (in the recall-own phase) and then to generate 4 *new* exemplars (and novel uses) that had not been previously generated (in the generate-new phase). Finally, in this study, immediate and delayed testing (following a 1 week retention interval) was also investigated and compared.

In the Generate-New phase (GN), plagiarism levels obtained in Experiment 1 for the creative ideas were in accordance with levels obtained in other semantic studies that included a retention interval (Bredart et al. 2003; Brown & Halliday, 1991; Linna & Gülgöz, 1994; Macrae et al. 1999; Tenpenny et al. 1998). The methodology used here was very similar to Experiment 1 and so, similar levels of intrusions were expected. There were however, two fundamental differences at generation and testing in the current methodology. First, at *generation,* although the total number of ideas generated here and in Experiment 1 were almost equivalent, in this study each participant generated a quarter of the total produced ideas (as there were 4 participants in a group-16 ideas each of the total 64) whereas, in Experiment 1 they only generated a sixth of the total ideas (as there were 6 participants in a group-10 ideas each of the total 60). Therefore, here the proportion of others' ideas that could potentially be plagiarised was lower than it had been in Experiment 1. In addition, Macrae et al. (1999) suggested that the more ideas that are associated with a single source, the stronger the links may become between ideas and their source, and hence the more distinctive the source may become. Together this suggests that the levels of plagiarism obtained in this study may be slightly lower than in Experiment 1. However, this difference may be mediated by the second difference, the number of ideas produced at testing. During *testing,* in this study, participants generated ideas to a total of 4 object names (and 4 category titles) and were obliged to generate 4 novel uses (and exemplars) to each. In Experiment 1 participants generated to 6 object names but were only required to generate 3 new novel uses to each. Consequently, although the ultimate number of ideas generated were comparable; in this study the testing phase was slightly more taxing as more ideas were required for *each* object. Therefore, this difference may compensate somewhat for the overall reduction in potential candidates for plagiarism and not affect the overall number of plagiarised intrusions.

In the generate-new phase, rates of plagiarism in the semantic task at immediate testing are expected to be comparable to those obtained by Brown and Murphy, (1989) as this task constitutes an exact replication. Similarly, further to the findings of Experiment 1 and those of Brown and Halliday (1991 see also Marsh & Bower, 1993) retention interval is anticipated to globally enhance the observed rates of plagiarism.

With regard to the plagiarism rates expected in the Recall-Own phase (RO), plagiarism is anticipated but at a lower rate than in the generate-new phase (see Brown & Halliday, 1991; Brown & Murphy 1989; Linna & Gülgöz, 1994; Tenpenny et al. 1998), this follows as a result of the weakening in idea strength across the sequential task completions (Marsh & Bower 1993: This issue will be explored in Chapter 3). Moreover, somewhat lower rates of plagiarism are expected than those initially found by Brown and Murphy (1989). As in their study, during the recall-own phase, recall was forced and participants were required to remember all of their own initial contributions. This may have been problematic if participant could not remember all of their previously given exemplars (novel uses) as they may be inclined to report others initial ideas to 'fill in the blanks'. Therefore, despite participants not believing the ideas were their own, the obtained levels of plagiarism would be incorrectly inflated and hence misleading (Tenpenny et al. 1998). Consequently, to avoid this possibility participants were only instructed to report the ideas that they could remember and were permitted to leave 'blank spaces'. Levels of plagiarism with respect to the novel uses in this phase are less clear but are anticipated to be in line with those obtained in the semantic task (as this was the case in the generate-new task).

Consequently the predictions were as follows, first, little difference in plagiarism rates is expected between the category generation task and the creative Alternate Uses Test. Second, the statistically highest rates of plagiarism are anticipated in the generate-new phase and third, delayed testing is expected to simultaneously inflate the observable intrusion levels in each task across conditions.

2.3.2 Method

2.3.2.1 *Participants*

Forty-eight undergraduate students from the University of Plymouth participated in this study. Twenty-four were paid £5 and twenty-four received partial course credit for their participation. The participants were randomly assigned to the immediate or delayed-recall test conditions.

2.3.2.2 *Design and materials*

A factorial mixed between (immediate Vs delayed testing)-within (category generation task Vs Alternate Uses task) design was employed. Four of the category generation questions were taken from Brown and Murphy's (1989) experiment and the other 4 were selected from Battig and Montague's (1969) category norms. The categories were chosen as they were large with no obvious spatial or temporal strategy in the retrieval process that could potentially aid retrieval (i.e. prime ministers or counties respectively; Brown & Murphy, 1989). The 8 creative 'novel uses' questions were selected from the Alternate Uses Test (Christensen et al. 1960).

2.3.2.3 *Procedure*

Four participants were randomly assigned to a group and given a seat around a central table. Participants completed two tasks. In one task, they heard a list of object' names (e.g. a newspaper) and were instructed to generate novel, non-conventional uses for each object (e.g. to make a paper hat). In the other, they heard a list of category names (e.g. vegetables) and were required to generate members of that category (e.g. potato, carrot etc). The experimenter read the object or category name and instructed the participants one at a time to share their idea with the group. The order these tasks were conducted was randomised and the order that participants were asked to give their ideas was denoted by a Latin square design. This decreased the likelihood that the participant would plagiarise the person who spoke directly before them, as they could not anticipate when they were going to speak (Marsh & Bower, 1993). Moreover, explicit instructions stated that they must listen to all the others' contributions to prevent themselves from generating the same ideas as another person. The experimenter recorded all the generated ideas.

There were 4 groups of participants: immediate testing A and B and delayed testing A and B. Groups A and B were essentially the same, the only difference was the materials used (specific categories and Alternate Uses questions chosen). Participants in group A generated four category exemplars to each of the 4 categories (sport, musical instruments, clothing, four-legged animals) and four novel uses to each of the 4 objects (brick, shoe, eyeglass, key) while participants in group B generated 4 category exemplars to 4 different categories (part of the body, kitchen utensils, vegetables and furniture) and objects (wooden pencil, paperclip, car tyre and button). Accordingly, in both groups there was a total of 16 generated responses for each item/object.

The second-phase constituted the recall-own and generate-new phases. Participants in the immediate testing condition completed a 3-minute distracter task, in which participants were required to answer a selection of puzzle tasks that did not interfere with the information that they had just provided. Immediately after, in the recall-own phase, participants were shown the 4 category headings (e.g. *brick*) and 4 object names (e.g. animals) that they had previously generated to in the first session, with four blank spaces under each. Each category was displayed one-by-one in a random order for each participant. Participants were instructed to write down all of their own ideas from the first session (16 ideas). Recall was not timed or forced. If participants could not remember all of their ideas, then they were permitted to leave blank spaces. Once this had been completed, the same category headings were repeated in a random order. However, participants were asked to generate four completely new uses for each category that had not been previously generated (in any of the categories). Participants in the delay condition returned after 1 week to complete the same recall-own and generate-new sessions. This session lasted approximately 20 minutes.

2.3.3 Results

For the category generation items, unconscious plagiarism was scored if a given exemplar was the same as one that was previously generated in the initial phase. For the Alternate Uses items, an intrusion was scored if the idea was identical or very similar to a novel use previously generated by another participant (e.g. use brick as a door stop or use a brick to wedge a door open). Furthermore, if a recalled / generated novel idea was identical or very similar to a previous idea from a *different category*, the idea was scored as an instance of unconscious plagiarism. Inclusion of these ideas did not alter the pattern or significance of the results. Forty-seven participants (94%) exhibited an unconsciously plagiarised error in at least one of the phases (recall-own or generate-new). The overall numbers of ideas correctly recalled and unconsciously plagiarised in each of the tasks are summarised in Table 2.3.3.1.

	Elaboration Status							
	Immediate Testing				Delayed Testing			
Task	Category Generation		Alternate Uses Test		Category Generation		Alternate Uses Test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Recall	13.85	2.11	12.28	2.71	8.38	2.30	8.71	2.42
UP (RO)	.38	.70	.38	.75	3.04	2.66	.96	1.33
UP (GN)	1.77	1.68	1.50	1.50	3.92	2.50	2.75	1.48

Recall = Correctly recalled ideas in the recall-own task
UP (RO) = Unconscious Plagiarism in the recall-own task
UP (GN) = Unconscious Plagiarism in the generate-new task

Table 2.3.3.1: Experiment 2: Mean rates of correct recall and plagiarism within the recall-own (RO) & generate-new (GN) phases for ideas plagiarised in the category generation and alternate uses tasks over the two retention intervals.

2.3.3.1 Correct Recall

During immediate testing 370 Category Exemplars were reported in total, of which 360 (97.3%) were correctly recalled, and 328 Novel Uses were reported in total of which 318 (97%) were correctly recalled. Thus, fewer novel used were reported but of those ideas a similar proportion of the ideas were correctly remembered. On average, participants correctly recalled slightly more category exemplars (13.8/16) than novel uses

(12.2/16). Following a 1 week retention interval the total number of reported ideas was reduced. Participants reported 274 category exemplars, of which 201 (73.4%) were correctly recalled and 232 novel uses were reported of which 209 (90%) were correctly recalled. Consequently, although participants reported fewer novel uses, more of these reported ideas were correctly recalled. Therefore, on average each participant *correctly* recalled a comparable number of category exemplars (8.4/16) and novel uses (8.7/16).

A mixed ANOVA revealed there was no main effect of task (category generation V Alternate Uses Test) $F(1, 48)= 2.49$; $p=.121$. Consequently, overall participants were equally good at remembering the category exemplars and the novel uses that they had previously generated. However, as expected, there was a main effect of retention interval; implementing a one week delay significantly reduced correct recall $F(1, 48)= 60.44$; $p<.001$. There was also a significant interaction between the type of task (category/novel) and retention interval (immediate V delay) $F(1,48)= 5.75$; $p<.05$. During immediate testing recall performance on both tests was similar but more category exemplars were recalled than novel uses. This difference was mediated following a 1 week retention interval, where there was little difference in recall between the two tasks.

These findings were consistent over both sets of materials (A and B) thus indicating that the testing materials were robust. There was no significant main effect of testing materials $F<1$, participant's position in the group $F<1$ or the order that the ideas were presented $F<1$.

2.3.3.2 Unconscious Plagiarism

Recall-own task: In this task, participants were required to remember as many of their own initial ideas as possible. Unconscious plagiarism occurred when participants recalled someone else's category member or novel use as their own, initial contribution. A plagiarised idea was only counted once. During immediate testing 370 Category Exemplars were reported in total, of which 10 (2.7%) were unconsciously plagiarised and 328 Novel Uses were reported in total of which the same number, 10 (3%) were plagiarised. However, following a 1 week retention interval although the total number of plagiarised ideas increased there was a much higher proportion plagiarised in the category generation task. Participants reported 274 category exemplars, of which 73 (26.7%), were plagiarised and 232 novel uses were reported of which only 23 (10%) were plagiarised. Consequently, when testing immediately followed generation participants were just as likely to incorrectly believe that someone else's category exemplar or novel use was originally their own. However, following a retention interval, participants were more likely to believe a category exemplar was initially their own.

Overall, in the recall-own phase, 70% of participants (35 of 50) unconsciously plagiarised at least one idea that another group member had originally generated in the encoding session. The percentages of participants that plagiarised ideas are shown in Figure 2.3.3.2.1 Participants in each task appeared to make a similar number of errors during immediate testing. As expected, the subsequent number of intrusions that participants made increased following the retention interval. Moreover, participants who plagiarised 1 idea and more than 2 ideas doubled across both tasks. Although overall, there were more errors made when participants recalled category exemplars.

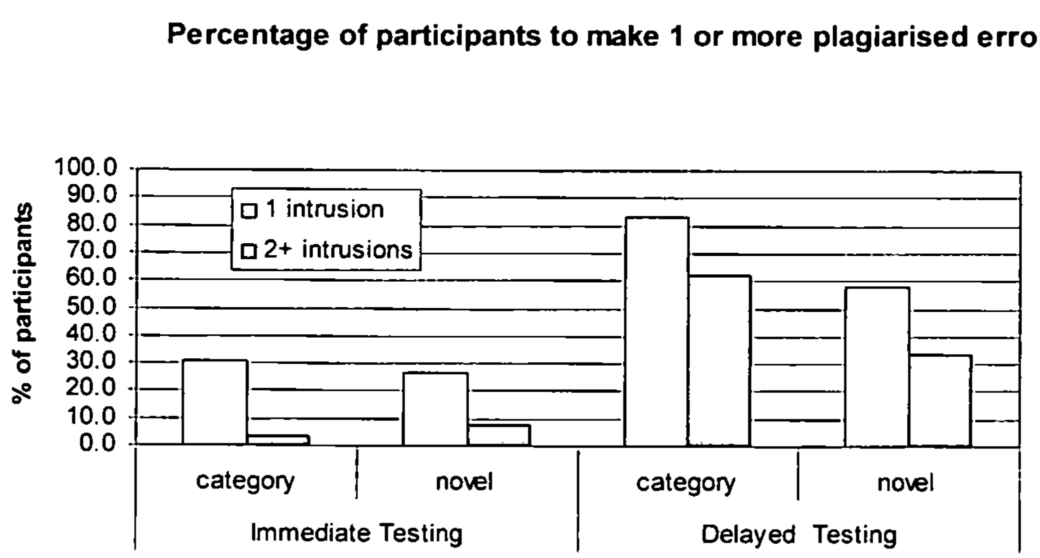


Figure 2.3.3.2.1 Percentages of participants to make 1 or more plagiarised error in the recall-own phase.

The means (displayed in the second row of Table 2.3.3.1) indicate that during immediate testing levels of plagiarism in both of the tasks was identical. After the delay, plagiarism levels increased but there was a larger increase for the category exemplars than the novel uses. A mixed ANOVA revealed a significant main effect of task (category/novel) $F(1, 48)= 17.83$; $p<.001$ with category exemplars showing statistically the most plagiarism. Therefore, despite similar numbers being recalled, participants were more likely to attribute someone else's category exemplars, than novel uses to themselves. There was also a significant main effect of retention interval (immediate Vs delay) $F(1,48)=19.88$; $p<.001$ and more ideas were plagiarised following a one week delay. Additionally there was a significant interaction between task and retention interval F(1,48) 17.83; p<001. Performance during immediate testing was comparable across both tasks but the number of plagiarised responses following the delay differentially increased. While the intrusions of novel uses increased by a factor of 2.5 over the delay, the number of category exemplars plagiarised increased by a factor of nearly 8.

These findings were also consistent over both sets of materials (A and B); there was no significant main effect of testing materials $F<1$. Moreover, the results were unaffected by a participant's position in the group $F<1$ or the order that the ideas were presented $F<1$.

2.3.3.3 Generate-new task: Participants' were required to generate four new category members or novel use ideas per cue. Often participants unconsciously plagiarised another persons' exemplar/idea (other plagiarism) or inadvertently duplicated one of their own previous ideas (self plagiarism). However, there was a very small number of these types of self intrusions and there was no significant main effect of task or delay on self-plagiarism rates, $F<1$.

In total, 1560 ideas were generated and of these, 798 in the category generation task and 762 in the novel uses task. During immediate testing, performance in both tasks was very similar. During *Immediate Testing*, in total more category exemplars (415) were given than novel uses (392). Of these category exemplars 367 (88.4%) were new and 46 (11.1%) had previously been generated by someone else. Only 2 (0.5%) were participants own ideas that were inadvertently reproduced as new. Overall fewer novel uses were given in this phase but the proportion (as in the category task) of ideas that were new (346 ideas, 88.3%), other plagiarised ideas (39 ideas 10%) and self plagiarised (7 ideas 1.8%) were similar.

Following delayed testing 383 category generation and 370 alternate uses were generated in total. Of these category exemplars 267 (70.2%) were new and 94 (24.5%) had previously been generated by someone else. This time 20 (5.2%) were participants' own ideas that were inadvertently reproduced as new. Overall fewer novel uses were given in this phase. A larger proportion of these ideas were new (289 ideas 78.1%) while a smaller proportion were other plagiarised (66 ideas 17.8%) or self plagiarised ideas (15 ideas 4.0%). Consequently, as in the generate-new task, imposing a one week delay increase the rates of plagiarism in both of the tasks but numerically the highest rates of plagiarism were seen in the category generation task.

In the generate-new phase 94% of participants (47 out of 50) exhibited a plagiarised error by reproducing an old idea that had been previously generated by another group member. The percentages of participants that plagiarised ideas are shown in Figure 2.3.3.3.1 During immediate testing performance on both tasks was comparable. As expected, following a 1 week delay, performance in each task deteriorated equivalently and hence an increase in plagiarism was observed. Following the delay on average a striking 80% of participants across both tasks made 2 or more plagiarised errors.

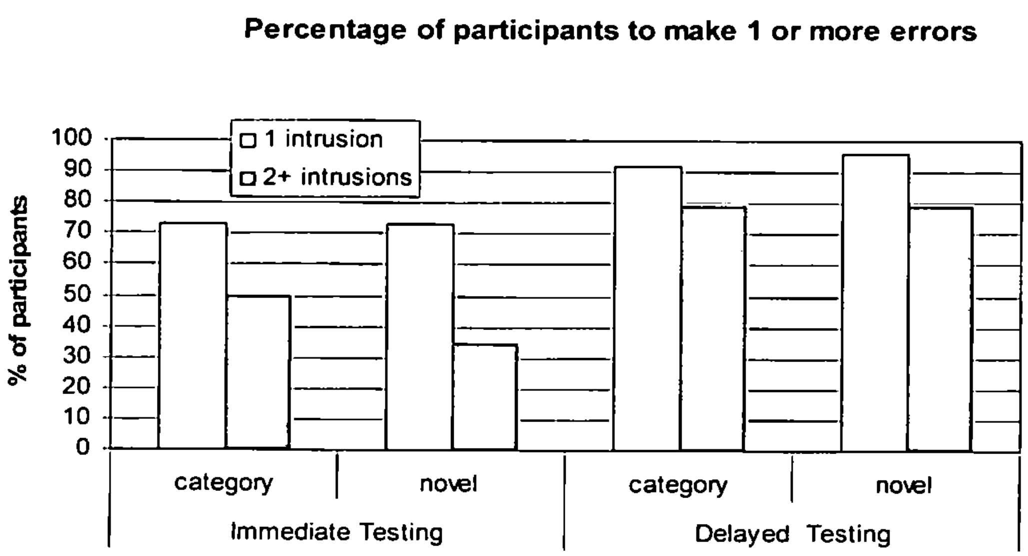


Figure 2.3.3.3.1: Percentages of participants to make 1 or more plagiarised error in the generate-new phase.

The effects of task and retention interval on rates of these plagiarised errors can be seen in Table 2.3.3.1. There was a significant main effect of task $F(1,48)=4.71$; $p<.05$. At immediate testing, the number of ideas plagiarised in both of the tasks was comparable. Over the delay, plagiarism increased although the statistically highest rate was observed in the category generation task. Implementing a one week delay resulted in a significant increase in the number of ideas that were plagiarised $F(1,48)=18.17$; $p<.001$ as in the recall-own phase, but there was no interaction between type of task and retention interval $F(1, 48)=1.84$; $p=.18$. Additionally, in the generate-new phase, there was no significant main effect of testing materials $F<1$, participant's position in the group $F<1$ or the order that the ideas were presented $F<1$.

2.3.4 Discussion

This experiment demonstrated that when a creative generative task was implemented in the generation phase of Brown and Murphy's (1989) 3-stage paradigm high levels of plagiarism were obtained. Moreover, the obtained rates were in line with those found in the more traditional category generation task. This was the case on two different tasks; the generate-new task and the recall-own task. Essentially, not only did participants incorrectly introduce old ideas as new but they also mistakenly reported old ideas that were previously generated by other participants as their own ideas. Specifically, in this study, when participants generated new category exemplars immediately after generation, 11% of the given ideas were plagiarised ideas from the earlier generation phase. This level replicated those obtained in prior studies (e.g. Brown & Murphy, 1989; Linna & Gülgöz, 1994) and more pertinently, was comparable to the 10% of ideas that were plagiarised in the Alternate Uses Test. Both of these figures were significantly inflated following the retention interval, and although the category generation task resulted in the numerically highest amount of plagiarism following this delay, the Alternate Uses Test still resulted in a level of 17% intrusions. This is a large amount of plagiarism that is comparable to or exceeds the levels found in the literature for semantic tasks (Bredart et al, 2003; Brown & Halliday, 1991; Brown & Murphy, 1989; Linna & Gülgöz, 1994; Tenpenny et al. 1998) and those found in more creative tasks following a retention interval. Moreover, these errors were exhibited by nearly all of the participants (94%) and interestingly, 80% of participants made 2 or more of these plagiarised errors across each task.

In both of the tasks in the recall-own phase (when participants were recalling their initial ideas/exemplars), there was a slight recall advantage for category exemplars at immediate testing but this benefit dissipated after the delay. Participants recalled a similar number of correct category exemplars and novel uses (8.4 and 8.7 respectively). This indicated that participants were able to appropriately complete the task and that importantly, that they did not find it significantly more difficult to recall their initial novel uses (than category exemplars). Consequently, the Alternate Uses Test appeared to meet its objectives and constitutes a suitable creative task in which general levels of participant performance is (mostly) matched to the category generation task

As expected, the higher rates of plagiarism were observed in the generate-new phase than in the recall-own phase. This supports the pattern found in previous research (e.g. Brown & Murphy, 1989; Marsh & Bower, 1993) and the notion that perhaps this difference, results from a decline in memory strength, across the tasks. In addition, this differential plagiarism rate may reflect a categorical difference between the types of errors exhibited in each task (this point will be discussed in chapter 3). However, in the recall-own task, the plagiarism rates that were obtained for category exemplars, were lower than those obtained by Brown and Murphy (1989). This likely ensued because in this study recall not was forced; participants were only asked to report the ideas that they could remember. For example, if for a given category a participant could not recall any of their initial responses they were permitted to leave the section blank and to move on to the next category. This was not the case in Brown and Murphy's (1989) study as participants were required to remember and report all 4 exemplars. Hence, while they obtained a level of 7% recalled intrusions here, we obtained 3%. Importantly however, the same percentage of novel ideas were also plagiarised in this phase (3%).

As expected, the retention interval increased these recall-own intrusions, but while the number of category exemplars increased enormously the number of novel uses increased more steadily. This difference in recall-own plagiarism, between the two tasks was large, as 3.04 words were plagiarised in the category generation task but only 0.96 ideas were plagiarised in the novel uses task. This difference may partly be due to differential guessing rates across the two tasks. The word frequency effect suggests while frequent (or common) words may be easier to recall than more unusual word, recalling their source is more difficult (Johnson et al. 1993). This follows as common words are more familiar but are associated with fewer memory characteristics (including perceptual information concerning the generator's voice e.g. pitch, tone, volume and aspects of their appearance e.g. distinctive features; Johnson et al. 1993) than more unusual words. Thus, it is conceivable to expect that following a retention interval, the novel uses would be more distinctive in memory (e.g. paperclip to stir tea) than the frequently used category members (e.g. orange). This distinctiveness may be particularly pronounced for some of the more atypical novel uses, as it is possible that certain idea may evoke an emotion within the participant (e.g. amusement or a reminder of something else) thereby providing more retrieval cues that would serve to help differentiate source and improve item (correct recall) and source memory (reducing plagiarism). Hence, at recall, participants may have been less likely to confuse someone else's novel use with their own than someone else's category members. Moreover, participants may have found it easier to report familiar category exemplars than unfamiliar novel uses (more responses withheld). However, a rate of 10% recall-own plagiarism was obtained in the Alternate Uses Test and this rate is nonetheless comparable with previous semantic tasks that are completed following a 1 week retention interval.

The materials that were used in this study appeared to be consistent. There were no significant differences found in either task, or in any of the phases, between the 2 sets of testing materials (groups A or B). Additionally, in the Alternate Uses Test the responses given to these materials in terms of the particular ideas that were plagiarised were not constituted from repetitions of a particular sub-set of ideas and thus plagiarised ideas varied considerably. Moreover, in the category generation task there was no evidence of a normative frequency bias in the plagiarised responses (see also Brown & Halliday, 1991). Consequently, the high rates of plagiarism that were attained in this study are unlikely to be explained in terms of the specific materials that were used. Also these intrusions cannot be explained by chance as the rates observed in the recall-own phase and generate-new phase far exceeded the base rate levels of (1.6%) semantic repetitions (Klee & Gardiner, 1976). This was particularly pertinent across both tasks following the 1 week retention interval (Brown & Halliday, 1991; Marsh & Bower, 1993)

In this Experiment, participants were able to complete the Alternate Uses Test by engaging in creative thought, and generating appropriate uses for given objects. Moreover, they actively recalled these ideas (correct recall), generated new ideas (generate-new phase) and plagiarised earlier ideas to a degree that was consistent with the category generation test. Importantly, although the highest levels of plagiarism were obtained in the generate-new task high levels were also seen in the recall-own task. Furthermore, implementing a one week retention interval between generation and testing significantly inflated the exhibited errors,

2.4 General Discussion

Experiment 1 demonstrated that the Alternate Uses Test produced generate-new plagiarism at a comparable rate to the previous studies of category generation. This finding was supported and replicated in Experiment 2. Moreover, Experiment 2 additionally demonstrated that the Alternate Uses Test leads to plagiarised errors in the recall-own phase. Essentially, not only did participants incorrectly introduce old ideas that were previously generated by other participants as new ideas they also mistakenly reported them as their own old ideas. This held even when allowing participants to withhold their responses.

Substantial rates of plagiarism were observed in both Experiments when the creative Alternate Uses Task was utilised. Following a 1 week retention interval, when participants were generating new ideas (generate-new phase) the observed levels of plagiarism were as high as 19% in Experiment 1 and 18% in Experiment 2. High rates (10%) were also obtained when participants were recalling their own ideas (recall-own phase) in Experiment 2. Moreover, these errors occurred in this creative task despite participants being given strong admonitions to avoid such reproductions. This finding follows those obtained in prior plagiarism studies (e.g. Brown & Murphy, 1989) and those observed in the conformity literature; where participants completing a creative drawing task, conform to features shown in the initial examples that they are explicitly warned to avoid (e.g. Marsh, Bink & Hicks, 1999).

Overall, the inclusion of a larger retention interval resulted in high rate of plagiarism in Experiment 1 and inflated the intrusion rates in Experiment 2 (relative to when no delay was incorporated). This followed across both tasks and in both testing phases thus supporting Brown and Halliday, (1991; Marsh & Bower, 1993) who observed similar effects. In real world cases of plagiarism large time periods inevitably elapse between an individual's initial introduction to an idea (information/song etc) and their subsequent inadvertent use of that information. Time lapses of various lengths have been previously documented from relatively short (i.e. Freud, 1901/1960) to extremely long (i.e. Jung, 1905/1957). Recently, Michael Bolton was found guilty of plagiarising a song that was a 'hit' 25 years before his song was released. Thus, although, the interval included here was short and clearly not as extensive as this, it nevertheless more closely mimicked real life findings and importantly and significantly increased the observable plagiarism. This forced time lapse served to increase the external validity of the experiments and consequently, only a 1 week retention interval will be used in the forthcoming research programme. No immediate testing was administered in any study reported later in this thesis.

Experiment 1 indicated that for generate-new plagiarism intrusions to occur participants do not need to be actively engaged in the initial generative process. Simply observing this process can lead to numerically more intrusions when testing immediately follows this generation period (Brown & Halliday, 1991; Johnson & Raye, 1980). However, implementing a one week delay resulted in inflated plagiarism, particularly generator plagiarisms. Hence, after 1 week there was little difference in the performance of the raters, listeners or generators and so regardless of whether participation and subsequent encoding in the generation phase was active or passive rates of plagiarism were high and did not differ.

In these studies, when groups of 6 (Experiment 1) or 4 participants (Experiment 2) were involved in generation this element of group dynamics did not significantly impact the results. In the generate-new phase comparable rates of plagiarism were observed in both Experiments. The obtained rates of 19% and 18% were in accordance with previous studies that had employed comparable sized groups and comparable materials, following the retention interval. Testing participants in larger groups and hence maintaining the social interaction has been reported to lead to fewer intrusions than when participants are tested in pairs (Macrae et al. 1999). This followed as Brown and Murphy, (1989) initially reported that participants were most likely to plagiarise information that was heard just before they were about to speak. This was due to a diminished attention toward the exemplars given by the participant who immediately preceded them. Hence, Macrae et al. (1999) only tested pairs of participants with a view to inflating the observable level. In these studies, we maintained group testing but changed participant generation order, so they were unsure when they would be called upon to give their response. Therefore, we may have expected to find low rates of plagiarism but this was not the case. Moreover it has been demonstrated that participants are less likely to plagiarise during testing if the context is the same at generation and retrieval, for example, if the original source (partner) is present at test (Macrae et al.1999). This is due to the additional retrieval cues that the environment and the other participants provide. Here, the physical and social context was maintained between generation and testing as participants completed all phases in the same laboratory, in their initial generative groups. Consequently, the consistently high rates of plagiarism obtained in these 2 experiments are particularly striking

The results obtained in each of these studies indicate that when the Alternate Uses Test is utilised in the generation phase of the 3-stage paradigm participants are able to easily produce appropriate and varied creative ideas. Participants can later recall these ideas (in the recall-own phase) and equally, produce an appropriate number of *new* ideas (in the generate-new phase). Fundamentally, participants also exhibited high levels of plagiarised errors in both of these phases. Numerically the highest rates observed were found in the generate-new phase. This interesting and consistent finding will be examined in Chapter 3. The Alternate Uses Test is also a desirable task as the novel ideas that are produced in response to the objects (e.g. paperclips to make a picture frame) are tangible ideas that potentially lend themselves to evaluation or alteration. This is important as in the real world experienced information that is later plagiarised has at some point invariably been worked upon and potentially evolved. In Experiment 1 participants rated the given ideas at encoding, while this did not affect the observed levels of generated plagiarism potentially rating or evaluating these ideas after encoding may conceivably affect the subsequent probability of the ideas being plagiarised. These issues of idea development will be also be explored in Chapter 3.

Consequently, within this forthcoming research programme, the 3 stage paradigm will be maintained and the creative Alternate Uses Test will be administered during generation with a 1 week retention interval incorporated between generation and testing. This test will be utilised and manipulated in the proceeding studies to further investigate the conditions under which unconscious plagiarism is manifest.

Chapter 3: Manipulations after Encoding

3.1 Introduction

Using variations in Brown and Murphy's (1989) original paradigm, research has demonstrated that imposing a 1 week retention interval between initial idea or category member generation and later testing of novel responses significantly increases rates of unconscious plagiarism relative to immediate testing (Bredart et al. 2003; Brown & Halliday, 1991; Macrae et al. 1999; Marsh et al. 1996;). Experiment 1 and 2 supported these findings and found comparable rates of plagiarism when the Alternate Uses Test replaced the category generation task in the generation phase. To date however, although the effects of a delay on rates of plagiarism has been investigated, the effects of different mental processes that participants may be engaged in during the delay has been largely neglected. This is problematic as real life plagiarists are likely to think about appropriated ideas and accordingly invest considerable time and effort into these ideas before the idea is presented as their own novel creation. Hence the aim of the present work is to explore the possibility that it is an elaborative process that might involve thinking about, evaluating or developing the idea after initial exposure, but before test, that is responsible for a plagiarist maintaining belief in the originality of their work. Specifically, the effects of different types of elaboration on rates of recall-own and generate-new plagiarism will be investigated.

3.1.1 Plagiarism Measure

Appropriation has previously been demonstrated to manifest itself in different forms (Wicklund, 1989; Wicklund, Reuter & Schiffmann, 1988. For example, when a person is exposed to an idea, this information can be internally integrated and stored. Initially the individual's association with the idea may be weak although it can be strengthened through idea alteration or development. Wicklund (1989) maintained that different forms of appropriation can arise and be operationalised in at least 2 different ways. First, a weaker association can lead to a subjective feeling that an idea has been known for longer (feeling of knowing), whereas a stronger association can result in an incorrect belief that a pre-experienced idea was unique and self-generated (authorship attribution), or, stated differently, generate-new plagiarism (Wicklund, 1989; Wicklund, Reuter & Schiffmann, 1988).

Both of these measures require different decision processes, but constitute a similar type of error. Both are a form of misappropriation of another's idea to themselves. Marsh, Landau and Parsons (2000) explored these errors in a single experiment and demonstrated that engaging in elaborate encoding resulted in participants believing that they had known an idea for longer (length-of knowing errors) (see also Wicklund, 1989) but simultaneously this led to fewer of these ideas being reproduced as new (generate-new plagiarism). They suggested that since both memory tasks were completed in short succession after encoding, there was very little time for changes in the stored memorial information. Intuitively it was more likely that different decision processes that interpreted the memorial information were responsible for the different results. These findings were explained in terms of the source monitoring framework. For a length of knowing judgement, participants could asses the ideas in terms of strength or familiarity (Jacoby, 1991) and hence, an increase in strength (through elaborate encoding) resulted in participants assuming that they have known the idea for longer. In contrast, when generating new ideas, these available ideas were recognised from the encoding session and not believed to be new.

In the unconscious plagiarism literature intrusions have also been measured in two different ways; using the recall-own task and the generate-new task as previously discussed. In Experiment 1, only one test was implemented during retrieval, the generate-new task and thus, only one measure of plagiarism was obtained but in Experiment 2 two measures were used. In Experiment 2 and generally in the literature unconscious plagiarism tends to be higher when participants generate new ideas than when they recall their own ideas (e.g. Marsh & Bower, 1993). This difference in unconscious plagiarism rates between the tasks is an issue of central interest as unconscious plagiarised errors appear to manifest in different ways. This is also believed to be due to the operation of different decision processes being utilised in the two phases (Marsh & Bower, 1993). In the generate-new phase participants need to make a decision that resembles a recognition judgement. For example, participants need to decide whether the idea occurred in the generation phase. To answer a question like this, participants can rely on information such as item familiarity (Dodson & Johnson, 1996; Johnson et al. 1993). However, in the recall-own phase, although an initial recognition judgement is required to asses the old/new status of the idea, an additional decision process that determines *who* initially generated the idea is also required. This demands an extended reasoning judgement that is more typical of source monitoring. Consequently, due to the extended use of source monitoring during the recall-own phase, levels of unconscious plagiarism are sensitive to factors related to the attributes of the memory representations. Landau and Marsh (1997) first demonstrated this, using Brown and Murphy's (1989) 3 stage paradigm, by manipulating the representations of self-generated and computer-generated information. During generation, participants completed a puzzle task (a boggle game). Initially, memory representations were made highly confusable by requiring participants to guess the computer's responses as well as generating their own ideas. Similar search processes and cognitive operations were utilised to derive each of the ideas and so information from both sources (i.e. memory characteristic information) was more difficult to differentiate. Consequently, rates of unconscious plagiarism in the recall-own phase increased but rates of plagiarism in the generate-new phase remained unchanged. This followed as at recall, the ideas were familiar and could easily be attributed to the generation phase and be rejected as new ideas. Furthermore, Macrae et al. (1999) investigated factors that detrimentally affect the quality of the stored memorial representations and demonstrated that increasing perceptual source similarity (same gender generating partner) or exposing participants to a cognitive distraction at encoding (topical radio reports) also promoted source confusion and increased plagiarism in the recall-own task alone. Such findings highlighted the potential importance of source monitoring in the recall-own phase (Landau & Marsh, 1997; Macrae et al. 1999).

Interestingly Macrae et al. (1999) also demonstrated that source confusion introduced at *retrieval* can also cause plagiarism here. Retrieval context was manipulated by removing source-related cues (i.e. their generating partner). This raised subsequent levels of source confusion and accordingly, recall-own unconscious plagiarism. In this case, information representations were unchanged but rather the decision processes that guide source monitoring were interfered with and affected. However, in all of these studies plagiarism in the generate-new phase was either unaffected or reduced as extended source monitoring decision processes were not necessary.

In essence, this previous research has demonstrated 2 things;

1) That the recall-own and the generate-new tasks are different with regards to the cause of plagiarism. Therefore, In Experiment 3 both measures of plagiarism are incorporated into the experimental design.

2) Manipulations that are imposed at the time of both encoding and retrieval affect subsequent levels of plagiarism and may differentially affect recall-own and generate-new plagiarism. Specifically, manipulations that promote source confusion can inflate the likelihood that participants will claim someone else's idea incorrectly as their own. Our interest here focused on introducing manipulations after encoding but during the *interval* between initial idea generation and later testing, to evaluate the subsequent affects on the two measure of plagiarism.

3.2 Experiment 3

3.2.1. Introduction

In the real world when a person hears an idea they may evaluate it and think about why the idea is good or bad or even whether they like the idea. The potential effect that these types of evaluative processes may have upon rates of plagiarism has been subject to little empirical investigation. Marsh and Bower (1993) contrasted the effects of thinking about how pleasant an idea was following initial idea generation, with a more passive letter counting task. Introducing pleasantness rating reduced the amount of plagiarism that was later observed in the generate-new phase. It was concluded that performing these ratings resulted in the ideas becoming more available or familiar. Hence, at recall if these ideas came to mind more easily participants may have presumed that they were old words and so avoided presenting them as new. Marsh and Bower (1993) explained these findings in terms of the activation strength model.

As discussed in the introduction, activation strength is currently one of the dominant models used to explain unconscious plagiarism (Marsh & Bower, 1993; Marsh & Landau, 1995). Marsh and Bower (1993) suggested that as the activation strength of an externally-generated idea is increased its activation level becomes closer and more comparable to self-generated ideas. Consequently, the ideas' representations may 'overlap' and this may lead to confusion and result in participants believing that someone else's idea was initially their own. This view also predicts that more elaborate encoding should concurrently reduce plagiarism, relative to baseline, in the generate-new tasks. This follows because any increase in strength would lead to greater discrimination between new and old items, and thus reduce intrusions from previously elaborated ideas.

However, as described in Chapter 1, a source monitoring account has also been used to explain unconscious plagiarism (Johnson et al. 1993; Landau & Marsh, 1997; Macrae et al. 1999). This is the case specifically in the recall-own phase where levels of unconscious plagiarism are sensitive to the attributes of the memory representations. Manipulations that result in source confusion, such as, perceptual source similarity (Landau & Marsh, 1997; Macrae et al. 1999) or cognitive distraction (Macrae et al. 1999) can result in an individual claiming someone else's idea as their own. This follows because these types of source confusion can affect the quality of the stored memorial information, so when source decisions are made on the basis of these qualitative aspects of the ideas (rather than familiarity), mistakes can occur and hence plagiarism (e.g. Marsh & Landau, 1997). In a different vein this source monitoring view was advocated more recently by Bink et al. (1999) regarding plagiarism in the generate-new phase. They have suggested that information from a credible source may be processed differently to other information and specifically, that more detailed characteristics are stored at encoding. In their study, participants were given lists of ideas on how to reduce traffic accidents, some of the ideas were presented as if they were from 'town planners' and hence comprised the credible ideas while the remaining ideas were presented as if they were from undergraduate students. Both sets of ideas were equated in terms of quality and effectiveness and importantly, ratings given by the participants indicated that credible sources were not viewed as objectively better. In addition, explicit memory measures indicated that both sets of ideas were equally learned and recalled (as shown by a free recall test) and even idea origin judgements did not differ. However, when participants were asked to generate new ideas they tended to plagiarise more credible ideas, thus suggesting a sensitivity to the sources credibility. Hence, there was a dissociation between implicit and explicit memory.

Bink et al. (1999) suggested that this unconscious plagiarism may have been caused by participants spontaneously generating implications for the credible ideas at encoding. This suggestion was supported in Experiment 3 where rates of unconscious plagiarism were equated when participants were explicitly instructed to provide implication for the students' ideas (but not credible ideas) at generation. These findings are difficult to explain exclusively in terms of activation strength, as according to this model generating implications should have resulted in improved recall (Craik & Lockhart, 1972) and a reduction in plagiarism (Marsh & Bower, 1993; Marsh & Landau, 1995). However, absolute recall was not improved so it was unlikely that this manipulation was explicitly affecting memory. Rather, the source monitoring framework would imply that implication generation resulted in extra cognitive operations being stored at encoding (Johnson et al. 1993) and although these were not sufficient to significantly enhance recall they may have heightened the idea's availability. Consequently, at test when the ideas came to mind, the idea's availability may have been attributed to spontaneously generating a new idea rather than remembering the associated source. If participants utilised a heuristic editing process, while engaging in the taxing generate-new task they may have focused on this task and so failed to consult all their available memorial details associated with the ideas and consequently plagiarised (Bink et al. 1999; Landau et al. 1997).

In Bink et al's (1999) experiment, participants did not actively participate in the initial generation session so accordingly only one measure of plagiarism could be obtained (generate-new plagiarism). In Experiment 3 we were interested in further exploring idea processing on later rates of plagiarism but in the 3 stage paradigm (Brown & Murphy, 1989). However, instead of generating idea implications participants were required to invest more time in each idea by considering the ideas in a positive or negative way. This task had parallels with Bink et al's implication generation, but increased the mental processing that was invested in each idea (providing 3 suggestions as opposed to 1) and also investigated elaboration on 2 dimensions (positive and negative). In addition, two different measures of plagiarism were used; 1) the recall-own task and 2) the generate-new task. We were interested in the rates of plagiarism obtained in the recall-own phase as a different decision process, a more extended reasoning judgement must be utilised when completing this task (see Marsh & Bower, 1993).

Therefore, in Experiment 3, two types of elaboration were investigated. These were implemented following the initial idea generation session thus creating a 4 stage paradigm. During elaboration participants either generated 3 positive things about the idea, 3 negative things about that idea or heard the idea for a second time but did not elaborate. The goal was to determine what effect these manipulations would have on plagiarism and moreover, whether these different types of elaboration had differential impacts on plagiarism rates across the two plagiarism measures. As conceivably, ideas perceived to be 'bad' are less likely to constitute those ideas that are appropriated in the real world. However, both forms of elaboration require deeper processing of the original ideas and so would be expected to increase the idea's strength in memory relative to control. Thus the simple strength account of unconscious plagiarism predicts that elaboration should show a dissociation across the two measures of plagiarism but makes no predictions regarding the two forms of elaboration beyond that predicted by strength. That is, if either positive or negative elaboration leads to stronger memory traces, as indexed by higher recall, one might consequentially expect to see higher rates of plagiarism in the recall-own task, and lower rates of plagiarism in the generate-new task in that condition.

However, alternative predictions can be derived from the source monitoring framework. If generating 'positive things' (or negative things) about an idea effects encoding in a comparable way to implication generation this may result in a higher level of plagiarism in the generate-new phase, relative to the control. At test, these ideas may be more available due to increased cognitive operations associated with the ideas. Rather than improving source memory (as activation would suggest), the ease with which the ideas are retrieved may incorrectly cause the participants to believe the idea was a spontaneously generated new idea and not an old idea, hence increasing plagiarism. Alternatively, the increased cognitive processing and associated cognitive operations may result in the ideas being more easily remembered and thus appearing more distinctive from new ideas and instead reducing plagiarism in this phase.

3.2.2 Method

3.2.2.1 *Participants*

A total of twenty-four undergraduates from the University of Plymouth received £5 for their participation in this study. Only twenty-one of these participants returned to complete the second half of the experiment.

3.2.2.2 *Design and Procedure*

A within–subjects design was implemented that explored participant idea involvement (control, positive elaboration, negative elaboration). Four participants were randomly assigned to each group of four and were given a seat around a central table. The participants were informed that they would hear a list of object names (e.g. a newspaper) and they would have to think of novel, non-conventional uses for the item (e.g. to make a paper hat). After the experimenter read the first category (either: brick, shoe, paperclip or button) participants were instructed one at a time to share their ideas with the group. The order that participants were asked their ideas was denoted by a Latin square design. This decreased the likelihood that the participant would plagiarise the person who spoke directly before them, as they could not anticipate when they were going to speak (Marsh & Bower, 1993). Moreover, explicit instructions stated that they must listen to the other's examples to prevent themselves from generating the same ideas as another person. The experimenter recorded all the generated ideas. For each of the 4 objects, each participant generated 3 novel uses, one idea that would be amenable to the three elaboration conditions (control, positive elaboration & negative elaboration). Accordingly, for each category there were 12 generated exemplars. The elaboration phase immediately followed the idea generation. Of the previously generated ideas, a third (one idea from each participant per object) was then subject to the following treatment conditions. In the control condition participants simply wrote down the idea. In the positive elaboration condition participants wrote down 3 positive things about the idea and in the negative elaboration condition participants wrote down 3 negative things about the idea.

The order that participants performed these tasks was counterbalanced across the groups. The experimenter read these ideas in a pre-determined random order, instructing participant to write down the idea and positively or negatively rate the idea as appropriate. This task complete the first session and lasted approximately 45 minutes.

One week later participants returned to complete the testing phase comprising of a recall-own and generate-new phase. In the recall-own phase, participants were given a booklet which displayed the 4 object names (e.g. brick) that they had previously generated to in the first session, with 3 blank spaces under each. Each object name was displayed one-by-one in a random order for each participant. Participants were instructed to recall and record all of their own ideas from the first session (12 ideas). Recall was not forced or timed. If participants could not remember then they were permitted to leave blank spaces. Once this had been completed the same category headings were repeated again in a random order. However, participants were asked to generate *four* completely new uses for each category that had not been previously generated. This session lasted approximately 20 minutes.

3.2.3 Results

Unconscious plagiarism was scored if an idea was identical or very similar to an idea previously generated by another participant (e.g. use brick as a door stop or use a brick to wedge a door open). Furthermore, if a recalled / generated idea was identical or very similar to a previous idea from a different category, the idea was scored as an instance of unconscious plagiarism. Inclusion of these ideas did not alter the pattern or significance of the results. Responses were categorised independently by two raters. In the recall-own phase the raters indicated whether the ideas were correctly recalled, plagiarised or a new ideas (that were not generated in the initial phase). In the generate-new phase, raters determined whether the ideas were new, plagiarised or duplicated ideas (I.e. ideas that appeared in the generate-new phase more then once). The inter-rater agreement across all the ideas was 98.7%. Discrepancies occurred when ideas from the generation phase were similar to ideas produced as new ideas for example 'to use button as eyes on a teddy bear' and 'to use buttons as eyes on a snowman'. In instances such as these the ideas was not classified as being plagiarised. However, there were very few examples like these and all were resolved by discussion.

All of the participants exhibited an unconsciously plagiarised error in at least one of the phases (recall-own or generate-new). The overall numbers of ideas correctly recalled and unconsciously plagiarised in each of the tasks are summarised in Table 3.2.3.1.

	Elaboration Status					
Task	**Control**		**Positive Elaboration**		**Negative Elaboration**	
	Mean (of 4)	**SD**	**Mean (of 4)**	**SD**	**Mean (of 4)**	**SD**
Recall	2.24	1.14	2.67	1.20	2.48	1.21
UP (RO)	.43	.68	.67	.86	.52	.60
UP (GN)	.67	1.02	.43	.51	.43	.60

Recall = Correctly recalled ideas in the recall-own task
UP (RO) = Unconscious Plagiarism in the recall-own task
UP (GN) = Unconscious Plagiarism in the generate-new task

***Table 3.2.3.1**:* Experiment 3: Mean rates of correct recall and plagiarism within the recall-own (RO) & generate-new (GN) phases for control ideas and those that were positively and negatively elaborated.

3.2.3.1 Correct Recall

In total, 189 ideas were reported. Of these, 155 ideas (82.0%) were correctly recalled, where each participant on average correctly recalled (i.e. did not plagiarise) 9 (SD = 2.3) of their initial ideas. The top row of Table 3.2.3.1 shows the effects of elaboration on correct recall. Numerically, there was a slight recall advantage following elaboration but both positive and negative elaboration affected recall equivalently. However, a within-subjects ANOVA revealed there was no main effect of elaboration status on participants' performance, $F(2,40)= .78$; $p=.463$.

3.2.3.2 Unconscious Plagiarism

Recall-own task: In this task, participants were required to remember as many of their own initial ideas as possible. Unconscious plagiarism occurred when participants recalled someone else's idea as their own. A plagiarised idea was only counted once. Of the 189 ideas that were reported, 34 ideas (18%) were unconsciously plagiarised (SD= 1.5). In the recall-own phase, 76.2% of participants (16 of 21) unconsciously plagiarised at least one idea that another group member had originally generated in the encoding session. Additionally, 42.9% (9 of 21) of participants made two or more plagiarised intrusions.

The means (displayed in the second row of Table 3.2.3.1) suggest that rating the ideas increased the later rate of recalled plagiarism and positively rating the ideas resulted in the highest levels of plagiarism. However, this difference was not statistically significant $F(2,40)=.721$, $p=.49$.

3.2.3.3 Generate-new task: Participants' were required to generate four new ideas per category cue, but often participants unconsciously plagiarised another persons' ideas or inadvertently duplicated one of their own previous ideas (self plagiarism). In total, 327 ideas were generated and of these, 286 (87.5%) were new ideas, 32 (11.2%) had previously been generated by someone else, and 9 (2.8%) were participants own ideas that they had inadvertently re-presented as new. The small remainder were duplicated ideas at test that were excluded from the analysis.

Self-plagiarism; There was a very small number of these types of intrusions and there was no significant main effect of elaboration status on self-plagiarism rates, $F<1$.

Unconscious plagiarism; In the generate-new phase, 76.2% of participants (16 of 21) plagiarised by reproducing an old idea that had been previously generated by another group member. Moreover, 57.1% (12 of 21) made two or more of these intrusions. The effects of elaboration on rates of these errors can be seen in Table 3.2.3.1. Both positive and negative elaboration had a comparable effect on subsequent levels of plagiarism. Elaboration reduced the number of plagiarised errors relative to control however, a within-subjects ANOVA revealed that this reduction in plagiarism did not reach statistical significance $F(2,40)=.726$; $p<.490$.

3.2.4 Discussion

There were two measures of plagiarism in this study; plagiarism in the recall-own phase and plagiarism in the generate-new phase but there were no significant differences observed in either task. Therefore, it appears that neither, positive nor negative elaboration influences one's propensity to plagiarise another persons' idea as their own idea, or as a new idea. The trends of the data however, suggested that elaboration of either kind increased the number of ideas that were correctly recalled and reduced the number of ideas that were plagiarised in the generate-new phase. This pattern reflects the trend that the activation strength model (Marsh & Bower, 1993) would support, in terms of elaboration increasing item discrimination between old and new items and therefore aiding correct recall and simultaneously preventing old ideas presentation as new. However, the rates of plagiarism in the recall-own phase were high. The rates obtained following positive elaboration (16.7%) exceeded those obtained following negative elaboration (13.0%), control (10.7%) and those obtained in Experiment 2. Therefore elaboration inflated rates of recall-own plagiarism in this study and although positive elaboration resulted in numerically the highest rate of plagiarism (more supporting the source monitoring framework) the differences between conditions were small so must be interpreted with caution.

There are a number of possible reasons for the lack of lack of significance in this study. First, as there were fewer ideas generated in total, the generation phase may have been easier to complete. Participants here were only required to generate a total of 12 ideas rather than 16 in previous experiments thus, recalling their own ideas and the source of others' may have been easier than in the previous study. Moreover, having fewer ideas generated in the initial task concurrently reduced the absolute number of old ideas that could be potentially reproduced as new, in the generate-new phase. Therefore, increasing the number of ideas produced in the initial generative phase may have mediated these potential problems and made the measures of plagiarism more sensitive.

Additionally, in this study, although participants were generating fewer ideas in total (relative to Experiment 2) they were elaborating a large proportion of those ideas (two thirds). Hence, a second reason for the lack of significant effects in this study may reside in the actual elaboration that was performed. For example, it is difficult to establish exactly what mental processes participants were engaging in when they were completing the elaborative task. When they were thinking positively (or negatively) about the ideas, were they considering the provided use for the object or evaluating the use of the object *per se*? In other words, did they evaluate the positives of using a brick as a *flower pot* (i.e. weather proof, will not blow over etc) or focus on the positives of generally using a *brick* as a flowerpot (i.e. cheap, easily abundant etc). If participants were focusing on the object rather than the individual uses, as would be conceivable due to the number of ideas elaborated here, then neither elaboration nor idea processing was performed in the desired or instructed manner. Consequently, the *idea's* subsequent strength and associated memory characteristics may have been contingent upon how participants approached the task and the way the task was approached may have lacked consistency within and or between subjects. When participants were rating the ideas positively and negatively, what kind or memorial techniques were they engaging in to aid them complete the task? Were they using their imagination or pictorial based strategy or a more reasoning based process where idea implications were considered or developed? Using more specific task instructions, Experiment 4 explores these possibilities.

3.3 Experiment 4

3.3.1 Introduction

Real world plagiarists inevitably think about appropriated information/ideas and accordingly invest considerable time and effort into these ideas. This effort or elaboration involves idea consideration but also may include some form of idea evaluation or development that may be achieved in a number of different ways. In Experiment 3 participants were required to elaborate ideas by generating positive things (and negative things) about the idea. However, in retrospect it was unclear what kind of mental processes participants were engaging and moreover whether this processing was consistent across participants or individual ideas. This type of idea elaboration could potentially involve a visual element, a more reasoning based evaluation based on idea implications, or an incorporation of the 2 components. To investigate these possibilities the next experiment focused more closely on types of elaboration performed.

Two specific forms of elaboration were examined. The first was elaboration based on the idea itself. In this condition, participants were required to rate how easily the idea could be visualised and how effective an idea it was. In depth of processing terms (Craik & Lockhart, 1972), this would be regarded as deep processing since it requires both the formation of an image and the consideration of the meaning of the idea. However, crucially, it does not involve the participant developing the idea in any way. The second form of elaboration did just that. In this condition, participants were required to think of three ways of improving the idea. Because this second form of elaboration involves a degree of generation, it will be referred to as *generative-elaboration*, to contrast with the previously described *imagery-elaboration* condition. Given that these forms of elaboration also involve being repeatedly exposed to the ideas that were previously generated, two control conditions were used. In addition to the standard baseline condition of single exposure to the generated ideas, there was a condition in which ideas were re-presented, without any accompanying instructions to elaborate. This enabled us to rule out simple repetition as the basis of any effects observed in these conditions. Also, this permitted a comparison to be made between ideas heard once and twice.

It was intended to determine whether these different types of elaboration affected plagiarism rates in different ways. As in Experiment 3 both types of elaboration require deeper processing of the original ideas and so accordingly this should increase the idea's strength in memory (Marsh & Landau, 1995). Consequently, greater correct recall is anticipated following either form of elaboration. Moreover, higher rates of plagiarism are anticipated when participants recall their own ideas, as items with greater strength are more likely to be plagiarised (Marsh & Landau, 1995). Increasing the activation strength of externally-generated ideas results in the activation level of this information reaching a similar level to self-generated ideas, and so intrusions of plagiarised ideas occur (Marsh & Bower, 1993). Simultaneously, this act of elaboration should serve to reduce plagiarism, relative to baseline, in the generate-new task. This follows because any increase in strength would lead to greater discrimination between new and old items, and thus reduce intrusions from previously elaborated ideas. Thus, as in Experiment 3, the simple strength account of unconscious plagiarism predicts that elaboration should show a dissociation across the two measures of plagiarism, but makes no predictions regarding the two forms of elaboration beyond that predicted by strength. Therefore, if one form of elaboration leads to stronger memory traces, as indexed by higher recall, one might expect to see higher rates of plagiarism in the recall-own task, and lower rates of plagiarism in the generate-new task in that condition.

An alternative viewpoint leads to a different set of expectations, however. In line with the source-monitoring framework (Johnson et al. 1993), one might expect participants to make an attribution about an idea that is currently in mind on the basis of the qualitative aspects of that idea. That is, a person might conclude that a particular idea is new because of the cognitive operations that led to it, or they may conclude the idea is a memory because of its perceptual qualities, or because they also can access other ideas associated with the event at encoding. In this view, the different forms of elaboration might have differential effects on unconscious plagiarism because they lead to different kinds of traces being laid down, and so different attributions. This difference is likely to emerge in the recall-own task where there is likely to be greater overlap between the processes of originally generating an idea, and thinking of ways of improving that idea, than there is between originally generating that idea and imagining it and rating its quality. This follows because generating an idea and thinking of ways of improving an idea both involve generative processes, and participants may erroneously attribute the generation of the ways of improving the idea to the generation of the original idea.

There may also be scope in such a view for an effect due to personal-style, or personal semantics to emerge. That is, participants may think of ways of improving an idea that makes it "their kind of idea". For example, Person A might generate the idea of using a brick as a door-stop. However, Person B might think of improving this by decorating the brick using floral-design wallpaper. Later, Person B might recall the elaborated idea, and focusing on the floral attribute believe that the idea must have been their own, since they particularly like flowers. This would be a use of personal style. An example of personal semantics would be if a participant had thought of decorating the brick so as to match their wallpaper at home. Recalling the brick as being decorated in the style of one's own home-décor might later be taken, erroneously, as evidence that the idea must have been one's own.

Thus, this view anticipates that elaborative encoding instructions that allow participants to generate ways of improving an idea will lead to substantially more plagiarism in the recall-own task than instructions that merely require participants to imagine an idea and judge it. Even though both may lead to memories of the same strength, as indexed by correct recall, it is the qualitative nature of the traces that will lead to these differential levels of unconscious plagiarism in the recall-own task. However, in the generate-new phase, either form of elaboration should lead to greater discrimination from new ideas than control items, and so exhibit less unconscious plagiarism. However, it is also possible that during this generative task if an old idea is retrieved easily and the associated cognitive operations that include the source information are neglected, then participants may misattribute the idea's source to their own spontaneous generation and hence, plagiarise (see Bink et al. 1999).

The procedure utilised was very similar to the previous study. Brown and Murphy's (1989) paradigm was utilised with the Alternate Uses Test (Christensen et al. 1960) completed at generation. Hence, this creative task maintained consistency with the previous studies but also provided ideas that could be improved upon, unlike simple category membership. However, participants were required to generate 4 ideas per object as opposed to 3 in Experiment 3. This number of ideas was increased to achieve a larger pool of ideas thus increasing the sensitivity of the two plagiarism measures. In the elaboration phase, there were 4 conditions as opposed to 3 in Experiment 3. Participants were required to complete 2 different elaborative tasks (imagery and generative). The testing session followed one week after the initial generation and elaboration stages that involved involving recall of old ideas and generation of new ideas. The expectation was that any form of elaboration would lead to a reduction of unconscious plagiarism in the generate-new task. However, the issue of particular interest was the rate of plagiarism in the recall-own task. Here, the strength account would predict that both forms of elaboration would lead to increases in unconscious plagiarism, whilst the source monitoring account would predict that unconscious plagiarism would be particularly inflated by elaboration that involves thinking of idea improvements.

3.3.2 Method

3.3.2.1 Participants

Forty undergraduate students participated in the generation phase. However, 2 participants failed to attend the second testing session and so only 38 participants completed the experiment. Participants were undergraduates from the University of Plymouth and received partial fulfilment of a course requirement for their participation in this study.

3.3.2.2 Design and Procedure

A within–subjects design was implemented that explored types of participant elaboration (control, re-presentation, imagery elaboration, generative elaboration).
Four participants were randomly assigned to a group and given a seat around a central table. The methodology was the same as in Experiment 3 except for the following differences.

Generation Phase In the generation phase for each of the 4 object names, each participant generated 4 novel uses rather than 3 as in Experiment 3. Accordingly, for each category there were a total 16 generated exemplars and hence 64 ideas in total. Examples, of generated ideas included 'to use buttons to play tiddlywinks', 'to use a shoe as a flower pot' and 'to use a paperclip to decorate a picture frame' (see Appendix A for examples).

Elaboration Phase; The elaboration phase immediately followed the generation phase. Of the previously generated ideas, a quarter (one idea from each participant, from each category) was then subject to the following condition treatments. For the *imagery-elaboration* ideas participants rated the ideas on five point rating scales for how easy they were to imagine (*1 = difficult to imagine, 5 = easy to imagine*) and how effective (*1 = not effective, 5 = very effective*) they thought the ideas would be. For the ge*nerative-elaboration* ideas participants wrote down three ways to improve the given idea (see

Appendix B for examples). For the *re-presented* items participants heard the ideas a second time but were not instructed to elaborate them in any way. *Control* ideas were not re-presented at this stage. The order that participants performed these tasks was counterbalanced across the groups. The experimenter read these ideas aloud in a pre-determined random-order, instructing the participants to rate, elaborate or listen to the idea, as appropriate. This task completed the first session, which lasted approximately 40 minutes.

Recall-Own and Generate-New Phases: One week later, participants returned to complete the recall-own and generate-new phases individually on computer. In the recall-own phase, participants were shown the 4 category headings (e.g. *brick*) that they had previously generated to in the first session, with *four* blank spaces under each. Each category was displayed one-by-one in a random order for each participant. Participants were instructed to type in all of their own ideas from the first session (16 ideas). Recall was not timed or forced. If participants could not remember all of their ideas, then they were permitted to leave blank spaces. Once this had been completed, the same category headings were repeated in a random order. However, participants were asked to generate four completely new uses for each category that had not been previously generated (in any of the categories). If participants failed to enter four ideas a message was displayed alerting them that they had not provided four ideas and could not proceed until all the ideas had been typed in. This session lasted approximately 20 minutes.

3.3.3 Results

Unconscious plagiarism was scored in the same way as in the previous experiments and the same two raters were used. The inter-rater agreement across all the ideas was 98.7%. All of the participants exhibited an unconsciously plagiarised error in at least one of the phases (recall-own or generate-new). The overall numbers of ideas correctly recalled and unconsciously plagiarised in each of the tasks are summarised in Table 3.3.3.1.

Task	Elaboration Status							
	Control		Re-presented		Imagery elaboration		Generative-elaboration	
	Mean (of 4)	SD	Mean (of 4)	SD	Mean (of 4)	SD	Mean (of 4)	SD
Recall	1.42[a]	1.13	2.24[b]	1.24	2.63[b]	.97	2.42[b]	.98
UP (RO)	.53[a]	.73	.63[a]	1.05	.55[a]	.76	1.7[b]	1.8
UP (GN)	.95[a]	1.01	1.03[a]	.88	.39[b]	.72	.61[ab]	.89

Notes: Means within a row that share the same superscript letter do not significantly differ from one another (p<.05 after Sidak adjustment).

Table 3.3.3.1: Experiment 4: Mean rates of correct recall and plagiarism within the recall-own (RO) & generate-new (GN) phases for control ideas, ideas that were repeated, ideas that were rated and ideas the were subject to imagery-elaboration and generative-elaboration.

3.3.3.1 Correct Recall

In total, 460 ideas were reported. Of these ideas 331 ideas (72%) were correctly recalled, where each participant on average correctly recalled (i.e. did not plagiarise) 8.7 (SD = 2.5) of their initial ideas. The top row of Table 3.3.3.1 shows the effects of elaboration on correct recall. A within-subjects ANOVA revealed a main effect of elaboration status on participants' performance, $F(3,111)= 10.26$; $p<0.01$. Multiple pair-wise comparisons between means were conducted, with a Sidak-adjusted alpha level of .05. These revealed that the baseline condition was significantly lower than all the remaining conditions, which did not differ. This lack of difference suggests that imagery-elaboration and generative-elaboration produced memories of equivalent strength.

3.3.3.2 Unconscious Plagiarism

Recall-own task: In this task, participants were required to remember as many of their own initial ideas as possible. Unconscious plagiarism occurred when participants recalled someone else's idea as their own. A plagiarised idea was only counted once. Of the 460 ideas that were reported, 129 ideas (28%) were unconsciously plagiarised. In the recall-own phase, 79% of participants (30 of 38) unconsciously plagiarised at least one idea that another group member had originally generated in the encoding session. Additionally, 57.9% (22 of 38) of participants made two or more intrusions.

A within subject ANOVA revealed that the elaboration manipulation reliably affected rates of unconscious plagiarism $F(3,111)=11.01$, $p<.001$. The means are displayed in the second row of Table 3.3.3.1 and were compared by Sidak adjusted multiple comparisons as before. These revealed that generative-elaborated ideas were plagiarised more often than any of the other ideas. Therefore, conducting generative-elaboration during idea encoding significantly increased the later plagiarism of those ideas. The remaining means did not differ significantly.

3.3.3.3 Generate-new task: Participants' were required to generate four new ideas per category cue, but often participants unconsciously plagiarised another persons' ideas or inadvertently duplicated one of their own previous ideas (self plagiarism). In total, 602 ideas were generated and of these, 474 (78.7%) were new ideas, 113 (18.8%) had previously been generated by someone else, and 15 (2.5%) were participants own ideas that they had inadvertently re-presented as new. The small remainder were duplicated ideas at test that were excluded from the analysis.

Self-plagiarism; There was a very small number of these types of intrusions and there was no significant main effect of elaboration status on self-plagiarism rates, $F<1$.

Unconscious plagiarism; In the generate-new phase, 97.4% of participants (37 of 38) plagiarised by reproducing an old idea that had been previously generated by another group member. Moreover, 68.4% (26 of 38) made two or more of these intrusions. The effects of elaboration on rates of these errors can be seen in Table 3.3.3.1. A within-subjects ANOVA revealed a significant main effect of elaboration status on the rate of unconscious plagiarism for others' ideas $F(3,111)=4.51$; $p<0.05$. Follow up tests were conducted as before, and revealed that the mean for the imagery-elaborated ideas was significantly lower than both control and re-presented ideas, but that no other comparison was significant.

3.3.4 Discussion

There were three measures of interest in this study. On two of them, recall and plagiarism in the generate-new task, there were equivalent levels of performance in the two elaboration conditions relative to the two control conditions. The only difference observed between the two forms of elaboration occurred in the rate of unconscious plagiarism seen in the recall-own task. In this task, generative-elaboration led to considerably higher rates of plagiarism than imagery-elaboration, which did not differ from the two control conditions.

This pattern is interesting for a number of reasons. First, unlike in Experiment 3 the results strongly refute a simple strength account. There are two measures of memory strength available. The most direct is correct recall and on this measure neither form of elaboration exceeds the re-presented control. More pertinently, the two forms of elaboration did not differ, with in fact numerically higher recall for imagery-elaboration. Thus, this measure refutes the idea that generative-elaboration produces the strongest memories. Exactly the same conclusion can be drawn from the indirect measure of strength, the ability to avoid generate-new plagiarisms. Here again the two forms of elaboration are not statistically different though they do reduce plagiarism on the generate-new task relative to either control or re-presented ideas. Further, it is the imagery condition that is numerically the lowest suggesting stronger memories than generative-elaboration. Thus both measures are consistent with imagery-elaboration producing memories that are as strong, if not stronger than the generative-elaboration. Additionally, the generate-new plagiarism data, though not the recall data, suggest that both forms of elaboration produce stronger memories than re-presentation. Finally, both recall and generate-new plagiarism data indicate that re-presentation creates stronger memories than single presentation.

Using these measures of strength to predict plagiarism in the recall-own data produces a series of predictions that are not met. Strength would predict more recall-own plagiarism of represented ideas than control data; this was not found. Nor was there the expected increase in plagiarism following imagery compared to either represented or control. Conversely, in recall-own plagiarism whilst strength would predict no difference in recall-own plagiarism (or perhaps a difference favouring imagery-elaboration) a large difference favouring generative-elaboration was found. Thus, a strength account is wrong on almost all accounts.

Whereas a memory strength account cannot explain the elevated levels of unconscious plagiarism seen in the generative-elaboration condition, a source-monitoring account readily explains this pattern. These data are in line with the idea that participants make attributions about the qualitative aspects of ideas that come to mind in the recall task. Ideas that were originally generated by someone else, but have been added to by the participant, were more than three times as likely to be plagiarised than control ideas or imagined ideas, and more than twice as likely to be plagiarised as repeatedly presented ideas. In fact, the magnitude of the effect was particularly surprising. On average, in the generative-elaboration condition, participants recalled an average of 2.4 items, and plagiarised a further 1.7 items. Thus, plagiarised items constitute 41% of all responses in that condition. Previous studies have shown much lower rates of plagiarism, more in line with the levels seen in the control condition here. The highest rates of plagiarism reported previously were those in the recall-own phase in Macrae et al. (1999). They reported plagiarism levels of between 14% and 24%, which are still well below the rate in this study.

There are a number of potential factors that may contribute to the high levels of plagiarism seen in the present study. One may be de to the Alternate Uses task being implemented at generation. Although it is not an overly demanding task, there may be certain task-specific factors operating that make it difficult for participants to complete. For example, the ideas may be less discriminable from each other than on some of the previously used tasks. However, this explanation is unlikely as such high levels of recall and low levels of plagiarism were observed in Experiment 3. Similarly, the use of an extended delay is not typical of the literature, but is consistent with previous work showing that delays increase rates of plagiarism (Bredart et al. 2003; Brown & Halliday, 1991; Macrae et al. 1999; Marsh et al. 1996). Also, the fact that, in three out of four conditions, participants encountered the ideas twice may also contribute to the higher rates of plagiarism. Nevertheless, while these factors might account for a general increase in plagiarism errors, they cannot account for the particular increase seen only in the generative-elaboration condition. However, because the general levels of plagiarism observed in this study were high, there was a concern that the levels were elevated as a result of participants not using a strict enough decision criterion to monitor their responses given in the recall-own and generate-new phases. Therefore, it was decided to conduct a replication of the study with an additional manipulation that encouraged participants to think more carefully about their answers before making a response.

3.4 Experiment 5

3.4.1 Introduction

This study replicated Experiment 4 except for one detail. Participants were offered a financial incentive for not plagiarising any previously generated ideas, in order to encourage them to monitor their decision processes more carefully. Participants were told that a prize of £50 would be shared between all participants who avoided plagiarised errors. They were told that in the previous study, this would have resulted in two or three participants sharing the money. The expectation was that this manipulation would encourage participants to monitor the source of their ideas carefully, and so reduce the overall plagiarism rates from Experiment 4. There was no strong expectation that this would affect the pattern of effects seen previously, although it did allow the testing of the possibility that the particularly high rates for the generative-elaboration items were due to this factor. As a manipulation check, participants were also asked to rate how hard they tried to not plagiarise any of the previously given ideas at the end of the study.

3.4.2 Method

3.4.2.1 Participants

Forty undergraduate students participated in the idea generation stage of the study. However, four participants did not attend the second test session and so only thirty-six participants completed the experiment. Participants were undergraduates from the University of Plymouth and received partial fulfilment of a course requirement for their participation in this study. None had taken part in Experiment 2.

3.4.2.2 Design and Procedure

A within–subjects design was implemented that explored types of participant elaboration (control, re-presentation, imagery elaboration, generative elaboration). The procedure was identical to the Experiment 4, except for an additional participant incentive not to plagiarise. Before they began, participants were instructed that there was a reward available for all the participants who did not plagiarise any of the previously generated ideas. They were informed that a £50 cash prize would be equally split between the participants who did not re-produce any ideas from the initial session (previously given by themselves or any of the other participants). It was made clear that in previous studies only 5 – 10% of participants have been able to successfully do this. Consequently, their share in the money should be sizeable. At the end of the study, participants were asked to indicate how hard they tried to not plagiarise any of the previously given ideas using a 5-point rating scale from 1= *not hard at all* to 5 = *very hard.*

3.4.3 Results

Unconscious plagiarism was scored in the same way as in Experiment 4. The same two raters were used and the inter-rater agreement was 99.3%, again with discrepancies resolved through discussion. When participants were asked how hard they tried to not plagiarise any of the previous ideas 86.7% of participants responded with a 4 or higher. The mean rating on the 5 point rating scale was 4.4 (SD = 0.9)[8]. Excluding those who had given a lower rating than 4 did not alter the results and so all the data were retained. The number of correctly recalled ideas and the number of plagiarised ideas in the generate-new and recall-own tasks are given in Table 3.4.3.1.

[8] Due to an administration error 7 participants did not receive this rating scale to complete

	Elaboration Status							
Task	Control		Re-presented		I-E		G-E	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Recall	1.75[a]	1.25	2.80[b]	1.16	2.47[b]	1.18	2.58[b]	1.0
UP (RO)	.25[a]	.50	.31[a]	.82	.47[a]	.81	.92[b]	1.0
UP (GN)	.58[a]	.60	.47[a]	.77	.28[a]	.57	.58[a]	.69

Notes: Means within a row that share the same superscript letter do not significantly differ from one another (p<.05 after Sidak adjustment).

Table 3.4.3.1: Experiment 5: Mean rates of correct recall and plagiarism within the recall-own (RO) & generate-new (GN) phases for control ideas, ideas that were repeated, ideas that were rated and ideas the were subject to imagery-elaboration and generative-elaboration.

3.4.3.1 Correct recall:

In total, 417 ideas were reported, 347 (83.2%) of which were correctly recalled (i.e. not plagiarised). Each participant on average correctly remembered 9.6 (SD = 2.9) ideas. A within-subjects ANOVA revealed that there was a significant main effect of elaboration status on rates of recall, $F(3,105)= 7.31$, $p<0.05$. Differences between the means were examined by Sidak multiple comparisons with an adjusted alpha level of .05. These revealed that the ideas that had received generative-elaboration, imagery-elaboration or had been re-presented were recalled more often than control ideas. As in Experiment 4 there were no other significant differences, thus providing no evidence for differential memory strength as a result of elaboration type.

3.4.3.2 Unconscious Plagiarism

Recall-own task: Unconscious plagiarism was scored in the same way as in Experiment 4. In the recall-own phase, of the 417 ideas that were produced, 70 (16.8%) were unconsciously plagiarised. During this task, 75% of participants (27 of 35) unconsciously plagiarised at least one idea that another group member had originally generated. Additionally, 44.7% of participants (17 of 35) made 2 or more intrusions. As shown in Table 3.4.3.1, the elaboration manipulation reliably affected rates of unconscious plagiarism $F(3,105)=6.32$, $p<0.05$. Follow up tests revealed that the generative-elaboration ideas were plagiarised at a higher rate than baseline ideas, re-presented ideas and the imagery-elaborated ideas. The remaining comparisons between cell means were not significant. Therefore, as in Experiment 1, generative-elaboration alone increased the later plagiarism of ideas.

3.4.3.3 Generate-new task: In total, 563 ideas were generated and of these, 481 (85.4%) were new ideas, 69 (12.3%) were unconsciously plagiarised ideas and 13 (2.3%) were participants' own ideas that they had inadvertently re-presented as new.

Self-plagiarism: There were a very small number of these types of intrusions, only 27.8% (10 of 36) of participants plagiarised one of their earlier ideas. Only two participants made more than 1 intrusion. Moreover, there was no significant main effect of elaboration status on self-plagiarism rates $F<1$.

Unconscious Plagiarism: In the generate-new phase, 91.7% of participants (33 of 36) plagiarised by reproducing an old idea that had been previously generated by another group member. Moreover, 55.6% (20 of 36) made 2 or more of these types of intrusions. A within-subjects ANOVA revealed that there was no significant main effect of elaboration status on the rate of unconscious plagiarism $F(3,105) = 1.65$ $p=0.182$. As in Experiment 4, the lowest level of unconsciously plagiarised ideas was in the imagery condition.

3.4.4 Discussion Experiment 5

Experiment 5 largely achieved its aims. Rates of plagiarism were reduced from the previous study, although the magnitude of the reduction was larger in the recall-own task. Overall, in the recall-own task, mean number of plagiarised ideas per person dropped from 3.4 (Experiment 4) to 1.9 (Experiment 5). The equivalent figures for the generate-new task were 3.0 and 1.9. Thus, it appears that our incentive did result in participants making fewer intrusions on average. However, interestingly, this effect did not translate to the number of participants making any kind of plagiarised response. In Experiment 4, 79% of participants made a plagiarised response on the recall-own task, and 97.4% of participants did so on the generate-new task. In Experiment 5, 75% of participants made a plagiarised response in the recall-own task, compared to 91.7% in the generate-new task.

In fact, in Experiment 5, there was no-one who met the criterion of totally avoiding plagiarised responses.

Against the background of reduced rates of plagiarism, the basic pattern of findings seen in Experiment 4 was replicated. In the recall-own task, there was a significant effect of elaboration type, which was entirely due to the generative-elaboration condition. Although the mean number of plagiarised ideas per person dropped from 1.7 in Experiment 4, to 0.9 in Experiment 5, this remained around double the rate seen in the other conditions. In contrast, the mean number of plagiarised responses in the imagery-elaboration condition was only 0.4, which was in line with the rates seen for re-presented items (0.3) and control items (0.3).

The effects seen in the generate-new task were less clear cut, though still in line with the previous results. In Experiment 4 the ideas that were subjected to both the baseline measures (control and repeated ideas) were plagiarised significantly more than the imagery-elaborated ideas and numerically more than the generative-elaborated ideas. However, in Experiment 5, there was a significant reduction in the plagiarism in the control and re-presented condition compared to Experiment 4 and consequently there was little difference between the plagiarism levels across the manipulation of elaboration. However, once again the lowest rate of plagiarism was seen in the imagery-elaboration condition, again suggesting imagery produces strong memories.

As before, a strength account cannot account for these data. The recall data suggests that control items are weaker that the other 3 kinds of item, which do not differ. Numerically, the highest recall is seen for re-presented items. The plagiarism data in the generate-new phase suggest no differences in strength but numerically it is imagery-elaboration that minimises plagiarism to the greatest degree. Thus, neither measure suggests that generative-elaboration produces ‘strong’ memories but it is this condition that shows double the rate of plagiarism in the recall-own task, compared to the other conditions.

One pattern that is hard to explain is why the incentive manipulation only reduces plagiarism in the control and re-presented conditions. Clearly a simple threshold shift that might be utilised in a strength model such as a signal detection theory cannot explain this finding as all ideas should have equally been reduced. However, while strength may ultimately guide performance in the generate-new task there is also scope here for additional influencing components. For example, as a result of inflated item strength the elaborated ideas may come to mind quickly, this ease of recall may then fool participants into believing the idea was, at that time, spontaneously generated. This idea is similar to the familiarity misattribution model (Mazzoni et al. 2001) that has been used to explain the imagination inflation effect. In this imagination inflation domain, performing an elaborate task e.g. imagining an event (Garry et al. 1996; or solving anagrams in a sentence; Bernstein et al. 2004) may result in the event feeling familiar. Then later, if the event feels plausible, the familiarity may be incorrectly attributed to a fictional experience rather than the prior elaborative task (e.g. imagination) from which it correctly originated. In these studies, elaborating may in some cases have increased the familiarity of the ideas to a level at which they were not clearly remembered as old ideas but incorrectly attributed to a spontaneous generation. This may have been the case particularly if the previously elaborated idea was an idea that felt 'plausible' or 'natural' as one of their own ideas. Moreover, the ideas may feel 'plausible' as a result of the memory characteristics that were associated with the ideas during the elaboration period (in a similar way to those explained above for the recall-own ideas). Hence there may be scope for a small source monitoring component here too. Although the stricter decisions criteria utilised in Experiment 5 would have encouraged participants to more carefully monitor their information sources Marsh et al. (1997) demonstrated that when participant are completing the 'cognitively taxing' generate-new task, their cognitive recourses may have been monopolised by completing the task and hence despite intent for careful monitoring, in certain circumstances this may not have been sufficient to prevent all potential instances of plagiarism (particularly for those ideas following G-E).

What is pertinent is the replication of the pattern of reduced generate-new plagiarism for imagery compared to generative-elaboration in Experiment 5. Whilst neither study showed a significant difference, overall generate-new plagiarism following imagery was about half that seen for generative-elaboration. As we argued above if the ability to reject ideas as being old on a measure of strength then this pattern would be consistent with imagery-elaboration producing stronger memories. This pattern therefore serves only to strengthen the claim that the increased plagiarism for recall-own following generative-elaboration could not be due to strength. This pattern serves to support our above speculation that plagiarism in the generate-new task may not stem from strength alone. There may also be a metacognitive component such that participants apply a 'memory criterion' (Mazzoni & Kirsch, 2002) to generated ideas. Thus, in the reverse manner, when an I-E idea comes to mind, any associated imagery that is produced might lead to the conclusion that the idea is old and should be rejected. On the assumption that the imagery-elaboration condition creates more visual traces this might explain why fewer generate-new ideas are plagiarised following imagery. This is a point that will be returned to in chapter 4.

3.5 General Discussion

In Experiment 4 and 5, elaboration improved correct recall relative to control where no elaboration was performed and the different types of elaboration did not affect these rates. The same trend was seen in Experiment 3 although the obtained differences did not reach statistical significance. Moreover, elaboration of all kinds reduced plagiarised errors in the generate-new phase relative to control (although this difference did not reach significance in Experiment 3). Therefore, elaboration of all kinds appeared to affect correct recall performance and generate-new errors to a similar degree. However, these three experiments revealed that different elaboration tasks affected rates of plagiarism in the recall-own phase in different ways. While the level of control ideas that were plagiarised in this phase were consistent (10.7% in Experiment 3, 10.8% in Experiment 4 and 9.8% in Experiment 5) the levels of elaborated ideas that were plagiarised were not. Specifically, one's propensity to plagiarise others' ideas as one's own was not increased by idea ratings that were positive or negative (Experiment 3), or based on idea imagery or effectiveness (Experiment 4 & 5) but was influenced by idea development. Hence, the only task that affected recall-own plagiarism was improving the ideas using generative-elaboration (Experiment 4). Moreover, these robust errors prevailed when participants utilised a more stringent decision criteria to monitor their responses. This was encouraged by participant warning against plagiarised errors and their offering of a financial reward for successfully avoiding such intrusions (Experiment 5).

Marsh and Bower, (1993 see also Brown & Murphy, 1989; Marsh & Landau, 1995) originally suggested that in the recall-own task participants plagiarise ideas that have a high activation strength. They maintained that increasing the activation level of externally generated ideas makes these ideas more comparable to self-generated ideas. Therefore, the 'overlap' between the ideas increases and accordingly, so does the rate of unconscious plagiarism in the recall-own phase. Conversely, increasing activation strength allows ideas to be rejected as old in a generate-new task, and so would be expected to lower plagiarism when new responses are required. Our strategy in interpretation of our data to test these ideas has been to take the recall performance as an indicator of memory strength, and use this to make predictions about plagiarism rates in the two tasks. Clearly, given that there were no significant differences between the forms of elaboration in Experiment 4 and 5, a simple strength model fails to account for our data because recall did not differ between either of the elaboration methods but plagiarism in the recall-own tasks did. The same arguments apply to comparisons involving the re-presented ideas. A strength hypothesis would also have predicted that re-presentation, which improved recall, would also have increased plagiarism in the recall-own task relative to baseline, but it did not.

If one adopts a similar strategy, and takes plagiarism in the generate-new condition as a proxy measure of strength, one runs into similar difficulties. Assuming that stronger memories are easier to reject as old in the generate-new task, but harder to distinguish from old in the recall-own, leads to the prediction that the two forms of plagiarism should be negatively correlated across conditions. This is clearly not the case. For instance, in Experiment 5, generative-elaboration leads to numerically the highest rates of plagiarism in both tasks. Thus, however memory strength is operationalised these data do not seem to conform to the predictions from the strength hypothesis.

One surprising aspect of the data in these studies was performance in the re-presented ideas condition in Experiment 4 and 5. Merely re-presenting ideas, without instructions to elaborate in any way, had a substantial impact on rates of correct recall. In fact, in both experiments recall rates for this condition did not differ from the elaboration conditions, and were significantly higher than control ideas. However, given the increased recall seen in this condition, it is important to note that this was not reflected in higher rates of unconscious plagiarism in the recall-own task. Clearly our re-presentation control condition involves presenting participants with ideas to hear again, in the context of other ideas that they are being asked to imagine/elaborate. It would be naïve to assume that participants do not carry over some of the processing from the elaboration conditions to the re-presented ideas. What impact is this likely to have had? Foremost it can only serve to reduce differences in processing between the re-presented and the other conditions. If we were able to demonstrate robust effects, this would suggest that that perhaps the effect we obtained are underestimates of the true effects.

We were able to explore this issue by comparing those ideas that were re-heard *before* any elaboration instructions were given, with those that followed either the imagery or generative-elaboration. For correct recall and generate-new plagiarism there were no significant effects of presentation order in either experiment. However, for unconscious plagiarism in the recall-own phase order was significant $F(2,35)= 4.73$. $p<.02$, with re-heard ideas presented first producing .36 plagiarisms, ideas following imagery rating .27 and those following generative-elaboration 1.33. Thus, these data mimic exactly the pattern seen in the full data set, suggesting that those who do generative-elaboration first carry this over to listening and hence produce more plagiarisms. Those who begin with imagery-elaboration show no such effect. The same broad pattern was observed in Experiment 5 (listen first .07, image first, .25 generative-elaboration first, .70), but this did not reach statistical significance, $F(1,35)=1.83$, $p<.18$. Thus together the data suggest that listening a second time does not increase plagiarism, compared to baseline, except when preceded by the generative-elaboration instruction.

There are a number of potential reasons why generative-elaboration increased plagiarism in the recall-own task while ratings (positive and negative; Experiment 3 and I-E Experiment 4 & 5) did not. One, in line with the source-monitoring framework, is that the different forms of elaboration resulted in qualitatively different kinds of traces being laid down at encoding. When participants generated their ways of improving an original idea, they will have stored a record of the associated cognitive operations (Johnson et al. 1993; Johnson & Raye, 1981) that went into generating those improvements. It is this additional information (including the quality and detail) at recall that assists the participant in distinguishing between internally and externally generated ideas and inferring their origin (Johnson & Raye, 1981; see also Jacoby, 1987; Slamecka & Graf, 1978). During generative-elaboration, participants may have carried out processes similar to those involved in generation of ideas in the first instance. Consequently, the memory representations would resemble the representations of their own ideas. Thus, at recall when source-monitoring judgements are made, if the perceptual detail for an externally generated idea is lacking but there is an abundance of associated cognitive operations, then the sources of the two types of ideas may be confused (Marsh & Bower, 1993; Landau & Marsh, 1997). Such a process would result in the original sources of the idea being misplaced and others' ideas incorrectly claimed to have been self-generated. Conversely, processes used in constructing images, and rating the quality of those ideas (Experiment 4 & 5, or positively or negatively Experiment 3) do not resemble those utilised in generation and so the representations will not be confused at test. This idea is consistent with past research (Marsh & Landau, 1995; Landau & Marsh, 1997; Macrae et al. 1999).

These additional cognitive operations seen in the generative-elaboration condition may also involve some element of personal style or personal semantics that serve as a semantic cue. In reality monitoring literature, it is well documented that internal and external events differ (see Raye & Johnson, 1981) and internal memories provide additional cues that allow the origins of the ideas to be distinguished. Johnson and Raye (2000) maintain that the source of information is not stored with a memory but is inferred through an automatic heuristic process that is based on an evaluation of various information features. Therefore this additional, personal information may incorrectly influence participants' source monitoring judgements. While participants were performing generative-elaboration by devising novel uses for ideas, they may have associated personally relevant information to the idea. Other participants' ideas may have cued memories of times when they have seen or used the item in that way (e.g. to use a shoe to hide money in). As a result of thinking about and improving the idea, the source may be confused and the idea may feel more personally relevant. What is personally relevant might consist of personal semantics (e.g. remembering using their shoe to hide money) or personal style (e.g. that they are the kind of person who hides money). This familiar style of the idea may be achieved through participants re-working the idea throughout the elaboration period. The effort exerted may serve to change the expression of that idea to fit the person's own style. Consequently, when the participant later recalls the idea, they may remember the personally relevant information, or recall the idea in a way that is familiar, natural and in their own style. This idiosyncratic information may then serve as a misleading discriminative cue and hence, participants may erroneously decide that the idea was something that they had originally generated. Such effects would not occur with ideas that were merely rated or imagined because they are not so closely tied to self, or self-style. Therefore it is not the strength or effort *per se* that is responsible for the increase in recalled intrusions but rather the nature and kind of elaboration

Overall rates of plagiarism obtained in these three studies were high. Levels of control plagiarism obtained in this chapter in the recall-own phase did not differ (10.7% in Experiment 3, 10.8% in Experiment 4 and 9.8% in Experiment 5) but the obtained rates were inflated to a high level of 36% following generative-elaboration in Experiment 4 and 21% in Experiment 5, when participants were trying to avoid such errors. However, in neither study did rating tasks result in comparable levels of recall-own plagiarism thus, these findings were used to support the source monitoring account of unconscious plagiarism (Johnson et al. 1993). These high rates of plagiarism (37% and 21%) exceeded (or were comparable to) the rates found in this research programme and those found by Landau and Marsh, (1997) Macrae et al. (1999) when participants' source monitoring ability was impeded. Elaboration here was only conducted on one occasion, whereas in the real world plagiarism more likely involves prolonged and repeated idea attention. Unintentional plagiarists such as George Harrison had inevitably spent time working on and developing his song prior to release. Therefore, it is conceivable that plagiarists really believed the 'work' to be their own as a result of the developmental process that led to the plagiarised works. Consequently, in Chapter 4 we are interested in exploring and strengthening this robust elaboration and investigating the subsequent effects on source memory.

Chapter 4 – Development of elaborated Ideas

4.1 Introduction

The rationale for the previous studies stemmed from the fact that in the real-world plagiarism invariably involves prolonged idea attention rather than just one idea exposure. In chapter 3, the studies required participants to initially generate novel-uses for objects such as, a button (use as a counter). They then either devised ways to improve other people's ideas (e.g. to colour code them), which was labelled generative-elaboration (G-E), or rated how easy they were to imagine, which was called imagery-elaboration (I-E). An increase in recall-own plagiarism was only observed following G-E. That is, participants only claimed others' ideas as their own after devising idea-improvements and not after forming a mental image. It was argued that a strength-based account cannot explain this finding since I-E actually produced as strong memories as G-E, as measured by correct recall and reduction in generate-new plagiarism. Instead a source-monitoring account was favoured (Johnson et al. 1993) maintaining that processes employed in G-E may resemble those used in the original generation phase and consequently representations of improved ideas may reflect those of internally generated ideas, by for instance, containing similar cognitive operations. In contrast, I-E does not require similar cognitive operations to generation and thus plagiarism rates were not comparably affected.

However, findings from a similar domain have indicated that imagining can later result in source confusions. In a reality monitoring paradigm, Johnson, Raye, Wang and Taylor (1979) initially showed participants objects 2, 5 or 8 times and then asked them to imagine a selection of the objects or entirely new objects 2, 5 or 8 times. At test, when participants were presented with an object (either previously seen or not seen) and were asked how many times they had seen the picture, the highest estimates were reported for those that had received the most imaginings, regardless of whether they had actually previously seen the object. This methodology has since been applied and developed by Garry et al. (1996) in their imagination inflation paradigm. Initially, participants were given a long list of possible childhood events and were asked to indicate whether or not these events had happened to them as children. A couple of weeks later, they were asked to imagine a few of these events that had not happened to them such as 'breaking a window with their hands'. During this imagination, participants were instructed to think about relevant event details (of breaking the window), such as 'how they tripped and fell', 'who else was there' and 'how they felt' when they broke the window. Then at test, participants were given a list of events for a second time and were required to indicate which events had happened. Garry et al. (1996) demonstrated that imagining these counterfactual events actually increased confidence that the events had occurred. Subsequently, this powerful and robust effect has been replicated on numerous occasions (Garry et al. 1996; Goff & Roediger, 1998; Heaps & Nash, 1999; Paddock et al. 2000; Thomas & Loftus, 2002). Moreover, it has been observed for complex events that have included imagining false details from a crime scene, (Wright, Loftus & Hall, 2001) and also for actual non-performed actions (Goff & Roediger, 1998) both common (rolling a dice) and bizarre (kissing a plastic frog) (Thomas & Loftus, 2002 see also Thomas, Bulevich & Loftus, 2004). These links between imagery and false remembering have been amplified by Gonsalves, Reber, Gitelman, Parrish, Mesulam and Paller (2004). They presented participants with a series of photos, and instructed them to visually imagine objects for other presented words. Representations produced when a vivid visual image of an object is generated may compare to those produced when that object is actually seen and they found that later, participants claimed to have seen photos of objects that had only been imagined. More pertinently, these imagery-based false memories occurred in conjunction with activation in brain regions known to be involved in imagery (precuneus, right parietal and anterior cingulated activation (i.e. imagery regions; Ishai, Ungerleider & Haxby, 2000). Activations in response to words were greater when people claimed to have seen the corresponding object than when a false memory for that object was not produced. Hence, neural events at encoding can be predictive of later false memories of something that was simply imagined.

However, the precise cognitive mechanisms responsible for this imagination inflation are unclear but Garry and Polaschek (2000) suggested that the act of imagination evokes detailed mental images (Thomas et al. 2003) or increased familiarity (Jacoby, Kelley & Dywan, 1989; Loftus & Bernstein, 2005) that later result in source confusion and increased certainty that an event was real. In terms of evoked mental images causing this effect, research has suggested that people erroneously claim that actions were performed as a result of discrete memory characteristic misattributions. Thomas et al. (2003) propose that when participants elaborately imagine actions, they accordingly form detailed and elaborate representations that are subsequently mistaken as real and are held responsible for creating false memories. They ascertain that the nature of processing is important as these types of representations can only be formed through imagination and not information presentation alone. However, they do acknowledge that a misattribution of more global characteristics, such as familiarity, can lead to modest distortions in memory.

Garry et al. (1996) on the other hand, argued that global familiarity induced by imagination of a fictitious event may be the primary cause of imagination inflation (see also Bernstein et al. 2004; Garry et al. 1996) claimed that as participants rate their confidence that an event occurred, they may take their feelings of familiarity derived through prior imagination as evidence that the event happened (see also Jacoby et al. 1989; Loftus & Bernstein, 2005). This argument for familiarity has been supported by studies that have demonstrated that participant confidence in this fictitious event is not contingent on specific imagery details (Garry, Frame, & Loftus, 1999) or whether oneself or another person provided the imagination focus (Manning, Garry, Assefi & Loftus, 1999 as cited by Libby, 2003). Moreover, recently simple exposure to an event by solving anagrams (Bernstein et al. 2004; Bernstein, Whittlesea & Loftus, 2002), paraphrasing (Sharman et al. 2004) or even explaining event information without specific imagination has also been demonstrated to induce this 'imagination' inflation effect (Sharman et al. 2005). Hence, these findings can be more effectively explained using a processing fluency account that is associated with the target events rather than the nature of processing employed. If the familiarity induced by either imagination or exposure is incorrectly attributed to a prior experience rather than the experimental manipulation, then a misattribution is made. Consequently, if familiarity *per se* can cause these types of source-monitoring errors, then the lack of an imagery effect in our previous studies (Experiment 4 & 5) is surprising. This follows, as an increase in unconscious plagiarism was only observed following idea improvements but not following ratings of imaginability and effectiveness.

This experiment is interested in whether the prior dissociation effect on rates of plagiarism in the recall-own phase between imagination (I-E) and improvement (G-E) was a consequence of the I-E condition not constituting a strong enough 'imagination' manipulation to drive processing fluency. This question was raised on the basis of Bernstein et al. (2004) who found that although anagram solving induced the imagination affect, a simple vowel counting task did not. Consequently, this chapter explores the effects of strengthening the performed idea elaborations on participants' subsequent self appropriation rates. Strengthening the imagery-elaboration performed would not however affect rates of recall-own unconscious plagiarism if rather *generation* was responsible for the increased intrusions that we observed in Experiment 4 and 5. It is possible that the imagination inflation effect is not caused by imagery or familiarity but generation, as much of the imagination inflation literature involves an element of generation (for example, generating anagram solutions, paraphrasing or event explanations).

4.2 Experiment 6

4.2.1 Introduction

This study explored whether the absence of unconscious plagiarism following I-E in the previous studies, relative to G-E, was a consequence of differential levels of idea familiarity following these two elaboration manipulations. Previously, in the G-E participants were required to generate 3 idea improvements, whereas, in I-E only 2 judgements were required. We investigated whether experimentally increasing the familiarity of the I-E ideas would result in raised levels of plagiarism that were more comparable to those obtained following G-E. To this end, the two types of elaboration used in Experiment 4 & 5, I-E, (ratings of imaginability and effectiveness) and G-E (idea improvements) were retained but a third, stronger imagery-elaboration condition was included. This condition was called rich imagery-elaboration (RI-E). Essentially the aim of this RI-E was to equate imagery-elaboration and generative-elaboration more effectively in terms of the idea detail that was considered. This was achieved by participants imagining and rating original ideas together with those idea improvements that were provided by another participant. Consequently, participants would construct a more detailed mental image of the RI-E ideas (relative to I-E). These detailed images in turn would be more analogous to the types of images constructed in imagination inflation studies (e.g. Garry et al. 1996) where richer, more perceptual, images increase false memory likelihood. Moreover, since the ideas here that one participant generates are later imagined by another participant, any differences in plagiarism cannot be due to idea content. A baseline condition was also included where ideas received no elaboration.

Methodologically, this study was consistent with Experiment 4 except for two differences. The first difference was that the new rich imagery-elaboration condition replaced the prior re-presentation condition and consequently, in Experiment 6, there was no measure of mere idea exposure. Experiment 4 and 5 indicated that although idea re-presentation significantly enhanced correct recall and reduced generate-new plagiarism relative to control, it did not affect the absolute difference in recall-own plagiarism relative to control. Consequently, using only one baseline measure (control) in this study was deemed sufficient as the comparison ability within the measure of primary interest (plagiarism in the recall-own phase) would not change. The second difference was that participants were tested in a groups of two rather than groups of four as before. Despite this difference, ultimately the same number of ideas were produced in total. This was achieved by the 2 participants (as opposed to 4 participants) producing half the total number of ideas while the experimenter provided the remainder of the ideas (posed as 2 virtual participants). This methodological change was made for logistical reasons in so far as, in the elaboration phase, generative-elaboration always preceded the rich imagery-elaboration. This was the case as G-E needed to be completed by one participant before a second participant could perform the RI-E on those same ideas (and accordingly the given idea improvements). Therefore, as one participant was required to rich imagery-elaborate a second participant's ideas (and improvement), testing sessions of two participants was considered most appropriate. Paired testing was not anticipated to be problematic, as prior findings have suggested that smaller testing groups increase rather than reduce the total observable levels of plagiarism (see Macrae et al. 1999). No other factors differed and the testing phase was identical to the prior studies.

Our expectation was to replicate the findings of Experiment 4 (and 5) regarding inflated levels of plagiarism in the recall-own phase with the G-E but not I-E alone. However, the imagination of ideas elaborated by others provides an interesting test case. On the one hand, these ideas are elaborated in more depth and are likely to result in richer images than either I-E or unelaborated ideas. Consequently, this additional processing (of improved ideas) may be sufficient to strengthen familiarity and processing fluency and induce source confusion. In this view, both G-E and RI-E should show higher plagiarism than I-E and control. On the other hand, in line with our prior findings, forming images of others' idea improvements involves no *generation*. Consequently, while the memory characteristics of improved ideas (G-E ideas) may resemble the cognitive operations of self-generated ideas, the memory characteristic of imagined ideas (RI-E ideas) would instead contain enhanced perceptual information. Thus at recall, irrespective of idea familiarity, this difference in distinctive information may aid source identification and specifically reduce the likelihood of those imagined ideas being confused as the participants own ideas. In this source-monitoring view, only G-E should produce elevated rates of plagiarism relative to simple I-E and the more detailed RI-E. Following this line of thought, RI-E may in fact reduce plagiarism levels relative to I-E, as a result of the associated and enhanced perceptual information. As in Chapter 3, (Experiment 4 and 5), elaboration of any kind is expected to strengthen memories and so increase correct recall (Craik & Lockhart, 1976) and decrease plagiarisms in the G-N phase, relative to control items (Marsh & Bower, 1993; Marsh & Landau, 1997).

4.2.2 Method

4.2.2.1 Participants

Thirty-two undergraduate students from the University of Plymouth participated in return for partial fulfilment of a course requirement.

4.2.2.2 Design and Procedure

A within–subjects design was implemented that explored types of participant elaboration (control, imagery-elaboration, generative-elaboration, rich imagery-elaboration). Participants were tested in pairs. The experimenter individually read aloud, a list of category names (e.g. brick, shoe, paper-clip and button) and participants generated 4 novel, non-conventional uses for each item (e.g. brick as a door stop). Additionally, the experimenter contributed 8 novel uses for each category that were randomly selected from a pool of ideas given in Experiment 4 and 5. Participants were explicitly instructed to listen to *all* the ideas to prevent them from re-production. Ideas were given in a pre-determined random order and the experimenter recorded all the ideas.

Following this generation phase, participants completed a picture puzzle distracter task for 5 minutes, while the experimenter wrote down the to-be-elaborated ideas (from the generation phase) in each participant's booklet. A quarter of the ideas (one idea from each participant, from each category) were subject to each of the following conditions. For the *imagery-elaboration* (I-E) ideas, participants rated the ideas on five-point rating scales for imaginability (*1 = difficult to imagine, 5 = easy to imagine*) and effectiveness (*1 = not effective, 5 = very effective*). For the g*enerative-elaboration* (G-E) ideas, participants wrote down three ways to improve a different sub-set of ideas. For the *rich imagery-elaboration* (RI-E) ideas, participants imagined the ideas (in a pre-determined random order) that their partner had just improved (G-E). To ensure participants read each idea and the improvements they were also required to rate the imaginability and effectiveness. The *baseline* ideas were not re-presented at this stage. This task completed the first session, which lasted approximately 55 minutes.

One week later, participants completed the recall-own phase. The four category headings (e.g. *brick*) from the first session were shown in a random order with four blank spaces under each. Participants wrote down the ideas that *they* generated in the first session leaving blank spaces if they could not remember all 16 ideas. The generate-new phase followed, using the same category headings in a random order, and participants generated 4 new uses for each that had not been previously given. This session lasted approximately 20 minutes.

4.2.3 Results

4.2.3.1 Recall-own task

Correct Recall: In total, 403 ideas were reported of which 286 ideas (71.0%) were correctly recalled. Each participant correctly recalled (i.e. did not plagiarise) a mean of 9.0 (SD = 2.61) of their initial ideas. A within-subjects ANOVA revealed a main effect of elaboration status on recall performance, $F(3,93)= 7.54$; $p<0.01$, as illustrated in Table 4.2.3.1. Multiple pair-wise comparisons were conducted, with a Sidak adjusted alpha level of .05. These revealed significantly fewer baseline ideas were recalled compared to elaborated ideas. However, there was no difference in recall performance between the different kinds of elaboration.

	Elaboration Status							
Task	**Control**		**I-E**		**G-E**		**RI-E**	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Recall	1.56^{a}	.98	2.44^{b}	1.05	2.63^{b}	1.11	2.31^{b}	1.02
UP (RO)	$.19^{a}$	.47	$.84^{c}$	.95	1.67^{b}	1.61	$.97^{c}$	1.17
UP (GN)	1.03^{a}	1.10	$.59^{a}$	.84	$.84^{a}$	.92	$.63^{a}$	.83

Notes: Means within a row that share the same superscript letter do not significantly differ from one another (p<.05 after Sidak adjustment).

Table 4.2.3.1: Experiment 6: Mean rates of correct recall and unconscious plagiarism (UP) within the recall-own (RO) & generate-new (GN) phases for control, I-E, G-E and RI-E ideas.

4.2.3.2 Unconscious Plagiarism: If participants incorrectly reported an idea that was the same or similar to one from the initial phase (partner/experimenter given) the idea was classed as a plagiarised intrusion (e.g. paperclip as a hairclip or paperclip as a hair slide). The scoring agreement between two independent-raters was 98.7% (on both tasks) and the discrepancies were resolved by discussion. Of the 403 reported ideas, 116 ideas (28.8%) were plagiarised (53% initially experimenter ideas and 47% were other participants' ideas). Additionally, 75.0% of participants (24 of 32) unconsciously plagiarised at least one idea from the generation phase while 71.9% (23 of 32) made two or more intrusions.

A within-subject ANOVA revealed that the elaboration manipulation reliably affected rates of unconscious plagiarism $F(3,93)=12.61$, $p<.001$. The means are displayed in the second row of Table 4.2.3.1, and were compared by Sidak adjusted multiple comparisons as before. These revealed that all of the elaborated ideas (G-E, I-E & RI-E) were plagiarised more often than the control, but G-E ideas were plagiarised significantly more than any of the other ideas. Crucially, there was no difference between the two forms of imagery-elaborated ideas. Therefore, conducting generative-elaboration during idea encoding significantly increased the later plagiarism of those ideas, but imagining already elaborated ideas did not.

4.2.3.3 Generate-new task

When participants generated new ideas, plagiarism ensued if they mistakenly reproduced a previous idea. In total, 495 ideas were given, 379 (76.6%) were new ideas, 99 (20%) had previously been generated by someone else (63.6% experimenter ideas and 36.4% other participant ideas) and 17 (3.4%) were participant's own ideas that they had inadvertently re-presented as new. The small remainder were duplicated ideas at test that were excluded from the analysis.

Unconscious plagiarism; 90.6% of participants (29 of 32) re-presented and idea from the generation phase and 84.4% (27 of 32) presented two or more of these old ideas. The effects of elaboration on rates of these errors can be seen in the third row of Table 4.2.3.1. The baseline ideas were plagiarised numerically more than any of the elaborated ideas but, a within-subjects ANOVA revealed that this difference was not significant $F(3,93)=1.68$, $p=.177$.

4.2.4 Discussion

With regards to generative and imagery-elaboration these results replicated our previous findings. In this 4-stage experiment we found that performing both I-E and G-E during the retention interval increased the rate of correctly recalled ideas and simultaneously reduced the rate of generate-new plagiarisms to a similar degree. The only observed difference was in the plagiarism rates in the recall-own task, with G-E resulting in elevated levels of plagiarism. Therefore, after performing G-E participants were much more likely to claim other's ideas as their own.

The key measure of interest in this study was the rich imagery-elaboration, where participants rated and imagined already improved ideas. Crucially, these ideas were matched in content with the G-E condition, unlike in Experiment 4 and 5. As expected this RI-E resulted in a comparable increase in correct recall and decrease in generate-new plagiarism relative to the G-E and I-E. However, in the recall-own task the observed level of plagiarism did not differ from the I-E condition. So, although constructing a rich mental image increased activation strength (see Marsh & Bower, 1993) and familiarity (Loftus & Bernstein, 2005; see also Sharman et al. 2004) of the RI-E ideas, it did not increase the likelihood of participants appropriating another's idea. Rather, it was the generation of idea improvements that led to increased plagiarism, even compared to a group who imagined those same ideas. Consequently, while familiarity misattribution may explain how fictional events may be regarded as 'personally experienced as real memories' (Loftus & Bernstein, 2005, p. 110), here, in a plagiarism domain, familiarity misattribution cannot sufficiently explain how an individual may come to believe that an idea originating elsewhere was 'incorrectly' their own, as imagined ideas did not appear to differ in familiarity to G-E ideas.

These data may be explained in terms of the source monitoring framework (Johnson et al.1993) and therefore, adhere to our previous source-monitoring account of unconscious plagiarism. This account was explained in terms of how generating improvements to an idea shares cognitive operations with the process whereby the idea was originally generated. Thus at recall, if participants use cognitive operations to decide an idea's source (Johnson et al. 1993), then G-E will lead to error and hence appropriation of another's idea as their own. Conversely, such errors would not be observed with the imagined ideas, despite idea familiarity as these ideas would lack the generative cognitive operations (that G-E ideas would have) but rather may possess rich perceptual information that is acquired through the imagination (that the G-E would lack). Consequently, at recall, these memory characteristics may have aided performance and simultaneously helped to prevent I-E and RI-E ideas from being incorrectly presented as self generated ideas. Conversely, in an imagination inflation paradigm, the accompaniment of such idea perceptual characteristics with imagined ideas would result in imagined ideas resembling real events (that would be highly perceptual in nature), and hence promote confusion here. However, the imagination inflation effect has been demonstrated following tasks that are not perceptually based, such as anagram completion (e.g. Bernstein et al. 2004), event paraphrasing (Sharman et al. 2004) or explaining event information (Sharman et al. 2005). Thus, the imagination inflation effect here may be explained by the familiarity derived from such generative activities, (in the absence of perceptual cues) being misattributed to a real memory in a similar way to the unconsciously plagiarised errors we have described following G-E.

Surprisingly, in the recall-own phase, RI-E ideas were plagiarised slightly (but not significantly) more than the I-E ideas. In a source monitoring view (Johnson et al. 1993) rich perceptual information may have been expected to not affect or reduce such errors. This pattern may however, be accounted for in terms of a degree of crossover of the RI-E ideas with the G-E, as RI-E was always performed after G-E (due to design constraints). It is reasonable to expect (in a small number of cases) that when a 'vague' idea improvement was given by one participant the next rich imagery-elaborating participant may have spontaneously elaborated the improvement to allow for effective imagination. For example, if the idea was to 'paint a brick as a bookshelf' the imagining participant would have to decide how the brick was to be 'painted' as this detail would be necessary before the brick could be properly imagined. This information detail may have corresponded to the particular colour or pattern used and furthermore, the details may have been evoked in some personally relevant way. Consequently, the memory characteristics for some of these RI-E ideas may be associated with cognitive operations that at recall may interfere with the source monitoring processes and result in incorrect self-misattributions in the recall-own phase. Hence, in a similar vein to the G-E, this may account for the small rise in plagiarism for RI-E ideas here however; this speculation should be viewed with caution as this difference between the RI-E and I-E ideas that were plagiarised was not significant.

In this study, participants in the recall-own phase appeared to plagiarise ideas from their partner and the experimenter at a similar frequency (total ideas plagiarised: 47% Vs 53% respectively) but in the generate-new phase, participants appeared to be more likely to plagiarise the experimenters' ideas than the other participants' idea as new (63% Vs 36%). However, unlike the prior experiments, participants here were tested in pairs, with the experimenter generating twice as many ideas as one of the participants. Therefore, in the recall-own phase, participants are actually more likely to plagiarise ideas from other participants at a higher rate than the experimenter. Macrae et al. (1999) suggested that the more ideas that are associated with a source, the lower one's propensity to source monitor and avoid unconsciously plagiarised errors may be. They speculated that this followed as a result of the strong associative links that the participant would have formed between the source and their ideas; hence, the fewer ideas that were generated from a source, the weaker the links would be. When participants were associated with 24 ideas each, they were less likely to plagiarise their partners' ideas when the partner was present at testing than when the partner was absent. Here, the experimenter generated 32 ideas while their partner generated 16 ideas but both were present at testing, thus re-instating the experimental contest (and associated cues). Therefore, this line of argument - in terms of the links between the experimenter and their ideas being stronger - may account for the lower levels of experimenter plagiarism obtained in the recall-own phase.

Further, in the recall-own phase participants have previously been demonstrated to be more likely to plagiarise from a participant who is perceptually similar to themselves (e.g. the same gender; Macrae et al. 1999). Hence, here there may be a bias away from the (female) experimenter with two male participants, but the frequency of this was likely low since most participants were female. As the majority of participants here were female between the ages of 18 and 21, it may be speculated that participants may be more likely to plagiarise their partner if their partner was more similar to themselves than the experimenter, except in cases when their partner was male (but there were very few such cases). Such gender data was not collected so this possibility could not be statistically explored.

In the generate-new phase, when the larger pool of ideas that participants can potentially plagiarised from is accounted for participants were seen to be equally likely to plagiarise ideas from the experimenter and other participants. This finding also complements Macrae et al. (1999) as perceptions of source similarity did not affect levels of generate-new plagiarism. One's reduced propensity to plagiarise other participants in the generate-new phase, relative to the recall-own phase may be additionally influenced by participant's perceptions of source distinctiveness' or credibility of the ideas. This latter assertion would follow Bink et al. (1999) who demonstrated that favourable perceptions of credibility increased the rates of participants subsequently re-producing such 'superior' ideas as new. In their study, participants were given a series of ideas that could potentially reduce traffic accidents, together with arbitrary indications of the idea's origins; either traffic planners or undergraduate students. Later, participants were engaged in a similar idea generative task and plagiarised significantly more of the ideas that initially originated from the town planners. Bink et al. (1999) suggested that this was because these ideas were perceived to be more credible (despite independent raters declaring no objective difference between the two sets of ideas). Such perceptions of credibility however did not, explicitly affect their rates of recall-own plagiarism. Thus, this explanation would fit with the results from Experiment 6, as there was no difference in the credibility of participant and experimenter ideas, because, the ideas given by the experimenter were randomly selected from a pool of ideas provided by participants in Experiment 4 and experimenter ideas were not plagiarised more than experimenter ideas in the recall-own phase. In the recall-own phase, the number of ideas plagiarised was confounded by elaboration type, but fundamentally there was more unconscious plagiarism following G-E for both sets of ideas. It is not entirely clear what factors are responsible for the differences observed here so it would be interesting to determine whether the same pattern of findings would prevail if the number of ideas generated by each source were matched

In sum, this study indicated that increasing the strength/fluency of the imagery manipulation did not concurrently increase the plagiarism observed in the recall-own phase. Therefore, we have consistently found the same effect that it is *only* G-E that results in participants incorrectly believing that someone else's idea was their own.

4.3 Experiment 7

4.3.1. Introduction

So far in this research programme, I-E has not resulted in inflated unconscious plagiarism in the recall-own phase (Experiment 4, 5 & 6). This followed even when the imagery-elaboration was strengthened and equated in content to the generative-elaboration (Experiment 6). Hence, in line with predictions drawn from the source monitoring framework it would be conceivable to expect that strengthening I-E by repeating this elaboration would not result in an increase of these types of errors. This follows as the associated memory characteristics of the repeated I-E ideas would contain rich perceptual information derived through imagination (Johnson et al. 1993). Therefore, this information should increase the distinctiveness of the imagined ideas, relative to other non-imagined ideas or ideas that were only imagined once. This repetition manipulation is anticipated to increase the idea's strength and accordingly participants' correct recall performance. However, it should not increase memory intrusions in the recall-own phase as these ideas would not resemble their own. Here unlike in the G-E participants are not engaged in generative processes and so accordingly should lack the cognitive operations that would accompany self-generated ideas. Consequently, the lack of cognitive operations but presence of rich perceptual information should help prevent plagiarised intrusions of recalling these repeatedly imagined ideas as their own.

In contrast, according to predictions based in processing fluency (see Jacoby et al. 1989) or activation strength (see Marsh & Bower, 1993) there is also a possibility that repeating this imagery-elaboration may be sufficient to induce these intrusions. The concept of repeating imagination has not been explicitly explored within the domain of unconscious plagiarism but it has been investigated within imagination inflation.

Imagination inflation occurs when imagining counterfactual childhood events can lead to increased certainty that those events did occur (Garry et al. 1996). This effect has been observed in reality monitoring situations where sources that are fundamentally internal (e.g. imagining a picture) have been claimed as being external (seeing a picture) (e.g. Johnson et al. 1979), but it has also been more prominently observed in internal source monitoring paradigms when both sources are internally initiated (see Johnson et al. 1993). This follows as when the sources are both internally initiated they are more easily confused, for example, when 'imagining actions' result in belief that those 'actions were performed' (Goff and Roediger, 1998). However, in both of these cases, increasing the number of imaginations served to increase the likelihood that a false memory was made (Goff & Roediger, 1998; Lampinen, Odegard, Bullington, 2003; Thomas et al. 2003; Thomas & Loftus, 2002). Consistently, in these studies idea familiarity is held responsible for this robust imagination inflation effect that is induced through imagination and strengthened through repeated imagination (c.f. Sherman et al. 2004). Thus, in the present study although 'generating' ideas and 'imagining' ideas involves fundamentally different processes, they are both internally initiated and so there may be some scope for confusion here too. In a related way, it is also possible that doing something (anything) twice could increase unconscious plagiarism; this experiment will test this idea.

It is conceivable that real world plagiarists throughout the process of novel idea generation such as writing a story continuously think about, develop and improve the plot over time. If this is the case, is it not also conceivable that during this process they may have also repeatedly imagined 'their' story plot? Hence, it may be possible that repeated imagery experiences also contribute to real world plagiarist's appropriation of another's idea in a similar way to those false memory constructions within imagination inflation. In Experiment 6, increasing idea familiarity did not appear to affect subsequent plagiarism errors and this indicated that in a plagiarism domain, familiarity may not be sufficient to explain how the ideas can be misappropriated to self. However, although strengthening the imagery manipulation did not result in significantly more plagiarised errors, slightly more errors were evident following rich imagery-elaboration than imagery-elaboration alone. This may have been due to some element of spontaneous idea improvement on the part of the imager (see Experiment 6 discussion), but it may have instead resulted from the increase in idea familiarity and processing fluency induced by this stronger imagery manipulation. This interpretation is made with caution as this difference (between I-E and RI-E) did not reach statistical significance. However, investigating repeated I-E would further raise idea familiarity and thus address this important theoretical possibility.

This study therefore explores repeated idea elaboration within our 4-stage paradigm. The generation and testing phase were the same as Experiment 6 except that participants were tested in groups of 4 (identical to Experiment 4 & 5). This reintroduced the desirable group testing dynamic and also eliminated the likelihood that participants would be compelled to plagiarise the experimenters' ideas. The two main changes here were made in the elaboration phase(s). The first change was that participants were required to perform the I-E on one or two occasions. The ideas that were elaborated twice were elaborated for the first time during the generation phase and for a second time 3 days after generation. The ideas that were elaborated once were either elaborated during the initial generation phase on day 1 (conventional I-E), or in a separate elaborative session on day 3. Consequently, the ideas that were only elaborated once, on day 3, constituted an extended replication and comparison for ideas that were only elaborated on day 1 (the conventional I-E condition). Additionally, these ideas acted as a control for the repeated elaboration ideas to rule out the possibility that any increase in plagiarism could have been a function of participants completing the elaboration in a session separate from initial idea encoding that is closer in time to testing. The second change was that in total, three quarters of the generated ideas were subject to the I-E manipulation (¼ day 1, ¼ day 3 and ¼ day 1 & day 3), relative to the one quarter unelaborated as before. Thus, at any one time during the sessions on day 1 and day 3, half of the ideas were subject to I-E. This was double the number of ideas that were elaborated in this way in the previous studies (Experiment 4, 5 or 6). However, as participants here were not required to perform any other elaborative tasks (such as G-E) the I-E was not expected to take much longer to complete than previous elaborative tasks and assuming participants complete the task in the intended way no associated problems should prevail.

4.3.2 Method

4.3.2.1 Participants

Thirty-two students participated in the generation phase. However, 4 participants failed to attend the second testing session and so only 28 participants completed the experiment. Participants were undergraduates from the University of Plymouth and received either partial fulfilment of a course requirement or £8 for their participation in this study.

4.3.2.2 Design and Procedure

A within–subjects design was implemented and the within subjects variable corresponded to the day on which imagery-elaboration was performed (control, once on day 1, once on day 3, twice- on day 1 & 3). Four participants were randomly assigned to a group and given a seat around a central table. The generation phase was identical to Experiments 4 and 5. Participants were given 4 object names, and were required to generate 4 novel uses for each idea. Accordingly, for each category there were a total of 16 generated exemplars and hence 64 ideas in total.

As in Experiment 4, the elaboration phase immediately followed the generation phase but an additional elaboration phase was conducted 3 days later. In the first elaboration session (day 1), participants were required to imagery-elaborate ((rate ideas on five point rating scales for how easy they were to imagine (*1 = difficult to imagine, 5 = easy to imagine*) and how effective (*1 = not effective, 5 = very effective*) they thought the ideas would be) half of the generated ideas (32 ideas). The remaining ideas were not re-presented at this point. In the second elaboration phase 3 days later (day 3), participants were required to imagery-elaborate a further 32 ideas. Half of these ideas (16) had been elaborated once in stage 1 (repeated elaboration) and the other half had not. Thus, there were 4 conditions of elaborated ideas: ¼ of the ideas were elaborated on days 1 & 3, ¼ of the ideas were elaborated once on day1, a ¼ were elaborated once on day 3, and the remaining ¼ were not elaborated and hence served as control ideas.

For the ideas elaborated twice, during session 2 participants were asked to try to remember the ratings that they had given in the first session, but if they could not, they were instructed to re-rate the ideas. The order that participants performed these tasks was counterbalanced across the groups. The experimenter read the to-be elaborated ideas aloud in a pre-determined random-order. This task completed the first session, which lasted approximately 40 minutes.

The Recall-Own and Generate-New Phases were completed on day 7, one week after the initial generation phase (4 days after the second elaboration phase). Participants returned to complete the recall-own and generate-new phases in there original groups. In the recall-own phase, participants were shown the 4 category headings (e.g. *brick*) that they had previously generated to in the first session, with *four* blank spaces under each. Each category was displayed in a random order for each participant. Participants were instructed to record all of their own ideas from the first session, 4 ideas per object. Although the number of ideas correctly reported for each object may not exceed 4 (1 control idea, 2 ideas elaborated once; 1 on day 1 and 1 on day 3 and 1 idea that was elaborated twice; on day 1 and 3), it is possible that the number of ideas reported for a particular elaboration status may exceed 4 (i.e. correctly recalled & plagiarised ideas). This follows, as for a particular class of ideas (e.g. ideas elaborated twice), participants may exhibit good recall, by correctly recalling their original 4 ideas (i.e. one novel idea for each object) but also by plagiarising others' ideas from that same class (e.g. ideas elaborated twice). This would only be possible at the expense of failing to recall ideas from another elaboration status (e.g. control ideas), as participants may report a maximum of 4 ideas per object (e.g. 1 control idea, 1 G-E idea on day 1, 1 G-E on day 3 and 1 G-E on day 1 & 3), and16 ideas in total. Hence, although only 4 ideas may be reported for a given object the numbers recalled for a class of ideas may exceed 4. Again, recall was not timed or forced. Once this had been completed, the same category headings were randomly repeated and participants generated four new uses for each. This session lasted approximately 20 minutes.

4.3.3 Results

Unconscious plagiarism was scored in the same way as in the previous experiments. The overall numbers of ideas correctly recalled and unconsciously plagiarised in each of the tasks are summarised in Table 4.3.3.1

Task	Elaboration Status							
	Control		Elaboration on Day 1		Elaboration on Day 3		Elaboration on Day 1 and 3	
	Mean (of 4)	SD	Mean (of 4)	SD	Mean (of 4)	SD	Mean (of 4)	SD
Recall	1.80[a]	.86	2.86[b]	.92	2.83[b]	1.07	3.10[b]	.86
UP (RO)	.21[a]	.41	.41[a]	.68	.55[a]	.83	.59[a]	.98
UP (GN)	.41[a]	.68	.55[a]	.95	.59[a]	.73	.28[a]	.59

Notes: Means within a row that share the same superscript letter do not significantly differ from one another (p<.05 after Sidak adjustment).

Table 4.3.3.1: Experiment 7: Mean rates of correct recall and plagiarism within the recall-own (RO) & generate-new (GN) phases for control ideas and ideas that were subject to Imagery-Elaboration once, (on day 1 or day 3) or twice (on day 1 & 2).

4.3.3.1 Correct Recall

In total, 356 ideas were reported. Of these ideas 295 ideas (82.9%) were correctly recalled, where each participant on average correctly recalled (i.e. did not plagiarise) 10.5 (SD =2.3) of their initial ideas. The top row of Table 4.3.3.1 shows the effects of elaboration on correct recall. A within-subjects ANOVA revealed a main effect of elaboration status on participants' performance, $F(3,84)= 12.45$; $p<0.01$. Multiple pair-wise comparisons between means were conducted, with a Sidak-adjusted alpha level of .05. These revealed that the ideas that were elaborated (once or twice) were better recalled than control ideas. Moreover, elaborating ideas twice did not improve recall relative to idea that were only elaborated once.

4.3.3.2 Unconscious Plagiarism

Recall-own task: In this task, participants were required to remember as many of their own initial ideas as possible. Unconscious plagiarism occurred when participants recalled someone else's idea as their own. As in the previous experiments a plagiarised idea was only counted once. Of the 356 ideas that were reported, 61 ideas (17.1%) were unconsciously plagiarised. In the recall-own phase, 71.4% of participants (20 of 28) unconsciously plagiarised at least one idea that another group member had originally generated in the encoding session. Additionally, 57.1% (16 of 28) of participants made two or more intrusions.

A within subject ANOVA revealed that the elaboration manipulation did not reliably affect the observed rates of unconscious plagiarism F>1. The means are displayed in the second row of Table 4.3.3.1 and indicate that relative to control, elaborating ideas did not increase the idea's probability of self-appropriation. Nor was their evidence that imagining twice had a greater effect than imagining once.

4.3.3.3 Generate-new task: Participants' were required to generate four new ideas per category cue, but often participants unconsciously plagiarised another persons' ideas or inadvertently duplicated one of their own previous ideas (self plagiarism). In total, 458 ideas were generated and of these, 383 (83.6%) were new ideas, 55 (12%) had previously been generated by someone else, and 20 (4.4%) were participants own ideas that they had inadvertently re-presented as new. The small remainder were duplicated ideas at test that were excluded from the analysis.

Self-plagiarism; There was a very small number of these types of intrusions and there was no significant main effect of elaboration status on self-plagiarism rates, F<1.

Unconscious plagiarism: In the generate-new phase, 79.3% of participants (23 of 29) plagiarised by reproducing an old idea that had been previously generated by another group member and 44.83% (13 of 28) made two or more of these intrusions. The effects of elaboration on rates of these errors can be seen in Table 4.3.3.1. A within-subjects ANOVA revealed no significant main effect of elaboration status on the rate of unconscious plagiarism for others' ideas, F<1. Numerically, the highest amounts of plagiarism were obtained after one session of elaboration on day 1 and 3. Following two sessions of elaboration the strength of the ideas increased and accordingly the plagiarism level was numerically reduced.

4.3.5 Discussion

The pattern of results obtained in this study supported the main previous findings that performing I-E during one experimental session improved correct recall and but did not increase plagiarism in the recall-own phase relative to control. This pattern followed whether the elaboration was conducted on day 1 during the generation session, or day 3 when elaboration was conducted three days after generation. Following repeated elaboration where the I-E was performed twice, correct recall was also inflated but recall-own plagiarism did not differ from control. Although repeated elaboration increased the strength/familiarity of the ideas, it did not result in an increase in intrusions relative to the ideas that were elaborated only once or those ideas that received no elaboration. Hence, increasing the number of 'imaginations' performed does not increase a participants propensity to plagiarise and as anticipated idea familiarity does not result in unconscious plagiarism with regards to participants assuming someone else's ideas as their own. This suggests that unconscious plagiarism is not like imagination inflation or that the manipulation differs from imagination inflation manipulations in critical ways.

Consequently, the findings from this study further support the source monitoring explanation for unconscious plagiarism and indicate that in a plagiarism paradigm, processing fluency cannot account for the prevalence of unconscious plagiarism obtained in the recall-own phase. In this study, repeated I-E raised idea familiarity and produced an extremely high level of correct recall and numerically reduced plagiarism level in the generate-new phase. However, whether the I-E was completed once or twice did not affect the number of subsequent intrusions obtained in the recall-own phase.

4.4 Experiment 8

4.4.1 Introduction

In the real world, when an individual creates a novel entity that may take the form of a song, a novel or an academic paper, a great deal of time and effort is invested until these feats are completed. Such processes may reflect the G-E (and not the I-E) that we have utilised here. However, during these creative procedures the finished product is rarely completed during one working session but is rather developed in an ongoing process where repeated efforts are invested into the 'products' formulation. George Harrison had inevitably spent time repeatedly working on and developing his song 'My Sweet Lord' and as a consequence of this, he really believed that the song was his own. This real life notion of exposing participants to information on multiple or repeated occasions has previously not been explored experimentally in an unconscious plagiarism framework, despite the interesting applications to practical cases of plagiarism. Consequently, within this research programme, the next step was to investigate the effects of repeating G-E, as real world plagiarism undoubtedly involves repeated and prolonged idea attention rather than just one idea exposure.

Support for this idea that repetition may be important for source memory can be derived from twin research. These studies have exposed twins that have both claimed ownership of an event memory that only one of the twins was actually involved in. This was first empirically demonstrated by Sheen et al. (2001) who found that 65-70% of their twins produced a disputed event memory in response to given cues. These disputes occurred when the twins agreed that the chosen event had occurred but both believed the event concerned them. The prevalence of these disputes is higher in monozygotic twins than siblings, and this is believed to be symptomatic of their stronger similarities in appearance and behaviour (Ikier, Tekcan, Gülgöz & Küntay, 2003). However, the nature of the events in question vary from mundane events (Küntay et al. 2004) to quite significant events (i.e. running away from home) (Sheen et al. 2001). Essentially however, these individuals have been demonstrated to possess a false belief something happened to them when it did not without any experimental intervention. This type of source monitoring error is akin to recall-own plagiarism, where someone else's idea is claimed as one's own. Hence it may be deduced here that the twins had 'unconsciously plagiarised' each others' memories.

Although speculative, one potential explanation for these disputes is that they evolve as a consequence of repetition and elaboration. It is well documented that verbal rehearsal during conversations about the past results in event reinstatement and error introduction into the original account (see Howe, 2000). Also repeatedly interviewing a witness may increase their confidence in their testimony, even for erroneous events

(Shaw, 1996). Moreover, repeated attempts to remember have been demonstrated to produce source confusions and erroneous memories that are intensified following repeated reflections on such memories over time (in the absence of source reflections) (Henkel, 2004). It is likely that during the twins' lives, the plagiarising twin had previously thought about and discussed these memories on a number of occasions. Although, there has been some evidence that the disputed memories were not reported to be often rehearsed (Sheen, et al 2001) or talked about with other twin (Ikier et al. 2003) it is possible that the events were often thought about or discussed with others. Specifically, Ikier et al. (2003) suggested that re-exposure to information may arise through parent interaction particularly. For a given event, parents (or grandparents) may have been uncertain or confused about which of the two children was involved. In such cases, the information may then be incorrectly relayed and reflected in conversations between the parent and child. Conceivably, subsequent internal (i.e. thought) or external (i.e. discussions with others) reflection by the child in terms of event repetition or elaboration may follow and in turn, be responsible for subsequent source confusions.

Elaboration of any kind has been previously demonstrated to increase the activation strength of the ideas and improve subsequent recall relative to when no such elaboration was performed (Experiment 4, 5, 6 & 7). G-E conducted immediately following generation has previously been found to have a powerful effect on increasing recall-own plagiarism rates. Whether, the same intrusion rate would be evident when this elaboration was conducted in a separate session, three days post generation is unclear. Elaboration on day 3, may serve to reduce UP relative to elaboration on day 1 as the elaborative session on day 3 may be more discriminable from generation (due to the delay) and thus may be more accessible at test (as they are less proximal to generation) and thus potential plagiarisms more likely to be detected as inaccurate. On the other hand, plagiarism may be increased, as research has demonstrated that misinformation manipulations given on a different day to initial target encoding may increase source memory errors relative to when manipulations occur at the same day as encoding (Brainerd & Reyna, 1998). However, how factors interact to determine test performance may depend on the extent to which participants attend to the sources but of memories that come to mind at test and performing the G-E on either day may be sufficient powerful to evoke a comparable effect on recall-own ability

Fundamentally, it is anticipated that the repeated elaboration will lead to stronger memories which accordingly should result in improved recall and reduced plagiarised intrusions in the generate-new phase. However, the question of interest here was whether these stronger memories would;

1) Serve to strengthen and improve source memory and thus attenuate the plagiarism levels in the recall-own task obtained in the previous studies or

2) Serve to further weaken source memory and thus increase plagiarism levels in the recall-own phase in line with our previous findings following G-E.

4.4.2 Method

4.4.2.1 Participants

Twenty-eight students participated in the generation phase. However, 1 participant failed to attend the second testing session and so only 27 participants completed the experiment. Participants were undergraduates from the University of Plymouth and received either partial fulfilment of a course requirement or £8 for their participation in this study.

4.4.2.2 Design and Procedure

A within–subjects design was implemented and the within subjects variable corresponded to the day on which generative-elaboration was performed (control, once on day 1, once on day 3, twice -on day 1 & 3).

The procedure was identical to Experiment 7 the only difference was the type of elaboration that participants performed. The generation phase was the same, but when participants elaborated (on day 1 and day 3) they completed generative-elaboration (as opposed to imagery-elaboration in Experiment 7). During generative-*elaboration,* participants were requested to write down three ways to improve the given idea. On day 7 the testing phases were conducted as previously.

4.4.3 Results

Unconscious plagiarism was scored in the same way as in the previous experiments and the same two raters were used. 93% of participants exhibited an unconsciously plagiarised error in at least one of the phases (recall-own or generate-new). The overall numbers of ideas correctly recalled and unconsciously plagiarised in each of the tasks are summarised in Table 4.4.3.1.

	Elaboration Status							
Task	Control		Elaboration on Day 1		Elaboration on Day 3		Elaboration on Day 1 and 3	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Recall	1.0^{a}	1.04	2.15^{b}	1.40	2.22^{b}	1.31	3.04^{c}	.90
UP (RO)	$.19^{a}$	.93	$.81^{b}$	.41	$.78^{b}$	.56	2.81^{c}	.59
UP (GN)	$.70^{a}$	.82	$.56^{a}$	.85	$.26^{a}$	.60	$.52^{a}$	.75

Notes: Means within a row that share the same superscript letter do not significantly differ from one another ($p<.05$ after Sidak adjustment).

***Table 4.4.3.1**:* Experiment 8: Mean rates of correct recall and plagiarism within the recall-own (RO) & generate-new (GN) phases for control ideas, ideas that were elaborated once (on either day 1 or day 3) or twice (on both days).

4.4.3.1 Correct Recall

In total, 312 ideas were reported. Of these ideas 200 ideas (64.1%) were correctly recalled, where each participant on average correctly recalled (i.e. did not plagiarise) 7.4 (SD =3.6) of their initial ideas. The top row of Table 4.4.3.1 shows the effects of elaboration on correct recall. A within-subjects ANOVA revealed a main effect of elaboration status on participants' performance, $F(3,78)= 19.09$; $p<0.01$. Multiple pair-wise comparisons between means were conducted, with a Sidak-adjusted alpha level of .05. These revealed that ideas that were elaborated twice (day 1 & 3) were significantly better recalled than any of the other ideas (including those that were elaborated on only one occasion). Recall of ideas that were elaborated on day 1 or 3 did not differ from each other, but both demonstrated improved recall relative to control.

4.4.3.2 Unconscious Plagiarism

Recall-own task: In this task, participants were required to remember as many of their own initial ideas as possible. Unconscious plagiarism occurred when participants recalled someone else's idea as their own. As in the previous experiments a plagiarised idea was only counted once. Of the 312 ideas that were reported, 115 ideas (36.9%) were unconsciously plagiarised (SD=3.4). In the recall-own phase, 88.9% of participants (24 of 27) unconsciously plagiarised at least one idea that another group member had originally generated in the encoding session. Additionally, 85.2% (23 of 27) of participants made two or more intrusions. These observed numbers are much higher than in the preceding studies, on average participant's plagiarised 4.3 ideas each.

A within subject ANOVA revealed that the elaboration manipulation reliably affected rates of unconscious plagiarism $F(3,78)=25.64$, $p<.001$. The means are displayed in the second row of Table 4.4.3.1, and were compared by Sidak adjusted multiple comparisons as before. These revealed that generative-elaborated ideas that were elaborated twice were plagiarised more often than all the other ideas. Elaborating the idea once increased plagiarism rates relative to control, but whether this elaboration occurred on day 1 or 3 did not affect the plagiarism levels. Therefore, conducting generative-elaboration during idea encoding significantly increased the later plagiarism of those ideas, but performing this elaboration twice more than trebled the probability that those ideas would incorrectly be self-attributed. The remaining means did not differ significantly.

4.4.3.3 Generate-new task: Participants' were required to generate four new ideas per category cue, but often participants unconsciously plagiarised another persons' ideas or inadvertently duplicated one of their own previous ideas (self plagiarism). In total, 389 ideas were generated and of these, 332 (82.7%) were new ideas, 55 (14.1%) had previously been generated by someone else, and 12 (3.1%) were participants own ideas that they had inadvertently re-presented as new. The small remainder were duplicated ideas at test that were excluded from the analysis.

Self-plagiarism; There was a very small number of these types of intrusions and there was no significant main effect of elaboration status on self-plagiarism rates, $F<1$.

Unconscious plagiarism: In the generate-new phase, 77.8% of participants (21 of 27) plagiarised by reproducing an old idea that had been previously generated by another group member and 51.9% (14 of 27) made two or more of these intrusions. The effects of elaboration on rates of these errors can be seen in Table 4.4.3.1. A within-subjects ANOVA revealed no significant main effect of elaboration status on the rate of unconscious plagiarism for others' ideas $F(3,78)=1.74$; $p=0.17$.

4.4.4 Experiment 7 & 8 combined Analysis

The results from Experiment 7 and Experiments 8 were compared using a between (I-E vs. G-E) - within (control, elaborate day 1, elaborate day 3 or elaborate day 1 & 3) Repeated Measures ANOVA to evaluate the difference between the two types of elaboration.

The repeated measures ANOVA revealed that there was no interaction between elaboration type (I-E or G-E) and elaboration times (once or twice) for ideas that were correctly recalled $F(3,162)=1.70$, $p=.17$ or incorrectly given as new ideas $F(3,162)=2.19$, $p=.09$. Together, these findings suggest that both imagery and generative-elaboration affected the strength of the ideas comparably (see Figure 4.4.4.1).

However crucially, there was a significant interaction between elaboration type and times for the ideas plagiarised in the recall-own phase $F(3,162)=16.30$, $p<.001$. Follow up test, with Bonferroni corrections for multiple comparisons revealed that repeated G-E (in Experiment 8) resulted in significantly more plagiarism than repeated I-E (in Experiment 7) $t(54)=4.92$, $p<.001$. Therefore, participants only claimed another participants' idea as their own after they had performed the G-E, twice.

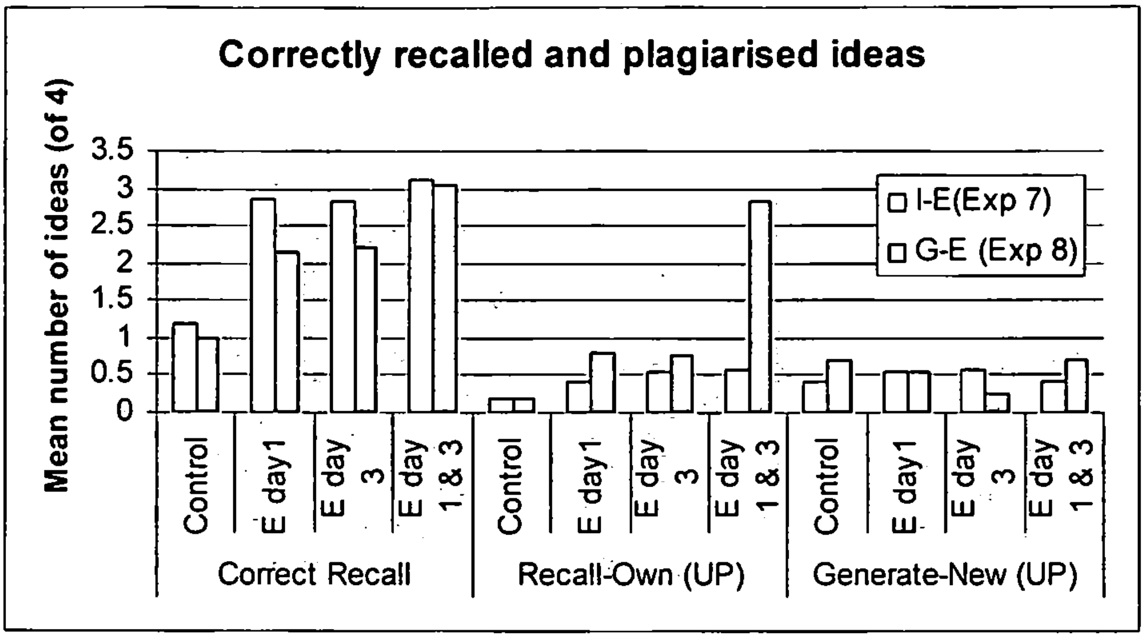


***Figure 4.4.4.1**: Experiment 7 & 8 combined analysis:* A graph indicating the number of ideas that were correctly recalled and plagiarised following I-E and G-E.

4.4.5 Discussion

The pattern of results obtained in this study was largely consistent with the previous findings. Performing the G-E during one experimental session improved correct recall and also increased plagiarism in the recall-own phase relative to control. This pattern followed whether the elaboration was conducted on day 1 during the generation session, or day 3 when elaboration was conducted three days after generation. The manipulation of interest here was the repeated elaboration where the G-E was performed twice. Following this, idea strength was increased and consequently the level of correct recall was inflated. The most striking finding however, was the extraordinarily high rates of 70% plagiarism following this repeated elaboration in the recall-own phase (See general discussion for a discussion of input and output bound measures of plagiarism). In this phase, participants were just as likely to recall someone else's idea that they had elaborated twice (mean 2.81) as their own ideas, as they were to actually recall one of their own ideas (mean 3.0). This is an extremely high rate of plagiarism that far exceeded levels of plagiarism obtained in previous studies, including both our own studies and other similar studies (Macrae et al. 1999).

In the condition where G-E was conducted twice, participants correctly recalled 3.0 ideas and plagiarised a further 2.8 ideas. Therefore, as participants may only report 4 ideas per category it would seem that there were more responses than spaces. However, for each object, participants should recall 1 idea each that came from control, G-E on day 1, G-E on day 3 and G-E on day 1 and 3, but participants misattributed additional others' ideas from G-E1 and 3 as their own and this suppressed the possibility of other plagiarism. For example, an observation here was that the ideas that were elaborated only once (day 1 = 26% and day 3 = 27%) were actually plagiarised at a lower rate than in our previous studies (Experiment 4 = 41% and Experiment 6 = 39%). Ultimately in each of our studies total participant output was restricted as only 16 spaces were provided for the participant's initial idea generations. Here on average participants reported a total of 11.6 ideas each that included both correctly recalled and plagiarised ideas. Importantly, this number was comparable to the number of items reported in the previous experiments. However, in this study, repeating generative-elaboration not only resulted in an extremely high level of plagiarism but also resulted in a very high level of correct recall. In fact, these correctly reported and plagiarised ideas constituted 45% of the total reported output in the recall-own phase. Therefore, the remaining 55% of ideas (correct and plagiarised) were distributed between the control ideas and the ideas that were elaborated once on day 1 and once on day 3. In addition, the ideas that were elaborated once were also correctly recalled to a high level (also reducing the opportunity for plagiarism). Consequently, the plagiarism levels obtained following one elaborative session were invariably lower than in previous studies when two such elaborative sessions were not employed.

In this study, in the recall-own phase participants reported a mean of 11.6 ideas of a possible 16 ideas. For each object participants were recalling a mean of nearly 3 out of the 4 ideas, the maximum ideas may not have been reported as a result of an implicit (or explicit) participant metacognitive bias that their memory is not good and that they would not be able or expected to recall all of their initial ideas. Hence, although participant were not reporting as many ideas as they potentially could, if recall was free and not restricted to 4 spaces per object absolute recall levels (including plagiarised errors) may have risen to be more in line with those rates obtained in prior studies. Nonetheless, in this study, despite the lower levels of plagiarism, the pattern that we had previously obtained following G-E in the recall-own phase prevailed. Furthermore, a rate of 26% plagiarism was obtained. This was higher than rates found in previous findings for semantic intrusions (e.g. Brown & Halliday,1989) or plagiarised ideas (e.g. Landau & Marsh 1997) and was in line with the levels obtained in Experiment 5 (26% also) when participants were encouraged to use a stricter decision criteria to monitor their responses. However, elaborating ideas once or twice did not significantly affect the plagiarism in the generate-new phase (see chapter 6). The trends suggested that generate-new plagiarism was reduced following elaboration compared to control, but that two sessions did not change this pattern. This may have been due to the increased familiarity of the G-E ideas (in the absence of source cues) being incorrectly attributed incorrectly to a spontaneous generation rather than the elaboration phase, however, speculating is problematic as the differences were small.

The findings from this study lend further support to our source monitoring theory of unconscious plagiarism where participants are suggested to make attributions about the qualitative aspects of ideas that come to mind in the recall task (see Johnson et al. 1993). The ideas that were originally generated by someone else, but were added to by the participant were qualitatively rich and more likely to be plagiarised than control. This follows as the processes employed during G-E are comparable to those used during initial idea elaboration. Elaborating these ideas for a second time on day 3 served to enhance this information and further confuse the initial information sources. As a result, this repeated elaboration more than doubled the chance of these ideas being plagiarised. Indeed, this increase can not be explained as a function of simply performing the elaboration on day 3 (in separate session that was temporally closer to the testing phase) as when elaboration was performed on this day alone (day 3) there was no difference in plagiarism relative to the conventional G-E (on day 1). Consequently, performing G-E has a powerful effect on later rates of self-appropriated ideas. This follows, whether G-E was conducted at encoding or separately after encoding and repeating this G-E only served to further intensify this robust effect. Therefore, these findings have potentially worrying real world applications.

4.5 General Discussion

The findings from chapter 4 serve to replicate and support those we found in chapter 3. Performing G-E by improving ideas once increased the likelihood that participants would later assume those ideas as their own. However, performing I-E by rating idea imaginability and effectiveness did not increase these observable intrusions. This pattern prevailed when this I-E was strengthened by means of matching it in terms of content to G-E (Experiment 6) or when it was repeated on a second occasion (Experiment 7). However, here the dramatic finding was observed when G-E was repeated. While completing one session of G-E increased errors relative to control, completing two sessions of G-E doubled the likelihood that a participant would unconsciously plagiarise someone else's idea as their own (Experiment 8) relative to elaborating once. In fact, following repeated G-E, when participants were recalling their own ideas they were just as likely to 'recall' a plagiarised idea as they were one of their own correct ideas. Consequently, in this study while repeating G-E had a striking effect on the data, repeating I-E did not.

However, in Experiment 6 although G-E ideas were clearly plagiarised the most, I-E ideas were plagiarised more than control. This observation was numerically but not significantly the case in Experiment 8. Cumulatively, this pattern is not consistent with the findings from our previous studies as rates of I-E and control plagiarism were equivalent. One explanation for the difference here, resides in the lower baseline measures of plagiarism that were obtained in Experiment 6 (.19) and Experiment 8 (.21) relative to prior studies (Experiment 4 =.53). However, while this baseline reduction may account for the increase in plagiarism observed in Experiment 8, it can only partially account for the difference in Experiment 6. This follows as in Experiment 6, there was also an increase in plagiarism following I-E and this increase was double the rate observed in Experiment 8. Reasons for this difference in I-E plagiarism in Experiment 6 may arise as a product of completing the RI-E. In this study, a slightly higher level of plagiarism was found following RI-E than I-E. This was previously explained (in Experiment 6) in terms of spontaneous elaborations on the part of the imaginer that may have been performed in response to ideas that were not improved in a specific enough way to warrant imagination. Thus, if an idea was to imagine 'a brick as a sculpture' and the improvement was 'to carve it', the imagining participant would need to decide how the carving was intended to improve the sculpture (or the resulting shape) before the idea was imagined. Hence, some element of generation may have been involved prior to imagination and as such, this may have been responsible for the increase in intrusions.

Consequently, a similar explanation may be given for the slight increase in plagiarism following I-E in Experiment 6 (relative to prior studies). This possibility was determined by analysing the order that the tasks (I-E, G-E & RI-E) were performed and calculating the corresponding mean number of I-E ideas that were plagiarised. When I-E was conducted as a primary task before any G-E or RI-E, a mean rate of .55 ideas were plagiarised. This number was slightly increased to .69 when I-E followed G-E. However, when I-E followed RI-E (when participants had been required to I-E other participants' ideas and their corresponding idea improvements) the mean number of plagiarised I-E ideas tripled to 1.57. A one-way ANOVA indicated that the affect that task order had on rates of I-E plagiarism approached significance $F(2,31)=3.01$, $p=.06$. Therefore, it appeared that I-E may have *only* resulted in an increase in unconscious plagiarism when it followed RI-E, as I-E after RI-E may have evoked some spontaneous G-E. Importantly, the rate of plagiarism obtained from I-E ideas, when I-E was the initial elaborative task, was comparable to levels of plagiarism obtained in previous studies (Experiment 4 .55/ Experiment 5 .40). Consequently, this carryover from RI-E to I-E, twinned with the low levels of baseline plagiarism, may be responsible for the increased intrusions here. Therefore, the findings here also adhere to our previous conclusion that participants only appropriate someone else's ideas after elaborate generative idea improvement but not after elaborate idea imagery.

As in Experiment 4 and 5, the results here indicated that I-E and G-E resulted in ideas of equivalent strength. This was demonstrated by high levels of correct recall after I-E and G-E following 2 elaborative sessions (Experiments 7 and 8). In fact, repeated I-E (Experiment 7) actually resulted in the highest level of absolute recall, thus indicating that these ideas were as strong if not stronger than the G-E ideas (Experiment 8). Moreover, ideas that were imagined once (Experiment 7) were recalled numerically more than those

G-E once (in Experiment 8). This pattern may be partly explained in terms of participants' output restrictions, as in the recall-own phase participants could only present a total of 16 ideas with a fixed total of 4 for each category. In Experiment 8, following two sessions of G-E recall and plagiarism was increased, with the number of ideas reported in this condition constituting 45% of the total number of recalled ideas (as opposed to 25% absolute correct recall and no plagiarism). This in turn suppressed the baseline and potential for other plagiarism, relative to Experiment 7, where the ideas that were I-E twice (correct and plagiarised) accounted for a lesser proportion of the total ideas (30%). But overall, importantly, a repeated measures ANOVA that was conducted across the two experiments (Experiment 7 and Experiment 8) indicated that there was no significant interaction for the number of correct ideas that were recalled in either study, across the different conditions ($F(3,162)=1.70$, $p=.17$). Therefore, in this between subjects analysis there was no ultimate difference in the activation strength of I-E and G-E ideas. This interpretation was supported by the plagiarism observed in the Generate-New phase; although elaboration did not significantly reduce plagiarism relative to control, there were no further differences between the intrusion level observed over the four conditions between the two experiments $F(3,162)=2.19$, $p=.09$).

Hence, these analyses both directly (correct recall) and indirectly (generate-new plagiarism) support the idea that I-E and G-E result in memories of equivalent strength and familiarity. However, crucially, in the two studies (7 & 8), there was a significant interaction between elaboration type and times for the ideas plagiarised in the recall-own phase $F(3,162)=16.30$, $p<.001$. Participants only claimed another participants' idea as their own after they had performed the G-E and improved someone else's idea (As in Experiments 4 and 5). Due to the lack of unconscious plagiarism following I-E of any kind explanations for these findings that are made in terms of activation strength (see Marsh & Bower, 1993) or idea familiarity (see Jacoby et al. 1989) are not possible.

These data suggest that while processing fluency that results from raised idea familiarity can account for how imagined events are believed to be real (Garry et al. 1996: Loftus & Bernstein, 2005; Sharman et al. 2004) or previously performed (Goff & Roediger, 1998; Thomas & Loftus, 2002; Thomas et al. 2003) it cannot account for how others' ideas are believed to be one's own. However, there are fundamental differences between the two domains that may account for why processing fluency may have differential affects on these source memory errors. The source monitoring framework can explain this pattern. In the imagination inflation literature, details of imagining events and real events are both perceptual in nature so may be confusable. Conversely, the presence of rich imagery perceptual information could be used to prevent confusion and reach the reverse conclusion in an unconscious plagiarism paradigm, as one's own generated ideas would not be highly perceptual (unless imagery to a large extent is involved in generation). This explanation reflects the pattern of data that we have observed in this experimental programme so far. While increasing the familiarity of the I-E ideas by increasing the imagery detail (Experiment 6) or increasing the number of times elaboration was performed (Experiment 8) did not increase the number of plagiarised intrusions, increasing the number of times G-E was performed did increase the prevalence of such intrusions to startling degree.

Consistently in this research programme we have only observed an increase in recall-own plagiarism following idea improvement through G-E. In contrast to the aforementioned I-E, the memory characteristics obtained thorough the process of G-E would more closely resemble and be comparable to those obtained throughout the process of initial idea generation. Hence at recall, this generation information (cognitive operations) may mislead participants and result in source confusion. Repeating this G-E for a second time would have increased idea familiarity but also enriched these generative cognitive operations associated with others' ideas. In turn, this increase in cognitive operation twinned with the heightened familiarity would strengthen this powerful effect whereby participants confuse other's ideas as their own. These cognitive operations may additionally hold some personal relevance to the participant and may serve to intensify this effect. For example, if a participant was improving another person's idea to 'use a paperclip to decorate a picture frame' an improvement could be to bend the paperclips into flower shapes. At subsequent recall if the participant remembers the picture frame with the associated flowers that they specifically designed, they may incorrectly believe that the idea was initially their own.

Therefore, it the nature of processing that participants engage in that has a critical impact on later source memory ability, rather than the repetition (or strength) of that processing per se. However, repeating processing that detrimentally affects one's propensity to source monitor can further inhibit ones source memory performance to a profound degree. When people devise something novel (i.e. ideas, songs, stories etc) from an initial starting point provided by someone else they undoubtedly devote a great deal of time and cognitive effort in re-working and improving their idea. It is also possible, that the twins, who plagiarised their sibling's memories, (Ikier et al. 2003; Küntay et al. 2004; Sheen et al. 2001) repeatedly thought about or vocalised the event during their lives. Thus, real-world creative artists or writers (or scientists) may be engaged in a prolonged version of the generative-elaboration condition used here.

Experiment 6 and Experiment 8 resulted in extremely high levels of plagiarism in a recall task. We previously found in Experiment 5 that when a manipulation was incorporated into the design that encouraged participants to use a stricter decision criteria to monitor their responses, although, the pattern of findings was preserved the ultimate levels of plagiarism were reduced. It has previously been suggested that plagiarism occurs in these generative paradigms as participants are exclusively focused on completing the task goal and hence fail to consider original idea origins (Marsh et al. 1997). In light of the high levels of plagiarism obtained in this research programme so far, it would be interesting to explore the effects of idea elaboration when a source monitoring is the primary task objective. To do this, a source monitoring test will be implemented during the testing phases in place of the recall-own and generate-new tasks that have been used so far.

Chapter 5 – Applying Elaboration to Source Monitoring

5.1. Introduction

Within this research programme consistently very high levels of plagiarism have been obtained. Specifically, levels as high as 41% were observed in the recall-own phase, following one session of participant idea improvement (G-E -Experiment 4) which rose to higher levels of 70% when this process was repeated (Experiment 7). However, following any degree of I-E, the rates obtained did not significantly differ from baseline (I-E - Experiment 4 and 8). In contrast, both types of elaboration affected the levels of plagiarism in the generate-new task to the same degree, but instead of increasing the observed intrusions here the elaboration manipulations served to reduce (Experiment 4), or not affect these levels relative to baseline (Experiment 7 and 8). This dissociation across the two tasks (with respect to G-E) is believed to be a function of the different decision processes that participants need to employ to successfully complete each task (see chapter 3, Macrae et al. 1999; Landau & Marsh, 1997)

In the generate-new task participants need to make a decision that is similar to an old/new item recognition judgement (Marsh & Bower, 1993), in so far as they needed to remember whether an item was previously given in the initial generation phase to prevent themselves from presenting the idea as new. Consequently, manipulations that increase item strength/familiarity (such as idea elaboration see chapter 3) not only increase level of correct recall but also accordingly increase the ability to avoid intrusions of such ideas as new (Macrae et al. 1999; Landau & Marsh,1997). As previously stated, participant performance in this task could conceivably be guided by idea familiarity. For example, if an idea came to mind accompanied by a feeling of familiarity, this feeling may be attributed (either correctly or incorrectly) to the ideas presence in the generation phase (old idea) and so prevent the idea from being presented as new. On the other hand, in the recall-own phase, idea familiarity alone is not a sufficient heuristic to guide successful performance as the participants' objective in this task is to remember their initial ideas without recalling anyone else's. While familiarity here may drive a judgement that the idea was given in the generation phase (old idea) it would not provide origin information. Therefore, here an additional judgement based on source is required to determine whether the idea was initially presented by themselves or another participant. Hence, to do this a decision more similar to a source recognition judgement is required (Johnson et al. 1993; Marsh & Bower, 1993).

The source monitoring framework (Johnson et al. 1993) suggests that when 'information' is experienced (i.e. generated/heard) memory characteristic features (that include source information) may be bound to the memories. These features (such as sensory/perceptual detail, affective detail, spatiotemporal detail, semantic detail or records of cognitive operations) and the associated memorial representations may differ as a result of the different encoding processes that led to the memory. For example, perceived information (originating externally) may be perceptually rich as a result of actually seeing the information first hand, whereas dreamt information (originating internally) may be more cognitively rich as a result of the processes engaged throughout the dream construction. Thus, the quality and quantity of these varied characteristics may be used by an individual to infer the original source of their memories (Johnson et al. 1993).

There are two types of decision processes that may be employed by individuals to address and evaluate their memories and assign source (see Johnson et al. 1993). First are heuristic processes that inspect the 'amount' of qualitative aspects of activated information (cognitive operations, perceptual detail) rapidly and without deliberation (Johnson & Raye, 2000). If the activated information from the memory being evaluated has qualities that may be expected to be from a certain source, then the information may be attributed to that source. For example, if a memory contains rich perceptual information the person may conclude that the 'event' was seen. However, these decisions are not comprehensive and can be made without conscious knowledge of the process (Chaiken et al. 1989). As a result, errors may arise when there is reduced variability over memories from different sources and the distributions of the given features may overlap. This may occur for dreams that appear more vivid or plausible than other waking events (Johnson et al. 1993). Moreover, this type of process may have ensued in our studies, as a result of the improvement process serving to enhance the cognitive operations associated with 'others' ideas. This may impact the extent in which these ideas resemble and are subsequently confused with their own genuine ideas (see chapter 3).

The second decision process is a more systematic process that is slower and more deliberate than the heuristic processes. Systematic processes are more thorough and believed to carefully scrutinise the available information (Johnson & Hirst, 1993). While performing these judgements participants may retrieve additional information (e.g. temporal or situational) or engage in more extended reasoning judgements that may help to question the veracity of their source and accordingly be used to discredit the information; i.e. although a dream may be vivid and appear real a person on reflection may reason that it could not have been real. Or in the aforementioned studies, an idea that may have felt like one's own may be revealed after careful scrutiny as someone else's, perhaps as a result of an associated memory of the generating participant's expression when they initially presented the idea. Performing these more accurate systematic processes is more likely to give rise to a sense of effort (Hasher & Zacks, 1993) or control (Chaiken et al.1989; Posner & Snyder, 1975; Shallice, 1988) than the more heuristic processes. However, typically, these process tend to be engaged in less often (Johnson et al. 1993)

Heuristic and systematic processes can be utilised to guide and monitor one another, but the extent to which each may be utilised is contingent upon the demands of the task and the person's goals (Marsh & Hicks, 1998; Marsh et al. 1997). One will tend to engage in relatively automatic heuristic processes for everyday remembering, but engage in more systematic source monitoring processes only where the cost of making a mistake is high (Dodson & Johnson, 1993) or source ascription is a primary objective (Johnson et al. 1993). Source monitoring is a primary objective in modified recognition tasks. Source monitoring tests in general are conducted in two parts. In the initial task information is provided by different sources (i.e. participant or computer). This is followed by the modified recognition test where all the previously generated information is re-presented, together with new information. Participants are instructed to indicate in which of the sources (i.e. computer, themselves or new) the information initially originated from (see Johnson et al. 1993 for a review). Hence, such tests directly measure source memory when participants' full attention is assigned to completing this task goal. As such, in these modified recognition tests systematic decision processes are more consciously and more exclusively utilised (Marsh et al. 1997).

The nature of the criterion used during a source monitoring test also has important ramifications for subsequent participant source memory performance. Research has demonstrated that increasing the number of possible source options (e.g. self, other, new) given on a source monitoring test from 2-options to 3 (Lindsay & Johnson, 1989) or 4-options (Dodson & Johnson, 1993) significantly improves source monitoring and reduces the number of errors emitted. This increased accuracy follows for older adults in source tests, when the number of potential options increases (Jacoby et al. 1989) and for eyewitnesses who are forced to consider all possible perpetrator alternatives (Lindsay & Johnson, 1989). Therefore, encouraging participant consideration of all sources during a comprehensive source monitoring test appears to improve accuracy by changing the cognitive processing strategies used to make source attributions. Specifically, strict source monitoring tasks, with 3 or more choice options appears to induce more stringent systematic decision criteria.

In contrast, in the plagiarism studies (e.g. Brown & Murphy, 1989) source memory in the recall-own and generate-new tasks is investigated more indirectly. In the generate-new task, while participants primarily need to generate-new ideas only a cursory old/new source judgement is needed to prevent an old idea's reproduction. In the recall-own task, while participants primarily need to recall their own idea, a larger source component is required to prevent another's idea being recalled as their own. However, fundamentally, in neither of these tasks is source monitoring (that requires systematic decision processes) the foremost goal. Jacoby et al. (1989) suggested that when task demands place secondary rather than primary emphasis on source, people may not spontaneously recollect source but either largely ignore or neglect it altogether and hence may fail to use available information that may have helped error prevention. Moreover, Johnson et al. (1993) previously accounted for unconsciously plagiarised errors within these laboratory tasks (during both phases) as a consequence of participants being exclusively engaged in the cognitively taxing recall-own/generate-new phase such that they neglect the source (see also Marsh et al. 1997) or simply do not adequately monitor the source of each piece of information (e.g. Allen & Jacoby, 1990; Jacoby & Kelley, 1987).

Therefore, it is possible that during plagiarism studies if participants make source decisions they may tend to engage in more heuristic source judgements (that are more open to error) rather than the more thorough extended processing that is evoked in source monitoring tests. Hence, the plagiarism errors obtained within this research programme may have possibly been reduced (or eliminated) by participants more exclusively engaging in systematic processes. This is a point we will return to later. If this is the case, then the increase in plagiarism observed so far in this research programme may be a consequence of participants not monitoring their information sources to a sufficient degree. To address a similar question, Marsh et al. (1997) assessed the degree that systematic source-monitoring processes were spontaneously evoked when memory for source was required in service of another task. They postulated that if unconscious plagiarism (in the generate-new task) arose as a direct result of insufficient source monitoring decision criteria during test then equally heuristic or systematic processing may be responsible for the errors. Their studies specifically focused on manipulating conscious systematic criteria to investigate the involvement of systematic decision processes on unconsciously plagiarised errors[9]. Hence, they investigated whether plagiarism would prevail if a 3 option source monitoring test replaced the conventional generate-new task.

Previous unconscious plagiarism studies have investigated source memory by means of a modified recognition test (that encouraged careful source monitoring) and results have generally demonstrated lower rates of plagiarism (e.g. Brown & Halliday, 1981; Marsh & Bower, 1993). However, findings from these studies are difficult to extrapolate for two reasons. First, these studies have not been conducted using creative stimuli (see chapter 1) but second and more importantly they have been confounded by the modified recognition test being completed after the recall-own and generate-new tasks (e.g. Brown & Halliday, 1981; Marsh & Bower, 1993). This is problematic for task

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[9] Marsh et al (1997) initially implicitly equated conscious processing with the systematic processing and unconscious processing with heuristic processing (see also Johnson et al 1993).

interpretations due to the interference between these two tasks (Lindsay 1990). However, both issues were alleviated by Marsh et al. (1997) who conducted a variation on Brown and Murphy's initial 3-stage paradigm. During generation participants were required to complete a creative brainstorming task (i.e. by generating ways to improve their university). Then, at test, participants either generated new ideas (generate-new task) or completed a modified source recognition test where they were encouraged to monitor their sources more carefully. The findings demonstrated that despite an equivalent correct performance in both conditions, interestingly, more unconscious plagiarism was observed in the generation group (21%) than the source group (.8%). Moreover, this accurate source memory prevailed over a one week delay. Participants here were 20 times more likely to claim another's idea as a new idea when they were generating and completing a secondary source task than when they were primarily focused on the idea's source in a modified recognition task. Thus, participants accurate performance in the source monitoring test indicated that ideas were not 'plagiarised' on the basis that they had been forgotten or that source had been forgotten but rather, because during the generate-new task they failed to engage in systematic decision processes detailed by the source monitoring framework (Marsh et al. 1997). This may conceivably happen in real world cases, where individuals are engaged in creative pursuits (e.g. writing a story, a song, an article). As a result of cognitive effort that they are investing to complete their goal and the pressures to which they may face, source monitoring may not be exhibited at an appropriate level to avoid such intrusions. Therefore, when addressing the question of which task is appropriate as a 'model' for real world plagiarism the answer is arguably both.

Together the above results indicate that differences in source monitoring may depend on the contextual demands of the task and also on the methods of assessment that are utilised (Marsh & Hicks, 1999; Marsh et al. 1997). Moreover, these findings suggest that although people in source monitoring tests are engaged in conscious systematic recollective processes, in generation tasks and potentially in the real world decision criteria may be very different as people may not spontaneously monitor source to a sufficient degree. Marsh et al. (1997) further reasoned that if consciously controlled systematic criteria were not sufficiently engaged when completing the generate-new task then unconscious plagiarism should be amenable to manipulations that served to increase this control. They first, investigated this possibility by focusing participants on the source and leading them to believe that their responses would be carefully scrutinised at test. Second, they implicitly encouraged control at test by individually and stringently testing participants during the generate-new test (relative to a more anonymous group testing). Participant plagiarism here was reduced in both studies, indicating that although effective systematic source monitoring was not induced spontaneously (in the generate-new task) it could be encouraged (and performance improved) explicitly by task instruction. Task instruction (by mean of a financial reward for effective source monitoring) also reduced plagiarism in Experiment 5. Moreover, Marsh et al. (1997) found that when participants were tested individually and received additional instructions to avoid errors, plagiarism was reduced to a very low level that mimicked 'modified recognition test' performance. Hence, it appeared that utilising 2 measures that encouraged stricter source monitoring (one on one interaction, along with strict task instructions) changed participants' decision criteria and caused them to apply more controlled systematic decision criteria to avoid unconsciously plagiarised errors.

The importance of control in successful source monitoring has also been demonstrated within the conceptually related conformity literature. This data has shown that when participants are required to design novel space creatures they tend to conform to ('plagiarise') features inherent in the examples that they were previously shown. Manipulations that have served to encourage controlled (systematic) decision processing include participant warnings that their examples would be analysed by a plagiarism expert (Landau, Thomas, Thelen & Chang, 2002; see also Marsh, Ward & Landau, 1999) and instructions to change their strategy in completing the task (e.g. by incorporating a designated shape into their space creatures Landau & Leynes, 2004) have resulted in attenuated participant conformity. Landau et al. (2002) suggested that when participants' ultimate goal is creativity, they may 'bypass many of the prototypical features and rely on activated features (or heuristic processes) unless there is some compelling reason to avoid them' (Landau, et al, 2002 p196) (i.e. via instruction or task goal). Cumulatively, these studies demonstrate that more systematic, conscious decision processes can be either invoked spontaneously when the situation demands them by a source monitoring test (Marsh et al. 1997) or invoked explicitly by a task warning instruction (Landau et al, 2002; Marsh et al. 1997; Marsh et al. 1999).

Marsh et al. (1997) were also interested in the subsequent effects on plagiarised intrusions when participants' available conscious control was reduced. To do this, a strict time pressure was imposed on participants during test. This manipulation intended to reflect a more real world environment (speeded condition) that creative individuals in a deadline oriented industry may face. In this scenario plagiarism was increased. Therefore, it appeared that source monitoring (to a certain degree) was spontaneously induced in the generate-new task and moreover, monitoring did in part depend on the conscious processing that this speeded manipulation presumably reduced. If no conscious processing was utilised in this phase (spontaneously) then no increase in plagiarism should have been observed relative to control. Consequently, source monitoring in a generate-new task must either involve a conscious and systematic decision component or the heuristic processes must incorporate a conscious element (Marsh et al. 1997). Nevertheless, their study demonstrated fundamentally that when participants were engaged in a secondary source monitoring task they did not spontaneously source monitor to an *appropriate* degree.

In sum, the number of attribution errors on a generate-new task has been demonstrated to vary as a direct function of the degree to which participants were required to consider origin of new ideas, the amount of conscious processing available to generate-new ideas and how stringently decision criteria were emphasised by the experimenter and amplified by the participant. However, in contrast, performance on a source monitoring test was very good and unaffected by these measures (see Marsh et al. 1997). Hence, certain manipulations may have consequences for one task but not another (Marsh et al. 1997).

The dissociation between the recall-own task and generate-new task were highlighted at the beginning of this chapter. When compared to the generate-new task, the recall-own task relies more heavily on source information and so is likely to accordingly involve a greater degree of conscious processing. In Chapter 3, we discussed studies that have demonstrated impaired source monitoring ability and reliable increases in recall-own plagiarism, where participants attribute someone else's idea to themselves. These include Macrae et al. (1999 through cognitive distraction at encoding and testing), Landau and Marsh (1997 through perceptual similarity see chapter 3) and our previous findings within this research programme. We have found that additional processing (by idea improvement) implemented between encoding and testing can result in levels of recall-own plagiarism at a rate of approximately 40%. Moreover, increasing the prevalence of this processing inflated these errors to an extent where subjects were just as likely to recall a correct idea as they were a plagiarised idea. However, to date, none of these manipulations that affect incorrect ownership self-attribution have been investigated using a more stringent source monitoring task as a primary task at testing. Hence, this chapter intends to explore whether people plagiarise in a source monitoring task following idea elaboration. This is a key point that has not been previously discussed. In none of the studies above was source monitoring conducted following elaboration. Prior research has shown that following a single encounter, source monitoring is possible but it is not clear whether source monitoring is possible after multiple, different encounters.

In this chapter modified source monitoring tests will be implemented that are not confounded with prior recall/generation. Previously, Experiment 5 (Chapter 3) indicated that when stricter source monitoring was encouraged via a financial incentive, significant levels of recall-own plagiarism prevailed in a direction consistent with our prior findings but that the absolute levels were reduced. Using our paradigm with a source monitoring test at retrieval, we were interested in two issues:

1) The overall level of unconscious plagiarism (compared to prior recall studies)

2) The differential effect of G-E verses I-E.

Essentially, were participants plagiarising in the prior recall-own tasks as a result of failings to evaluate whether the accessible information was relevant or applicable to the given task (as past research would suggest e.g. Landau et al. 1997) or were they plagiarising as they were unable to effectively evaluate their source information.

5.2 Experiment 9

5.2.1 Introduction

A consistent finding throughout this research programme was that improving someone else's idea through generative-elaboration resulted in participants believing that those ideas were originally their own. Following imagery-elaboration, this was not the case as elevated levels of recall-own plagiarism were not observed. The intention of Experiment 9 was to ascertain whether this pattern of participant intrusion would prevail when participants were given a stringent source monitoring task at test that first and foremost assessed their source memory ability.

This study constituted an exact replication of Experiment 4 until the final test phase. The generation phase was identical, and the four item elaboration conditions were investigated; G-E, I-E, repetition and control. The only difference here was that during test, the conventional recall-own and generate-new phases were substituted with a 64 item source monitoring test. Included on this test were a selection of a participant's own ideas, other participant ideas and new ideas to which they had not been previously exposed. Participants were required to read the ideas and indicate where the ideas initially originated (i.e. mine, other & new idea). All the 'other' participants' ideas were included on this test. This removed the problem associated with experimenter selected items in terms of the potential ideas chosen by the experimenter not representing those that may have been plagiarised by the participant when given the free choice (see Marsh & Bower 1993 p687). Hence, only presenting some of the other participants ideas may have led to a type 2 error.

Only half the participants own ideas were featured on the source monitoring test. Therefore, participants could not recognise all their own ideas (as they were not presented) so the number they attributed to themselves could not be used as a heuristic to guide performance. For example, if they had seen all their four prior uses for a brick they would know by process of elimination the remaining ideas were not their own. Consequently, providing a sub-set of a participant's own responses was deemed desirable. Finally, the remaining ideas were new ideas and the number of these was matched to the number of participants own ideas that were included.

On this test, we anticipated an overall high level of performance. This prediction was made on the basis of 1) our prior recall-own findings where level of recall was high and 2) the trends observed in the literature where correct identification across the different class of items has been between approximately 82-90% (see Marsh et al.1997). In a similar vein, we expect to observe the well documented 'it had to be you' effect as detailed by Hoffman (1997). This effect has been reliably observed in modified recognition tests and ensues when false alarm identifications are made, by attributing an idea to which the source is unclear to another person rather than oneself (i.e. new idea scored as an other person's idea) (see also Johnson et al. 1981; Marsh & Bower, 1993; Marsh & Landau, 1995; Marsh et al. 1997). This effect can be conceived as a result of the greater memorial strength (Hoffman, 1997) or greater memorial information (Bink et al. 1999) that is associated with self-generated information. As this information would not follow for ideas originating elsewhere, the ideas may be dismissed as their own and attributed to others.

It is anticipated that performing either type of elaboration, relative to control will prevent participants from wrongly identifying another participant's idea as a new idea. This runs parallel with the findings from the generate-new plagiarism in the previous studies (see Experiment 4). However, the critical finding here will regard those others' ideas that are incorrectly claimed as the participants' own ideas. Administering a source monitoring test as a primary goal should encourage participants to utilise more controlled extended reasoning processes than in the more conventional recall-own and generate-new tasks (Marsh et al. 1997). Given predictions from earlier work only G-E should produce feature overlap with own ideas while I-E should not. This study intends to determine whether these extended reasoning source monitoring processes will be sufficient to reduce the plagiarism levels previously observed following G-E in the recall-own phase. This would follow if in the previous studies participants were not engaging in sufficient source monitoring. An alternative possibility is that these errors would still ensue when extended reasoning processes were employed because these processes cannot prevent the G-E intrusions. This may follow if the memory characteristics of the G-E ideas contain similar cognitive operations to the self-generated ideas as a result of the improvement process. So at recall although the stringent decision processes are utilised they may not permit accurate source attributions to be made

Therefore here, in a strict SM task we were interested in whether the dissociation affect between G-E and I-E that we have consistently observed throughout this research programme remains. In essence, are participants plagiarising in the recall-own phase as a result of not effectively source monitoring or because they are unable to effectively source monitor?

5.2.2 Method

5.2.2.1 Participants

Forty undergraduate students participated in the generation phase. However, 5 participants failed to attend the second testing session and so only 35 participants completed the experiment. Participants were undergraduates from the University of Plymouth and received partial fulfilment of a course requirement for their participation in this study.

5.2.2.2 Design and Procedure

Methodology in the generation phase and elaboration phase was identical to Experiment 4. Hence, a within–subjects design was implemented that explored participant idea elaboration (control, re-presentation, imagery-elaboration, generative elaboration).

In the *generation phase* there were 4 object names in total to which each participant generated 4 novel uses. Immediately after, participants were required to complete the *elaboration phase*, where one quarter of the ideas (one idea from each participant per object) were subject to each of the following elaboration conditions;

1) Generative-elaboration (G-E) where 3 idea improvements were given.

2) Imagery-elaboration (I-E) where ideas were rated on 2 five point rating scales in terms of how easy they were to imagine (*1 = difficult to imagine, 5 = easy to imagine*) and how effective the ideas would be (*1 = not effective, 5 = very effective*))

3) Re-presentation where ideas were heard for a second time but not elaborated.

4) Control where ideas were not presented at this stage.

The order that participants performed these tasks was fully counterbalanced across the groups. The experimenter read these ideas aloud in a pre-determined random-order, instructing the participants to elaborate, rate or listen to the idea, as appropriate. This task completed the first session, which lasted approximately 40 minutes.

One week later, participants returned to complete the 64 item *source monitoring test* in their initial groups of 4. Each participant received a uniquely tailored booklet that contained previously generated ideas and new ideas. Each test contained all of the *other* participants' (48) initial ideas from the generation phase (others ideas). It also contained half of the participants own ideas that they produced in the initial generation phase (own ideas). Eight of these ideas were included, with an equal number of ideas from each elaboration status and each object. Only 8 (rather than 16) of these ideas were displayed to increase the response difficulty. The remaining 8 ideas were new ideas that had previously not been given in the generation phase (New ideas). All of these ideas were randomised but the positions that each type of idea appeared was pre-determined and remained constant for each participant (i.e. own ideas appeared in positions 1, 6, 14 etc). Participants were required to read each idea and indicate the original source by circling the corresponding letter (I.e. 'M' for my original idea, 'O' for originally one of the other participants idea and 'N' for a new idea). This phase completed the study and lasted approximately 15 minutes.

5.2.3 Results and Discussion

5.2.3.1 Recognition

5.2.3.1.1 Correct recognition

Following the one week retention interval, participants' exhibited an overall mean recognition accuracy of 79.5% (own, other's and new). Specifically, with an accuracy of 77.1% for identifying ideas that were previously their own, 77.6% for identifying other participants' ideas and 92.9% for identifying a new idea.

The source monitoring test results regarding the 4 four types of elaboration status are shown below in Table 5.2.3.1. The results depict the percentage[10] identification of item origins in terms of those correctly reported (i.e. correctly identified another participants idea as an 'other' idea) or those where the sources were confused (i.e. reporting another participants idea as a 'new' idea or as their 'own' idea).

Overall, identification performance for recognising participant's own and other participants' ideas (own and other) was 62.2% for control ideas. This accuracy was improved following a representation of the ideas to 73.9% and further improved following ideas elaboration, to 88.9% for I-E ideas and 85.3% for G-E idea.

My ideas: Numerically it appeared that elaborating own ideas improved subsequent source memory of those ideas relative to the baselines however a within subjects ANOVA revealed that this recognition benefit was not significant $F(3,102) = 1.58$, $p=.20$. Hence, recognition of participants own ideas were good and elaboration did not enhance their recognition ability.

Others idea: A within subjects ANOVA revealed a significant main effect of elaboration status on correct source recognition of these ideas $F(3,102) = 43.95$, $p<.001$. Multiple pairwise comparisons were conducted with a Sidak-adjusted alpha level of .05. These revealed that experiencing additional exposure to the ideas through re-presentation or elaboration provided a recognition advantage (74.0% SD=1.9 relative to control ideas, 60.7% SD=2.2). Moreover, elaborating the ideas by either I-E (90.5%, SD=1.2) or G-E (85.2%, SD=1.7) improved source recognition relative to those ideas that were simply re-presented (74.0%, SD=1.9), but there was no difference between either type of elaboration. Consequently, it appeared that imagery and generative-elaboration produced memories of equivalent strength.

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[10] Mean values have not been reported here due to the differential numbers of items included within each category class.

5.2.3.2 Source memory errors

5.2.3.2.1 *Unconsciously Plagiarised errors*

The interesting difference here was the proportion of others' ideas that were in correctly claimed to be ones own and hence plagiarised. This occurred when another participants idea was incorrectly labelled 'my idea' in the source monitoring task. In this study, 80% of the participants exhibited at least 1 unconsciously plagiarised error, and over all conditions 5% of other participant ideas were plagiarised. A within-subjects ANOVA revealed that in a source monitoring task the elaboration manipulation reliably affected the observable levels of plagiarism $F(3,102) = 6.38$, $p<.001$. Multiple pairwise comparisons revealed that the generative-elaborated ideas were plagiarised more than any of the other ideas (8.8%, SD= 1.3). Imagery-elaborated ideas (3.3%, SD= .7) were not plagiarised any more that re-presented ideas (3.1%, SD=0.7 or control ideas (2.9% SD=.6). The remaining means did not differ. Consequently, performing generative-elaboration significantly increased the likelihood that the participant would subsequently believe other people's ideas were originally their own, in line with previous research.

5.2.3.2.2 *Other's idea errors*

There was a small proportion old ideas that were not recognised as ideas from the generation phase but incorrectly labelled as new ideas (18% misses). A within subjects ANOVA revealed that elaboration status significantly affected the rate of these errors $F(3,102)= 60.07$, p<001. While the highest rate was seen with the control ideas (mean 4.4, SD =2.2), Sidak adjustments (as before) indicated that re-presentation of the ideas reduced these errors from occurring (22.9% SD=2.0) and performing elaboration further reduced the likelihood of these errors. However, as with correct source recognition, there was no difference between imagery-elaborated ideas (6.2%, SD=1.0) and generatively-elaborated ideas (5.7%, SD=.9). The remaining means did not differ. Hence, this finding further supports the idea that imagery and generative-elaboration produced memories of equivalent strength.

5.2.3.2.3 *'My idea errors'*

There was no significant main effect of elaboration on participants' own ideas that were incorrectly reported as someone else's idea $F(3,102)=.757$, $p=.53$ or a main effect of those ideas being reported as a new $F(3,102)=1.00$, $p=.40$. This indicated that elaborating ideas did not affect error rate relative to baseline.

5.2.3.2.4 *False positives ('it had to be you' Vs 'it had to be me')*

When participants incorrectly missed a new idea, there were more errors in which a new idea was attributed to another group member (7.1%, SD= .17) than oneself (0.4% SD=.17) $t(34) = 3.93$, $p<.001$. This finding is in accordance with Hoffman's (1993) 'it had to be you effect' (Johnson & Raye, 1981; Marsh & Bower, 1993; Marsh & Landau, 1995). This effect explains paradoxically why the most shallowly encoded items may have some discriminative source advantage at test as such ideas may be recognised on the basis of familiarity rather than recollection. When a participant felt an idea was familiar (a false positive) they displayed a greater willingness to attribute it to an external source than to themselves, as they would have been conceivably more likely to remember the idea if it was originally their own (due to the memory characteristics involved in such an ideas' generation).

	Item origin					
	New idea		Other's idea		My idea	
Response	%	SD	%	SD	%	SD
Control Ideas						
'New idea'	92.9	0.9	36.4	2.2	10.0	0.5
'Other's idea"	7.1	0.8	60.7	2.2	18.6	0.5
'My idea'	0.4	0.2	2.9	0.6	71.4	0.7
Re-presented ideas						
'New idea'			22.9	2.0	11.4	0.3
'Other's idea'			74.0	1.9	15.7	0.6
'My idea'			3.1	0.7	72.9	0.7
Imagery- Elaborated Ideas						
'New idea'			6.2	1.0	7.1	0.4
'Other's idea'			90.5	1.2	14.3	0.5
'My idea'			3.3	0.7	78.6	0.6
Generatively-Elaborated Ideas						
'New idea'			5.7	0.9	4.4	0.3
'Other's idea			85.2	1.7	10.0	0.4
'My idea'			8.8	1.3	85.7	0.5

Table 5.2.3.1: Experiment 9: Percentage of correct identifications and source confusions in source memory for control ideas.

Consequently, elaboration (of both types) improves recognition performance for 'others' and 'own' ideas. The only differential rate of elaboration status (G-E and I-E), was on rates of unconscious plagiarism; with only G-E increasing the observable intrusion rate. This finding supports our prior finding that generative-elaboration, resulted in participants significantly plagiarising others ideas not only in a recall test (Exp 4, 5 & 6), but also in a source monitoring test when participants' primary goal was to consult their memory sources. Therefore, it appears that participants are engaging in source monitoring at an appropriate level but, that they are unable to effectively monitor the information sources following idea improvement.

5.3 Experiment 10

5.3.1 Introduction

Participants were more likely to incorrectly believe that someone else's idea was originally their own after they had improved that idea themselves than after they had simply imagined the idea. Experiment 9 demonstrated that this finding prevailed when participants were primarily focused on judging the ideas original origin as a primary task. Hence, we observed plagiarism in a source monitoring test and at a high rate of approximately 9%. This rate not only exceeds the 0.8% obtained by Marsh et al. (1997) in a source monitoring task but also rates of 7% in recall-own tests that have been employed (Brown & Murphy, 1989). Thus, even when participants were engaged in a task that induced stringent systematic decision processes, plagiarism ensued. Therefore, it appears that the intrusions are a result of inefficient monitoring not failure of such applications. However the rates are nonetheless lower than those seen in the previous recall-own tasks (38-41%)

The next step was to replicate and further investigate the potential magnitude of this effect. In Chapter 4, when repeated G-E was investigated extraordinarily high rates of unconscious plagiarism were obtained. In this study, we were interested in whether this repeated manipulation that largely increased plagiarised errors in recall-own tasks would accordingly raise the frequency of such errors in a source monitoring task.

To this end, an exact replication of Experiment 8 was employed with a source monitoring test implemented at testing (constructed in the same way as in Experiment 9). Therefore, following initial idea generation, participants would either perform the G-E once or twice prior to test completion. In line with our previous findings, any G-E is anticipated to increase the self-intrusion rate relative to control but ultimately the highest rates of plagiarism are expected following two G-E sessions relative to only one.

5.3.2 Method

5.3.2.1 Participants

Forty undergraduate students participated in the generation phase. However, 7 participants failed to attend the second testing session and so only 33 participants completed the experiment. Participants were undergraduates from the University of Plymouth and received £10 for their participation in this study.

5.3.2.2 Design and Procedure

The methodology in the generation phase and elaboration phases was identical to Experiment 8. A within–subjects design was implemented that explored the day on which elaboration was performed (control, generative-elaboration on day 1, generative elaboration on day 3, generative- elaboration on day 1 & 3).

Hence, in this study, following the conventional generation phase, participants completed the generative-elaboration (provided 3 idea improvements) either once (immediately after generation or 3 days after generation), or twice (at generation then again 3 days after generation).

Then, 7 days after the initial generation phase participants returned to complete the source monitoring test. The source monitoring test was the same as in Experiment 9. Each participant received a uniquely tailored booklet that contained 64 ideas. This included 8 new ideas that had previously not been given in the generation phase (New ideas). The 48 *other* participants' initial ideas from the generation phase (others' ideas) and 8 of the participants own ideas that had been given in the generation phase (with an equal number of ideas from each elaboration status and each object). As in Experiment 9 all of these ideas were randomised but the positions that each type of idea appeared was pre-determined and remained constant for each participant. As before, participants were required to read each idea and indicate the original source by circling the corresponding letter (I.e. 'M' for my original idea, 'O' for originally one of the other participants idea and N for a new idea).

5.3.3 Results and Discussion

5.3.3.1 Recognition

5.3.3.1.1 Correct recognition

Following the one week retention interval, participants' exhibited an overall mean recognition accuracy of 79.6% (own, other's and new), with an accuracy of 75.4% for identifying ideas that were previously their own, 78.0% for identifying another participants and 94.0% for identifying a new idea. The source monitoring test results regarding elaboration condition are shown below in Table 5.3.3.1. The results are displayed as percentages of correct and incorrect source identifications of ideas true origins.

Overall, identification performance (for own and others) was weakest for control ideas (54.8%), and highest following repeated elaboration (88.7%). Elaborating the ideas once improved performance relative to control but whether the day of elaboration was either day 1 or 3 did not affect performance (84.8% and 82.0%) respectively.

My ideas: Numerically it appeared that elaborating own ideas improved subsequent source memory of those ideas relative to the baselines however a within subjects ANOVA revealed that this recognition benefit was not significant $F(3,96) = 2.42$, $p = .07$. Hence, recognition of participants own ideas were good and elaboration did not enhance their recognition ability.

Others idea: A within subjects ANOVA revealed a significant main effect of elaboration status on correct source recognition of these ideas $F(3,96) = 61.19$, $p < .001$. Multiple pairwise comparisons were conducted with a Sidak-adjusted alpha level of .05. These revealed that any elaboration (once or twice) improved recognition performance relative to the baseline (53.3% SD=2.0). Although, elaborating the ideas twice resulted in the highest recognition accuracy (89.9%, SD=1.2) this performance did not statistically exceed recognition obtained following one elaboration session on either day 1 (86.4% SD=1.3) or day 3 (82.3%, SD=1.5). The remaining means did not differ. Consequently, generatively-elaborating the ideas improved identification, but the day or times that this elaboration took place did not further impact the results.

5.3.3.2 *Source memory errors*

5.3.3.2.1 *Unconsciously Plagiarised errors*

The interesting difference here was the proportion of others' ideas that were plagiarised and incorrectly claimed to be ones own. In this study 85% of the participants exhibited at least 1 unconsciously plagiarised error and 79% made 2 or more errors. Overall 6% of the other participant ideas were plagiarised. A within subjects ANOVA revealed that in a source monitoring task, repeating the G-E reliably affected the observable levels of plagiarism $F(3,96) = 5.09$, $p<.05$. Multiple pairwise comparisons were conducted as before and revealed that ideas that were elaborated twice (9.1%, SD=1.1) were plagiarised more than control (3.0%, SD=.60). Ideas that were elaborated once, on day 1 (5.8%, SD=.81) or day 3 (6.1%, SD=.88) were plagiarised more than control numerically however, these differences did not reach statistical significance. The remaining differences were not significant. Consequently, repeating the generative-elaboration significantly increased the likelihood that the participant would subsequently believe that the ideas were originally their own, again mirroring the data in the recall-own task.

5.3.3.2.2 *Other's idea errors*

There was a small proportion of old ideas that were not recognised as ideas from the generation phase but that were incorrectly labelled as new ideas (16% false misses). A within subjects ANOVA revealed that elaboration times significantly affected the rate of these errors $F(3,96)= 119.06$, $p<001$. While the highest error rate was seen with the control ideas (43.7%, SD =2.0), Sidak adjustments (as before) indicated that elaborating these ideas once or twice reduced these errors. Day of elaboration was not important as there was no difference between those ideas that were elaborated on day 1 (7.8%, SD=1.1) or day 3 (11.6%, SD=1.5) but relatively, elaborating the ideas on both days led to a significant error reduction (1.0%, SD=.12, SD=.33).

5.3.3.2.3 *My idea errors*

There was no significant main effect of elaboration times on participants' own ideas that were incorrectly reported as someone else's' idea $F(3,96)=.75$, $p=.52$. However, there was a main effect of those ideas being reported as a new $F(3,96)=11.39$, $p<.001$. Multiple pairwise comparisons were conducted with a Sidak-adjusted alpha level of .05. These indicated that elaborating these ideas once (day 1; 1.5%, SD=.2 or day 3; 3.0%, SD=.2) or twice (1.5%, SD=.2) reduced the prevalence of these errors when compared to baseline (22.7%, SD=.6). There were no further differences.

5.3.3.2.4 *False positives*

When participants incorrectly called a new idea old, there were more errors in which a new idea was attributed to another group member (4.9% SD=.9) than oneself (1.1%, SD=.5) $t(33) = 3.40$, $p<.05$. This finding is in accordance with Hoffman's (1993) 'it had to be you effect' (Johnson & Raye, 1981; Marsh & Bower, 1993; Marsh & Landau, 1995).

	Item origin					
	New idea		Other's idea		My idea	
Response	**%**	**SE**	**%**	**SE**	**%**	**SE**
Control Ideas						
'New idea'	93.9	0.9	43.7	2.0	22.7	0.6
'Other's idea"	4.9	0.7	53.3	2.0	13.6	0.5
'My idea'	1.1	0.5	3.0	0.6	63.6	0.7
Ideas Elaborated once (day 1)						
'New idea'			7.8	1.1	1.5	0.2
'Other's idea'			86.4	1.3	22.7	0.6
'My idea'			5.8	0.8	75.8	0.6
Ideas Elaborated once (day 3)						
'New idea'			11.6	1.5	3.0	0.2
'Other's idea'			82.3	1.5	16.7	0.5
'My idea'			6.1	0.9	80.3	0.6
Ideas Elaborated twice (day 1 & 3)						
'New idea'			1.0	0.3	1.5	0.2
'Other's idea'			89.9	1.2	16.7	0.5
'My idea'			9.1	1.1	81.8	0.5

Table 5.3.3.1: Experiment 10: Percentage of correct identifications and source confusions in source memory for each of the conditions.

In this source monitoring study we essentially obtained the same general pattern as in the recall-own data in Experiment 8. Participants exhibited the highest levels of unconsciously plagiarised errors following the G-E. Relative to control, there was numerically more plagiarism observed following one session of G-E (on either day 1 or day 3) and significantly more plagiarism following two sessions of G-E. Therefore, as anticipated, in a source monitoring test the highest error rate was observed following two elaboration sessions. However, surprisingly, the magnitude of this plagiarism following these sessions was not inflated when compared to Experiment 9 where only one session of G-E was administered.

Possible explanations for this difference in plagiarism levels will be considered and thoroughly discussed in the general discussion. In the meantime, however it was deemed important to conduct a final study that investigated the effects of repeating the I-E (examined previously with recall-own and generate-new tasks). This was important for control purposes and as a means of obtaining a baseline measure of unconscious plagiarism in such a task.

5.4 Experiment 11

5.4.1 Introduction

This study was essentially conducted as a control for Experiment 10. Thus, Experiment 11 was identical except that here, participants performed I-E rather than G-E. I-E was conducted either once on either day 1 or day 3, or twice, on both days (1 and 3) proceeding test.

While Experiment 9 demonstrated that G-E significantly affected the number of plagiarised intrusions it also demonstrated that performing I-E on other peoples ideas did not detrimentally affect subsequent source monitoring performance. Rather, performing I-E by imagining and rating others idea, improved item identification relative to baseline but did not affect the prevalence of source memory errors. The same pattern was observed when intrusions were measured using recall tests and this followed for I-E that was conducted once or twice (in Experiment 7). Hence, in sum, imagery-elaborating ideas did not increase the likelihood that someone else's ideas would be claimed to be one's own. Therefore, repeating I-E is not anticipated to result in any increase in source monitoring errors here.

5.4.2 Method

5.4.2.1 Participants

Forty undergraduate students participated in the generation phase. However, 10 participants failed to attend the second testing session and so only 30 participants completed the experiment. Participants were undergraduates from the University of Plymouth and received partial fulfilment of a course requirement for their participation in this study.

5.4.2.2 Design and Procedure

This study was the same as Experiment 10 except imagery-elaboration (I-E) was performed instead of generative-elaboration (G-E) (see also Experiment 7 for stage 1 and 2). Thus, a within–subjects design was implemented that explored day of elaboration (control, imagery-elaboration on day 1, imagery-elaboration on day 3, imagery-elaboration on day 1 & 3).

In this study, following the conventional generation phase, participants completed the imagery-elaboration by rating the ideas on 2 Likert scales. The first, how easy the ideas was to imagine (1=difficult to imagine, 5= easy to imagine) and second, how effective they thought the ideas would be (1=not effective, 5= very effective). Participants completed this elaboration either once (immediately after generation or 3 days after generation), or twice (at generation then again 3 days after generation).

Then, 7 days after the initial generation phase participants returned to complete the source monitoring test. The source monitoring test was constructed and completed in the same as in Experiment 10.

5.4.3 Results and Discussion

Following the one week retention interval, participants' exhibited an overall mean source identification accuracy of 79.2% (own, others' and new ideas), with an accuracy of 71.0% for identifying ideas that were previously their own, 78.5% for identifying another participants and 91.5% for identifying a new idea. The source monitoring test results regarding elaboration times are shown below in Table 5.4.3.1. As before, the results are displayed as percentages of correct and incorrect source identifications of ideas true origins.

5.4.3.1 Recognition

5.4.3.1.1 Correct recognition

Overall, Identification performance (for own and others) was weakest for control ideas (84.6%) but better following elaboration once that was performed on day 1 (82.9%) or day 3 (81.8%) or twice; on day 1 and 3 (84.6%).

My ideas: A within subjects ANOVA revealed a significant main effect of elaboration times on correct recognition of own ideas $F(3,90)=6.63$, $p<.001$. Sidak adjustments for multiple pairwise comparisons revealed that while elaboration performed on day 1 (80.6%, SD=.7) and elaboration on day 1 and 3 (83.9%, SD=.5) improved identification relative to baseline (54.8%, SD=.8), elaboration conducted only on day 3 (64.5, SD=.6) did not.

Others idea: A within-subjects ANOVA was conduced and revealed a significant main effect of elaboration times on correct recognition $F(3,90)=62.67$, $p<.001$. Multiple pairwise comparisons revealed (as in Experiment 10) that any elaboration improved participant recognition of others ideas relative to control (53.8%, SD=2.4). This followed for ideas elaborated on day 1 (83.3%, SD=1.8), day 3 (84.7%, SD=1.5) or twice, on both days (92.2%, SD=.9). Moreover, elaborating twice improved recognition relative to elaborating once (on either day 1 or day 3). The remaining means did not differ.

5.4.3.2 *Source memory errors*

5.4.3.2.1 *Unconsciously Plagiarised errors*

Regarding the proportion of others' ideas that were incorrectly claimed to be ones own, in this study 61% of the participants exhibited at least 1 unconsciously plagiarised error and 32% made 2 or more errors. Across all conditions only 3% of other participant ideas were plagiarised. A within subjects ANOVA revealed that in a source monitoring task, repeating the I-E did not affect the observable levels of plagiarism $F(3,90) = 1.00$, $p=.40$. Consequently, as expected, performing I-E or repeating this I-E did not increase the likelihood that the participant would subsequently believe that others' ideas were originally their own.

5.4.3.2.2 *Others' ideas source errors*

There was a small proportion of old ideas that were not recognised from the generation phase, but incorrectly labelled as new (19%). A within subjects ANOVA revealed that elaboration times significantly affected the rate of these errors $F(3,90)= 72.58$, $p<.001$. The highest rate was seen with the control ideas (44.4%, SD =2.4), and Sidak adjustments (as before) indicated a significant reduction in these errors following elaboration. While elaborating the ideas twice (4.8%, SD=.8) resulted in fewer errors than elaborating once, there was no difference between initial day of elaboration (day 1, 13.2%, SD=1.5 or day 3, 12.1%, SD=1.3).

5.4.3.2.3 *My idea source errors*

There was no significant main effect of elaboration times on participants' ideas that were incorrectly reported as someone else's $F(3,90)=2.12$, $p=.10$ but there was a main effect of their ideas being incorrectly reported as new $F(3,90)=4.88$, $p=.05$. Elaborating the ideas twice resulted in no intrusions. Sidak adjustments revealed that although elaborating these ideas twice reduced intrusions relative to baseline (19.4%, SD=.7), elaborating the ideas only once, (on day 1, 6.5%, SD=.3 or day 3, 8.1%, SD=.5) did not.

5.4.3.2.4 *False positives*

When participants incorrectly clamed a new idea as old, there were more errors in which a new idea was attributed to another group member (7.7%, SD= .9) than oneself (1.2%, SD=.3) $t(31) = 3.23$, $p<.05$. This finding is in accordance with Hoffman's (1993) 'it had to be you effect' (Johnson & Raye, 1981; Marsh & Bower, 1993; Marsh & Landau, 1995).

	Item origin					
	New idea		Other's idea		My idea	
Response	**%**	**SE**	**%**	**SE**	**%**	**SE**
Control Ideas						
'New idea'	91.5	1.0	44.4	2.4	19.4	0.7
'Other's idea"	7.7	0.9	53.8	2.4	25.8	0.7
'My idea'	1.2	0.3	1.9	0.6	54.8	0.8
Ideas Elaborated once (day 1)						
'New idea'			13.2	1.5	6.5	0.3
'Other's idea'			83.3	1.8	12.9	0.5
'My idea'			3.5	0.8	80.6	0.7
Ideas Elaborated once (day 3)						
'New idea'			12.1	1.3	8.1	0.5
'Other's idea'			84.7	1.5	27.4	0.6
'My idea'			3.2	0.6	64.5	0.6
Ideas Elaborated twice (day 1 & 3)						
'New idea'			4.8	0.8	0.0	0
'Other's idea'			92.2	0.9	16.1	0.5
'My idea'			3.0	0.8	83.9	0.5

Table 5.4.3.1: Experiment 11: Percentage of correct identifications and source confusions in source memory for each condition.

As expected, performing I-E either once or twice did not affect the rates of later plagiarism as measured by a source monitoring test. While, control ideas were plagiarised 2% of the time, ideas that were I-E on day 1, day 3 or on both days were each plagiarised 3% of the time. There was no difference in ultimate plagiarism between the different levels of I-E. Consequently, these plagiarism figures that do not differ from chance support our previous findings that I-E does not affect levels of self appropriation.

5.4.4 Experiment 10 and 11 combined Analysis

The results from Experiment 10 and Experiments 11 were compared using a between (G-E vs. I-E) - within (control, elaborate day 1, elaborate day 3 or elaborate day 1 & 3) repeated measures ANOVA.

My ideas: There were no significant interactions between the participants own ideas that were correctly reported $F(3,186)= 1.64$, $p=.18$, incorrectly reported as either others' ideas $F(3,186)=2.48$, $p=.62$, or new ideas $F(3,186)=.84$, $p=.47$ in either experiment. Cumulatively, these findings indicated that the different types of elaboration were affecting the strength and thus participants' ability to correctly identify the source of ideas equivalently, over the different elaboration times.

Others ideas: For the mean number of other participants' ideas that were correctly identified as a new idea, or incorrectly identified as their own idea or a new idea. A repeated measures ANOVA revealed that there was no interaction between elaboration type (G-E or I-E) and elaboration times (once or twice) for others' ideas that were correctly recognised $F(3,186)=.70, p=.52$ (see figure 5.4.4.1) or that were incorrectly reported as new ideas $F(3,186)=.80$, $p=.50$ (see figure 5.4.4.2).

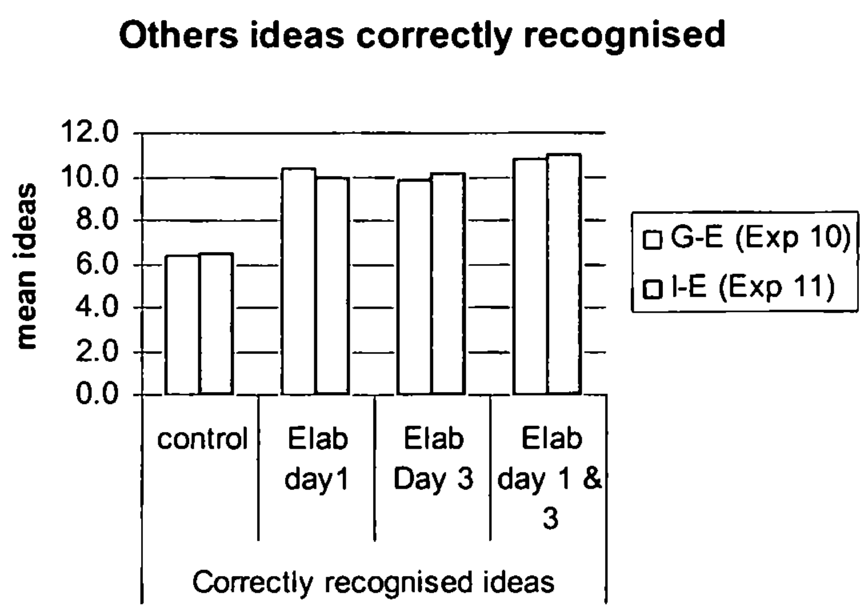


Figure 5.4.4.1: A graph indicating the participants' origin attributions for the ideas correctly identified as 'other' participants' ideas in both G-E (Experiment 10) and I-E (Experiment 11).

Others ideas recognised as new

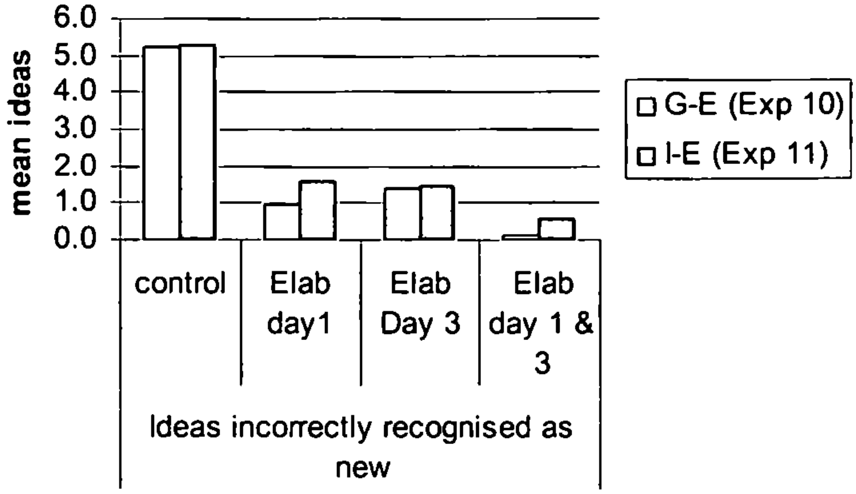


Figure 5.4.4.2: A graph indicating the participants' origin attributions for the ideas that should have been correctly identified as 'other' participants' ideas in both G-E (Experiment 10) and I-E (Experiment 11) but were incorrectly identified as new.

Unconscious Plagiarism

However crucially, there was a significant interaction between elaboration type and times for other participants ideas that were reported as their own ideas and hence, plagiarised $F(3,186)=2.60$, $p \leq .05$. Follow up test, with Bonferroni corrections for multiple comparisons revealed that repeated G-E (in Experiment 10) resulted in significantly more plagiarism than repeated I-E (in Experiment 11) $t(62)=3.28$, $p<.05$. Therefore, in accordance with our prior findings, participants only claimed another participants' idea as their own after they had performed the G-E, twice (see figure 5.4.4.3).

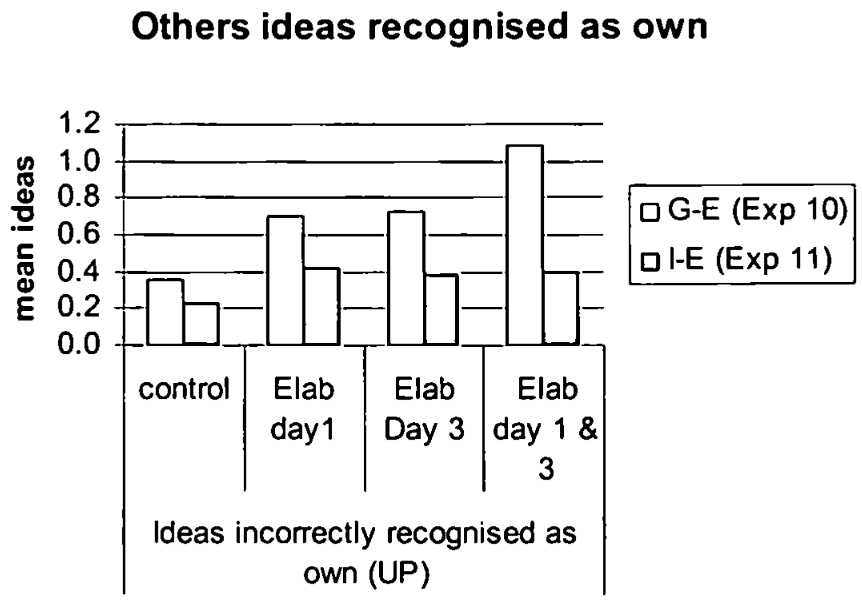


Figure 5.4.4.3: A graph indicating the participants' origin attributions for the ideas that should have been correctly identified as 'other' participants' ideas in both G-E (Experiment 10) and I-E (Experiment 11) but were incorrectly identified as their own.

False positives: Across both studies there were more errors in which a new idea was attributed to another group member than oneself $t(64) = 3.53$, $p<.001$. This finding is in accordance with Hoffman's (1993) 'it had to be you effect' (Johnson & Raye, 1981; Marsh & Bower, 1993; Marsh & Landau, 1995). There was no significant interaction on this effect with I-E or G-E $F(1,62)=.85$, $p=.36$.

Consequently, in accordance with the findings from the equivalent recall studies (Experiment 7 & 8), the results obtained here (in both Experiment 10 & 11) adhere to our source monitoring account of unconscious plagiarism.

5.5 General Discussion

The studies in this chapter have demonstrated two things; first and most importantly that unconscious plagiarism was observed in a source monitoring test and second that the pattern of results obtained was consistent with those obtained in the previous recall tasks. Levels of 9% unconscious plagiarism were obtained following one (in Experiment 9) or two sessions (in Experiment 10) of generative-elaboration. However, the rates of unconscious plagiarism following one (Experiment 9) or two sessions of imagery-elaboration (Experiment 11) did not differ from control (3% in each). Hence, in a scenario where a three option source monitoring test was administered and the participant's primary objective was to judge the initial information sources, unconscious plagiarism still ensued and was uniquely influenced by G-E. In essence, it appeared that although participants were engaging in source monitoring at an appropriate extended level they were following idea improvement and were unable to effectively monitor all their memory sources.

These findings appear to differ from Marsh et al. (1997) who found that when participants are primarily engaged in a source monitoring test they exhibit few plagiarised errors. They found rates of 21% plagiarism in a conventional generate-new task but the reduced rates of approximately 0.8% in a source monitoring task (Experiment 1). This reduction in errors was claimed to be a primary function of the source processing that the participants were engaged in. When source monitoring was made a primary objective (via implicit or explicit instructions), participants engaged in stringent systematic processes and specifically focused on sources to avoid confusions. However, when source monitoring was a secondary task in service of some other primary (i.e. generate-new) task, systematic source monitoring was not utilised to an appropriate degree but rather, superseded by rapid, heuristic based judgements that were less comprehensive and more open to appropriation error (Jacoby et al. 1989). Previously in our recall-own, secondary source monitoring tasks we also obtained high levels of plagiarism but although these ultimate levels of plagiarism were reduced when a stringent source monitoring task was used at test (in Experiment 9 and 10) (a point we will return to), significant levels of unconscious plagiarism prevailed. While the extended processing did help suppress plagiarism levels in the control group at a comparable level to the 0.8% obtained by Marsh et al. (1997), it did not for ideas that had been subject to generative-elaboration. This finding suggests that source errors for creative ideas (following idea improvement), may be more difficult to avoid than previously believed (e.g. Marsh et al. 1997).

There is an interesting pattern in these three experiments; that the most common source monitoring error is the 'it had to be you effect' (Hoffman, 1997). This follows not just in terms of new items but also in old items. Even participant's own ideas are quite often attributed to others, presumably this reflects the proportions of own and others ideas, but G-E reliably reduces this error. Although, this error does not reflect plagiarised intrusions per se, it rather demonstrates changes in ownership that are due to factors unrelated to the original generation. It may be possible that if participants were tested in dyads, that the rate of unconscious plagiarism would be higher. Thus, G-E has the tendency to increase ownership of ideas both correctly, by overcoming the 'it had to be you effect' and incorrectly by inducing unconscious plagiarism.

Landau et al. (1997) clamed that participants plagiarised in the generate-new phase as a result of the plagiarised ideas having a higher activation strength than the other non plagiarised ideas (see also Marsh & Bower, 1993; Marsh & Landau, 1995 & chapter 3). Therefore, when participants generate-new ideas, the activated ideas may come more readily to mind and so in the absence of a stringent source monitoring decision these ideas may be incorrectly attributed to a spontaneous generation (i.e. plagiarised). This would not follow in the primary source monitoring task. Activation strength cannot account for the difference between the recall and source tasks findings here. This follows as both I-E and G-E resulted in memories of equivalent strength as determined by correct recall, correct recognition and generate-new unconscious plagiarism (in a recall study i.e. Experiment 4 and a source monitoring study i.e. Experiment 9) but differentially affected rates of recall-own unconscious plagiarism. An increase in intrusions was *only* observed following the G-E. If strength could account for these findings then both elaboration manipulations should also affect intrusion rates at a comparable level.

These findings are more explainable in terms of the source monitoring framework. The source monitoring framework indicates that memories of different types can vary, both in terms of their accuracy and their experiential content (Johnson et al. 1993). Moreover, Bredart et al. (2003) demonstrated that within a traditional plagiarism domain, actual experienced information included significantly more information about qualitative features at study than plagiarised information (or new information). Specifically, on a memory characteristics questionnaire (Johnson et al. 1988) correctly recalled ideas, when compared to plagiarised ideas, were reported to possess more auditory and contextual detail, more associations with a mental image, feeling or specific thought about the idea and more associations with information that related to a particular retrieval strategy. Hence, Bredart et al. (2003) essentially demonstrated that plagiarised ideas and participants' own ideas on average differed but there was an overlap in the distributions. It appears from the current findings that when systematic decision processes are induced at test, participants were able to effectively distinguish between their own ideas (with rich experiential detail) and others' control ideas (that lack this experiential detail) but not for G-E ideas. This followed as the process involved in G-E resembles initial self generation and serves to build upon the ideas' associated experiential details. Hence, the ideas' qualitative characteristics may be more equated with their own ideas and accordingly at test may become more difficult to distinguish. Although, this would be particularly pertinent in inflating errors when source was determined using heuristic based judgements (as in Chapter 4), it was also the case in Experiments 9 and 10 when more conscious, extended decision processes were engaged. In sum, representation similarity may underlie source confusion and subsequent plagiarised errors and consequently, these findings may be used to support our source monitoring account of unconscious plagiarism.

However, there are important issues here that need to be addressed that relate to the ultimate reduction in plagiarism from the prior recall chapters (mean 48% -Experiment 4 & 8) to those obtained in this source monitoring chapter (mean 9% - Experiment 9 & 10). First, Experiment 9 (and 10) specifically produced levels of plagiarism that were considerably lower than in the recall studies that they replicated (Experiment 4 and 8 respectively). Although the more stringent decision processes exhibited in the source monitoring test can account for the reduction in intrusion levels, the strategies participants use in each task may also influence the results. In a recall test, participants record only those ideas that they can remember (which are likely to be mainly elaborated ideas). Potentially a total of four ideas per object (16 in total) may be recalled but most often (across studies) participants only report a mean of 2 ideas. Participants in the source monitoring test were presented with half of their initial ideas, 8 ideas in total. However, here these ideas were experimenter-selected and although they intended to represent participants' own ideas, the specific ideas that were chosen were arbitrary (with equal numbers were selected from each elaboration status). So it is possible, that the presented ideas may not have otherwise been recalled by the participant (this is also true for the new ideas that were incorrectly attributed to another participant in terms of the 'it had to be you affect'). Hence, these ideas could cue idea memory and potentially serve to increase correct recognition or simultaneously reduce the likelihood of plagiarising 'other' ideas. For example, if participants were expecting certain ideas (that they could recall) to appear on the test that were not presented, this may help participants reason that the remaining others' ideas were not their own. Moreover, in a similar way the presence of other participants' ideas may also provide cues that help link information together to aid memory. For example, if the ideas that were given by one participant converged to a theme i.e. jewellery and a second participant incorrectly believed that they had initially generated an idea i.e. 'paperclip as a ring' when they saw other jewellery items they may conclude that the idea was not in fact their own. Although these explanations are speculative, it is possible that the re-presentation of prior, creative ideas would provide memory aids that were absent in the recall tasks.

Second, in this research programme, one of the most striking findings was that when G-E was conducted once (Experiment 4) high levels of 41% plagiarism were obtained, but when it was conducted twice (Experiment 8), the rates of plagiarism were further increased to the extremely high level of 70%. However, when source monitoring studies were conducted, no such increase was observed but the same rate of 9% plagiarism was observed following one (Experiment 9) or two (Experiment 10) sessions of G-E. This difference may also be ultimately accountable in terms of the difference in decision processes utilised in the two testing phases but yet influenced by the extent of elaboration performed. In Experiment 9 (and 4) only 16 ideas were G-E while in Experiment 10 (and 8) a total of 32 ideas were G-E (during one session but a total of 48 ideas, at some point during the study i.e.16 on day 1, 16 on day 3 and 16 twice on day 1 and 3). This sheer increase in the number of ideas elaborated (from Experiment 9 to 10) may have affected the participants in two ways. First, this would have increased the task difficulty as they invariably needed to invest more cognitive effort into completing the task (as the number of improvements required was more than doubled). Second, the extended length and more repetitive nature of the task may have changed participants' approach to the task. For example, they may have potentially diluted the creativity or distinctiveness of some of the assigned improvements, in so far as proposing improvements that were more general and re-useable across objects (i.e. to paint a brick)[11]. Therefore, the experiential information associated with improved ideas may not so closely resemble self-generated ideas. This may not have affected the ultimate plagiarised levels in the recall-own task (Experiment 8) as the secondary source judgements exhibited may not have been sensitive enough to correctly detect the differences between these classes of ideas and avoid plagiarised errors. Rather, these ideas may still have 'felt' like their own ideas and following a heuristic based judgement may be reported as such. However, when participants were required to complete the more stringent source monitoring task (Experiment 10), the primary decision criteria exhibited would have been more sensitive towards the memory characteristics and conceivably more able to reduce the number of plagiarised intrusions. Therefore, relative to Experiment 9, improving more ideas in Experiment 10 may have suppressed potential intrusions here.

However, although there was no absolute increase in plagiarism following two session of G-E (in Experiment 10) when compared to only one session of G-E (in Experiment 9); the overall number of ideas that were ultimately plagiarised in Experiment 10 was higher than in Experiment 9. This supports the findings from the recall studies that ideas subject to G-E are more likely to be self appropriated later. Moreover, this finding is perhaps even more striking when levels of correct performance are taken into account. Performing G-E not only increases unconscious plagiarism but it also increases idea strength and improves idea memory (see chapter 3). Following one session of G-E (Experiment 9), correct recognition was 85% but following two such sessions (Experiment 10) correct recognition was at a higher rate 90%. Although, comparing across studies in this manner is problematic it serves to illustrate the very small remaining margin for error,

[11] Similarly, in Experiment 3, there were concerns that when participants were required to list positive or negative things about the ideas, (32 ideas) they tended to focus on the attributes of the object as opposed to the specified uses and hence may not have completed the task in the anticipated manner.

particularly in Experiment 10. Moreover, when compared to Experiment 11 where I-E was conducted twice, correct recall did not significantly differ (from recall following G-E in Experiment 10) but the number of plagiarised intrusions did. It was only after repeated G-E that participants attributed others' ideas to themselves.

These findings demonstrate importantly that following G-E, participants did plagiarise ideas and to a significant extent in both Experiment 9 and 10. In each study, similarly low levels of plagiarism were obtained for control ideas and these rates were not increased following I-E, either once or twice (in studies 9 or 11 respectively). However, following G-E (in Experiment 9) or repeated G-E (in Experiment 10) the plagiarism rates were trebled. Hence, the unconscious plagiarism obtained here was proportionally equivalent to the plagiarism obtained in the recall tasks (Experiment 8). Furthermore, completing a stringent source monitoring test here was not sufficient to help the participant avoid plagiarising and believing that someone else's ideas was their own. This indicates that even when participants do engage in careful, conscious source ascription they are not always able to distinguish between personally improved ideas and their own ideas.

Therefore, these studies support the source monitoring framework and also have important implications for the real world. After an individual has been exposed to a basic idea, following close working, development and re-drafting of the idea, the experiential information that accompanies the idea may mimic a truly unique idea. Hence, identifying potentially unconsciously plagiarised information in everyday life may be harder to determine than previously believed. This may follow even when an individual is making a conscious effort to do so.

Chapter 6 Discussion

6.1 Introduction

Levels of unconscious plagiarism obtained in this thesis were consistent and robust. Of the participants tested across 11 studies 89.2% exhibited at least one unconsciously plagiarised error in one of the three different memory tests. Participants plagiarised by incorrectly recalling or recognising someone else's idea as their own original idea (recall-own plagiarism or source monitoring error respectively) or by reporting someone else's idea as their own new idea (generate-new error). Experiments were designed to extend the ecological validity of the current literature by examining participants' tendency to plagiarise creative materials, following a retention interval and following various types of idea elaboration. The results from each experiment followed largely the same pattern[12]; while types of elaboration influenced correct recall, and generate-new plagiarisms equivalently, the different types of elaboration differentially affected rates of recall-own plagiarism and recognised plagiarism. Taken together, these results are inconsistent with a strength-based account of unconscious plagiarism, and are more supportive of a source-monitoring account of unconscious plagiarism errors.

6.2 Summary of Experimental Findings

6.2.1 Recall-Own Phase

Experiment 2 essentially replicated Brown and Murphy's (1989) initial experiment. Using the three stage paradigm with a category generation task or the creative Alternate Uses Test (e.g. generate novel uses for a brick; Christensen et al. 1960) at generation, equivalent intrusion rates were obtained. Following a one week retention interval, the highest rates of plagiarism were obtained in the category generation task but, in the creative task, rates of plagiarism increased by a factor of 2.5 following the delay. Hence,

[12] Throughout this thesis the results from each independent experiment have been compared and hence absolute inferences from such comparisons should be viewed with caution. However, broad descriptive experimental comparisons were not perceived to be problematic given the methodological consistency in this research programme. That is, across studies participants were drawn from the same population and were tested in the same experimental environment (same experimenter, testing laboratory and equipment). Moreover, the instructions and materials that participants received were identical and differed only in terms of the individual manipulation under investigation in each study.

participants plagiarised other participants' creative ideas as their own (c.f. Tenpenny et al. 1998).

The main construct examined within this thesis related to idea elaboration, specifically regarding the types of mental activity that participants engage in during the retention interval between generation and testing. Using a four-stage paradigm, three types of elaboration were investigated. The first encouraged participants to rate the previously given ideas (including their own and others' ideas) in either a positive or negative way, the second encouraged participants to form a mental image of the ideas by rating the imaginability and effectiveness of the ideas (I-E) and the third encouraged participants to develop the ideas by providing three possible ways in which the ideas could be improved (G-E). Such elaboration techniques were investigated as they were believed to somewhat reflect processes that real world plagiarists may employ. The results following these distinct types of elaboration were clear and consistent. Across experiments, a single type of elaboration improved participant recall relative to control (range of correct recall 25-45%). Specifically, positive and negative rating increased plagiarism rates to 66.7% and 62.0% respectively and the I-E & G-E similarly increased plagiarism rates to 60.1%-70.5% and 54.7%-68.8% respectively. Hence, each different type of elaboration comparably improved recall performance. However, the levels of plagiarism following these elaboration types were not comparable (see Table 6.2.1.1 for the rates of plagiarism observed across recall studies and Table 6.2.1.2 across source monitoring studies). In the recall-own phase, following the G-E manipulation, a high rate of 42% was obtained (Experiment 4 and 40% in Experiment 6) whereas rating ideas in any way (positively, negatively or I-E) did not affect the plagiarism level (11.8-13.8% in Experiments 3 & 4) relative to control (10.7-13.2% Experiment 3 & 4). Only performing G-E increased the self appropriation of such G-E ideas as one's own. Moreover, these rates of plagiarism for creative materials exceeded those previously reported in prior studies (e.g. Landau & Marsh, 1997; Macrae et al. 1999).

I-E did not increase intrusions relative to control and strengthening the I-E in either of two ways did not affect this stable pattern. First, when the imagery-elaboration was replicated on two occasions, despite an improvement in participant recall, the associated rate of plagiarised intrusions in the recall-own phase was not significantly increased (19.6% Experiment 8). Second, when the detail of the imagery-elaboration was intensified and the processing was matched to the G-E in terms of content (in Experiment 6), plagiarism in the recall-own phase still did not equal the levels obtained following G-E. However, the rates observed in this study following I-E were at a somewhat raised level of 25%. This increase was attributed to a task crossover effect with the RI-E (and accordingly G-E), as participants may have needed to engage in a certain level of idea development before the task could be effectively performed. For example, in order to successfully imagine a 'decorated' paperclip picture frame, additional detail such as how the frame was to be decorated would be required (see chapter 4). Moreover, it is very difficult to know precisely what mental processes individuals are engaging in during imagination. Individuals may be 'high' or 'low' imagers and thus the according level of detail and vividness that individuals construct are likely to be variable (e.g. Dobson & Markham, 1993). These factors may also impact upon the plagiarism frequencies obtained here. Nonetheless, the rate obtained for the rich imagery-elaboration (RI-E) was still significantly lower than the rate obtained following G-E in this study (40.6%). Therefore, consistently it was *only* the G-E that resulted in the confusion that someone else's creation was their own when it was not.

Plagiarism rates however, may be calculated in terms of an input bound or output bound measure. The rates of plagiarism that have been cited thus far have been reported in terms of an input bound measure of plagiarism; that is, the numbers of ideas that were reported for each condition, relative to the number of ideas that should have been reported in each case and for each elaboration status (e.g. 4 ideas). For example, for ideas from a given elaboration status (i.e. control ideas) a participant may correctly recall 2 (out of 4) ideas and plagiarise someone else's idea to make a total of 3 reported ideas. Hence, correct recall here was calculated out of the possible 4 ideas that should have been reported (e.g. 2/4= 50%). Calculating equivalent plagiarism measures is more difficult as there was a maximum of 4 opportunities for participants to plagiarise (assuming none of the 4 ideas were correctly recalled) but there was a pool of 48 other participants' ideas that may possibly be plagiarised. In this thesis, the input bound plagiarism measure was based on 4 ideas (as with recall), as this was the maximum number of ideas that may be plagiarised for each given object. Hence, plagiarism here was also calculated out of the possible 4 ideas that should have been reported (e.g. 1/4= 25%).

	Experiment Number: Recall Based Test								
Manipulations	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**MEAN**
Control	6.0	.	10.7	13.2	6.3	4.7	4.5	4.6	**7.1**
Re-presentation	.	.	.	15.8	7.6	.	.	.	**11.7**
Positive	.	.	16.7	.	.	.	.	.	**16.7**
Negative	.	.	13.1	.	.	.	.	.	**13.1**
I-E	.	.	.	13.8	11.8	20.3	12.5	.	**14.6**
I-E day 3	.	.	.	.	.	.	17.9	.	**17.9**
I-E twice	.	.	.	.	.	.	19.6	.	**19.6**
RI-E	.	.	.	.	.	25.0	.	.	**25.0**
G-E	.	.	.	42.1	22.9	40.6	.	20.4	**31.5**
G-E day 3	.	.	.	.	.	.	.	19.4	**19.4**
G-E twice	.	.	.	.	.	.	.	70.4	**70.4**
Mean % (across conditions)	**6.0**		**13.5**	**21.2**	**12.2**	**22.7**	**13.6**	**28.7**	

Notes: Control = Ideas only experienced at generation
Re-presentation = Ideas heard for a second time in the elaboration phase
Positive = Ideas positively rated in the elaboration phase
Negative = Ideas negatively rated in the elaboration phase
I-E = Ideas imagery-elaborated in the elaboration phase (i.e. on day 1)
I-E day 3 = Ideas imagery-elaborated for the first time 3 days after the elaboration phase
I-E twice = Ideas imagery-elaborated twice (once in the elaboration phase and again 3 days later)
RI-E = Rich imagery-elaborated ideas
G-E = Ideas generatively-elaborated in the elaboration phase (i.e. on day 1)
I-E day 3 = Ideas generatively-elaborated for the first time 3 days after the elaboration phase
G-E twice = Ideas generatively-elaborated twice (once in the elaboration phase and again 3 days later)

Table 6.2.1.1: Percentage Rates of Recall-Own Unconscious Plagiarism

	Experiment Number – Source monitoring test					
Manipulations			**9**	**10**	**11**	**MEAN**
Control	.	.	2.9	3.0	1.9	**2.6**
Re-presentation	.	.	3.1	.	.	**3.1**
I-E	.	.	3.3	.	3.5	**3.4**
I-E day 3	.	.	.	.	3.2	**3.2**
I-E twice	.	.	.	.	3.0	**3.0**
G-E	.	.	8.8	5.8	.	**7.3**
G-E day 3	.	.	.	6.1	.	**6.1**
G-E twice	.	.	.	9.1	.	**9.1**
Mean % (across conditions)			**4.5**	**6.0**	**2.9**	

Notes: as above

Table 6.2.1.2: Percentage Rates of Source Monitoring Unconscious Plagiarism

An output bound measure of plagiarism is rather based on the percentage of ideas plagiarised as a proportion of the actual number of ideas that were *reported*, accordingly excluding the number of ideas that were 'forgotten'/not reported (see Table 6.2.1.3 for recall-own rates). Reporting such output bound measures of plagiarism provides a clearer indication of the plagiarism rates obtained as recall is the factor that explains variations (e.g. using the above example: 1 plagiarism of 3 reported ideas = 33%). Nevertheless, in the recall-own phase across studies, the rates of plagiarism for both the input bound and output bound measures were largely the same. The proportional differences within and between the measures were similar and the absolute percentages of plagiarised ideas were in fact mainly increased when calculated in this manner.

One difference however between these two measures was the plagiarism of control ideas appearing higher when reported as an output bound measure than an input bound measure. This difference may have occurred as a result of the lower response output for the control ideas (plagiarism & correct recall) relative to other elaborated (or rated) ideas. While the input bound measure takes account of the number of ideas that should have been reported (across conditions), the output bound only accounts for those reported ideas in that condition. Thus for control ideas, the proportion of plagiarised ideas (low number of ideas) was high relative to correctly reported ideas in that same condition (also low number of ideas) but was not so high relative to the rates obtained across other conditions (higher number of ideas (recalled and or intrusions depending on condition)). Hence, as the conditions were calculated independently from one another lower recall combined with lower plagiarism served to inflate the plagiarism measure here. (The difference in Experiment 8 will be discussed in section 6.2.1.1.2 below)

	Experiment Number								
	1	2	3	4	5	6	7	8	MEAN
Control	10.0		16.1	27.0	12.5	10.7	8.9	15.6	**14.4**
Re-presentation	.	.	.	22.0	9.7	.	.	.	**15.9**
Positive	.	.	20.0	.	.	.	.	.	**20.0**
Negative	.	.	17.5	.	.	.	.	.	**17.5**
I-E	.	.	.	17.4	16.0	25.0	15.1	.	**18.4**
I-E day 3	.	.	.	.	.	.	20.2	.	**20.2**
I-E twice	.	.	.	.	.	.	20.4	.	**20.4**
RI-E	.	.	.	.	.	31.1	.	.	**31.1**
G-E	.	.	.	41.0	26.2	37.1	.	25.9	**32.6**
I-E day 3	.	.	.	.	.	.	.	27.2	**27.2**
G-E twice	.	.	.	.	.	.	.	48.1	**48.1**
Average (across conditions)	**10**		**17.8**	**26.9**	**16.1**	**26.0**	**16.1**	**29.2**	

Table 6.2.1.3: Percentage Rates of Recall-Own Unconscious Plagiarism as an output bound measure

6.2.1.1 Nature and stability of this pattern

6.2.1.1.1 Manipulations that encouraged accurate performance

This pattern, where G-E (only) resulted in inflated recall-own plagiarism was stable and did not dissipate when participants were encouraged to utilise a stricter decision criteria to monitor their responses during testing. This was encouraged in two ways by an explicit task instruction or more implicitly by task goals. First, in the four stage paradigm, participants were specifically warned about plagiarised intrusions and were additionally motivated to avoid such errors through the promise of a sizeable financial incentive for accurate performance. In this study, following the elaboration phase, despite task instructions and self-reports of their motivation to avoid such errors, participants still unconsciously plagiarised others' G-E ideas as their own. Unconscious plagiarism was observed at a rate of 21% (input bound and 26% output bound) and although this was lower than the rates obtained in other studies (e.g. Experiment 4 and 6) it statistically exceeded the (also lowered) rates obtained here following I-E 11.8% (input bound and 16.0% output bound) or control 6.25% (input bound and 12.5% output bound). Second, the same paradigm was used but the recall-own and generate-new tasks were replaced with a source monitoring test. This test encouraged participants to assess their memory sources as a primary objective and therefore changed participants' task goals. In this study, rates of plagiarism for incorrectly recognising another's ideas as one's own were also reduced relative to the comparable recall studies (Experiment 4, 5 & 6) but, as in Experiment 5, the main pattern of findings with respect to G-E was preserved. In this source monitoring test, participants plagiarised at a rate of 9% following G-E but the lower rate of 3% following I-E and control. Hence, the difference in the proportions of ideas that were plagiarised across the elaboration conditions was incrementally the same as in the prior recall-own tasks; where the performance of G-E inflated self appropriation of other ideas by a factor of 3.

6.2.1.1.2 Following manipulations that strengthened the elaboration performed

Moreover, repeating this G-E (by elaborating both immediately after generation and then again for a second time 3 days after elaboration) nearly doubled the total rate of plagiarism obtained in the recall-own task (Experiment 7). However, measures of input bound and output bound plagiarism markedly differed here between 70% and 48% respectively. This follows as the input bound measure reflected proportions of maximum possible plagiarism as the most participants could plagiarise was 4, therefore, 2.81 plagiarism /4= 70%, whereas, the output bound measure reflected the proportions of answers that were plagiarised, hence, 2.81plagiarism/ 2.81 plagiarism + 3.0 recall = 48%. This difference between measures may be accounted for in terms of response output (in a similar way to the difference between input and output bound control plagiarism). In Experiment 8, following one session of G-E, levels of correct recall was high (2.2) as were the number of plagiarised intrusions (.8). However, following repeated G-E, plagiarism was increased at a higher rate than correct recall and in fact, participants were just as likely to report a correctly recalled idea (3.0) as their own as they were to incorrectly report someone else's idea as their own (2.8). Consequently, this equalised response frequency for plagiarised/recalled ideas resulted in a plagiarism rate of 48%, using such an independent (output) measure. Nevertheless, G-E plagiarism in this condition far exceeded the rates observed in the other conditions.

In Experiment 8, when an input measure was used - that is sensitive to differences in output responses across conditions- a higher rate of 70% was reported. The rate of plagiarism for the repeatedly elaborated ideas was high and on average while participants were supposed to be reporting a total of 4 ideas (from each elaboration status), they were in fact reporting a total of 6 repeatedly elaborated ideas (including both correctly recalled ideas and plagiarised ideas). As a result of this increased response output of such ideas, participants were likely to be suppressing recall and perhaps plagiarism of other ideas (e.g. ideas G-E once on day 1 or 2 and control ideas). To explore this possibility explicitly, it would be interesting to evaluate plagiarism levels when participants were provided with an unstructured free recall test in place of the recall-own task at testing. On such a test, performance would not be guided by the object heading or restricted or cued by the maximum response output for each (i.e. 4 ideas per object) and the number of ideas reported may potentially rise.

Nonetheless, here, in Experiment 8, 48% (output bound) or 70% (input bound) plagiarism is a striking amount and constitutes the highest rate of plagiarised ideas observed within this research programme and in prior research studies. Moreover, the overall equivalence in rates of input bound and output bound plagiarism reflects the robust nature of these plagiarised errors and highlights the power of the G-E on inducing consistently high error rates.

Moreover, in a replication study, where memory was assessed using a stringent source monitoring test, the same pattern emerged but the plagiarism rate following repeated G-E was noticeably reduced to 9% (Experiment 10). However, the ratio of G-E ideas that were plagiarised, relative to control was consistent with those found in the recall-own data and the overall rate of plagiarism exhibited was higher than the rate observed in a source monitoring test where participants had only been subjected to one session of G-E (Experiment 9).

6.2.1.1.3 Following a three month retention interval

A follow up study was conducted on participants who had performed the I-E and G-E during elaboration and had had their memory initially assessed by a source monitoring test (Experiment 9). Three months after completing this test, participants were unexpectedly asked to return to complete an 'experimental extension study'; twelve participants agreed. In this follow up session, participants were asked to try to remember the ideas that they offered in the initial generation phase and hence complete the recall-own task. The results from this study indicated that following this extended retention interval, the main pattern of results was maintained. Participants correctly recalled 33.9% of their initial ideas and plagiarised 34.4% of others' ideas as their own (the remaining ideas were not reported). Consequently, participants were just as likely to remember a plagiarised idea as they were to recall one of their own genuine ideas. A within subjects ANOVA indicated that there was a significant main effect of elaboration status $(F3,33)=11.803$; $p<.001$. Moreover, Sidak adjustments for multiple comparisons revealed that participants plagiarised ideas that had been previously subject to G-E more than any of the other ideas (none of the remaining means differed). Following G-E, participants plagiarised others' ideas at a rate of 70% while they plagiarised I-E ideas at a rate of 31.3%, re-presented ideas at a rate of 20.8% and control ideas at a rate of 14.6%. Hence, the rates obtained for G-E across this retention interval (70%) were comparable to the extremely high levels obtained following strengthened G-E (70%). This finding demonstrates the robust nature of these errors and their prevalence over time.

6.2.2 Generate-New Phase

In the generate-new phase, an input bound measure of generate-new plagiarism was calculated in the same way as the recall-own data, that is; the number of plagiarisms out of the 4 possible ideas per object (see Table 6.2.2.1). Plagiarism rates for the output bound measure were calculated slightly differently as participants in the generate-new phase were required to report a total of 4 ideas for each object (see Table 6.2.2.2) but unlike in the recall-own phase, new ideas had no prior assigned elaboration status (as they were not from the generation phase). Thus, the ideas plagiarised across each condition were calculated as a percentage of the total number of ideas given in the experiment (plagiarised, self-plagiarised and new ideas). However, the plagiarism rates for each respective condition were then adjusted (multiplied by number of conditions) to permit relative comparisons with the input bound measure of plagiarism. Importantly, the total (or mean) rates of plagiarism (before or after adjustment respectively) were equivalent in both cases. These similar rates additionally demonstrate the pervasiveness of these errors.

Rates of plagiarism obtained in the generate-new task did not differ when the creative novel uses task was employed and this followed for immediate testing and testing after a one week retention interval. However, experiencing the one-week delay increased the number of plagiarised intrusions (as in the recall-own phase) by a factor of 1.8 (Experiment 2). In Experiment 1, participants who had actively participated in the generation phase were no more likely to plagiarise other participants' ideas as new ideas (16.1%) than when they had simply observed or rated the generation phase (20.1% Vs 19.5%). This finding differs from Raye and Johnson (1980) who indicated that observers had poorer source memory and Brown and Halliday (1991) who in their pilot study demonstrated that non-participant observers plagiarised more in the generate-new phase than generators. In Experiment 1, the improved observer performance may be a function of the testing context being reinstated at recall (Brown & Halliday, 1991; Jacoby et al. 1989). This follows, as reinstating context invariably increases the presence and availability of environmental and social cues from the generating participants that may aid recall. Thus, it may be speculated that if participants in Experiment 1 were tested alone and not exposed to such cues, the data may have been more likely to mimic the pattern observed by Brown and Halliday (1991).

Overall, the mean rate of generate-new plagiarism obtained across the 8 studies ranged between 6.3% and 23.7% (input bound see table 6.2.2.1) and 6.0% and 25.9% output bound (see table 6.2.2.2). However, across the 8 generate-new phases, there was only an effect of elaboration status observed in Experiment 4, whereby elaborated ideas were plagiarised at a lower rate than control. This pattern was broadly evident across latter studies but the differences failed to reach statistical significance. However, importantly here, the effect of elaboration type did not affect plagiarism rates in the same way as in the recall-own phase as there was no difference between the G-E (15.1% input bound or 15.3% output bound) and the I-E (9.9% input bound or 10.0% output bound). This occurred, despite the levels of produced plagiarism for I-E and G-E across studies being largely comparable, even when the elaboration was strengthened (Experiments 7 &

8) and when participants were encouraged not to plagiarise (Experiment 5). Hence, the attained intrusions appear to be robust and the significant difference observed in Experiment 4 appears to be a result of the high baseline rate of plagiarism observed in this study (23.7% input bound or 23.9% output bound) but why this higher rate was obtained is unclear. Consequently, in the generate-new task each type of elaboration affected rates of plagiarism in a comparable manner and hence, G-E had a dissociation effect upon the recall-own and generate-new measures of unconscious plagiarism.

	Experiment Number: Generate-New Plagiarism								
Manipulations	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**MEAN**
Control	16.1	17.2	16.7	23.7	14.3	20.3	10.3	17.6	**17.03**
Re-presentation	20.1		.	25.7	13.4	.	.	.	**19.73**
Positive	.	.	10.7	.	.	.	.	.	**10.70**
Negative	.	.	10.7	.	.	.	.	.	**10.70**
I-E	19.5	.	.	9.9	6.3	14.1	17.2	.	**13.40**
I-E day 3	.	.	.	.	.	.	12.9	.	**12.90**
I-E twice	.	.	.	.	.	.	6.9	.	**6.90**
RI-E	.	.	.	.	.	12.5	.	.	**12.50**
G-E	.	.	.	15.1	15.2	15.6	.	13.9	**14.95**
Day 3	.	.	.	.	.	.	.	6.5	**6.50**
G-E twice	.	.	.	.	.	.	.	13.0	**13.00**
MEAN % (across conditions)	**18.6**	**17.2**	**12.7**	**18.6**	**12.3**	**15.6**	**11.9**	**12.7**	

Notes: Control = Ideas only experienced at generation
Re-presentation = Ideas heard for a second time in the elaboration phase
Positive = Ideas positively rated in the elaboration phase
Negative = Ideas negatively rated in the elaboration phase
I-E = Ideas imagery-elaborated in the elaboration phase
I-E day 3 = Ideas imagery-elaborated for the first time 3 days after the elaboration phase
I-E twice = Ideas imagery-elaborated twice (once in the elaboration phase and again 3 days later)
RI-E = Rich-imagery-elaborated Ideas
G-E = Ideas generatively-elaborated in the elaboration phase
I-E day 3 = Ideas generatively-elaborated for the first time 3 days after the elaboration phase
G-E twice = Ideas generatively-elaborated twice (once in the elaboration phase and again 3 days later)

Table 6.2.2.1: Percentage Rates of Generate-New Unconscious Plagiarism as an input bound measure

	Experiment Number								
	1	2	3	4	5	6	7	8	MEAN
Control	17.8	16.3	12.8	23.9	14.5	20.8	9.0	18.1	**16.7**
Re-presentation	19.8	.	.	25.9	13.6	.	.	.	**19.7**
Positive	.	.	8.3	.	.	.	.	.	**8.3**
Negative	.	.	8.3	.	.	.	.	.	**8.3**
I-E	20.3	.	.	10.0	6.3	14.4	15.1	.	**11.5**
I-E day 3	.	.	.	.	.	.	11.3	.	**11.3**
I-E twice	.	.	.	.	.	.	6.0	.	**6.0**
RI-E	.	.	.	.	.	12.8	.	.	**12.8**
G-E	.	.	.	15.3	15.4	16.0	.	14.3	**15.2**
I-E day 3	.	.	.	.	.	.	.	6.7	**6.7**
G-E twice	.	.	.	.	.	.	.	13.3	**13.3**
MEAN %	**17.8**	**18.8**	**9.8**	**18.8**	**12.4**	**16.0**	**10.4**	**13.1**	

Notes: Control = Ideas only experienced at generation
Re-presentation = Ideas heard for a second time in the elaboration phase
Positive = Ideas positively rated in the elaboration phase
Negative = Ideas negatively rated in the elaboration phase
I-E = Ideas imagery-elaborated in the elaboration phase
I-E day 3 = Ideas imagery-elaborated for the first time 3 days after the elaboration phase
I-E twice = Ideas imagery-elaborated twice (once in the elaboration phase and again 3 days later)
RI-E = Rich-imagery-elaborated Ideas
G-E = Ideas generatively-elaborated in the elaboration phase
I-E day 3 = Ideas generatively-elaborated for the first time 3 days after the elaboration phase
G-E twice = Ideas generatively-elaborated twice (once in the elaboration phase and again 3 days later)

Table 6.2.2.2: Percentage rates of Generate-New Unconscious Plagiarism as an output bound measure

6.3 Theoretical implications

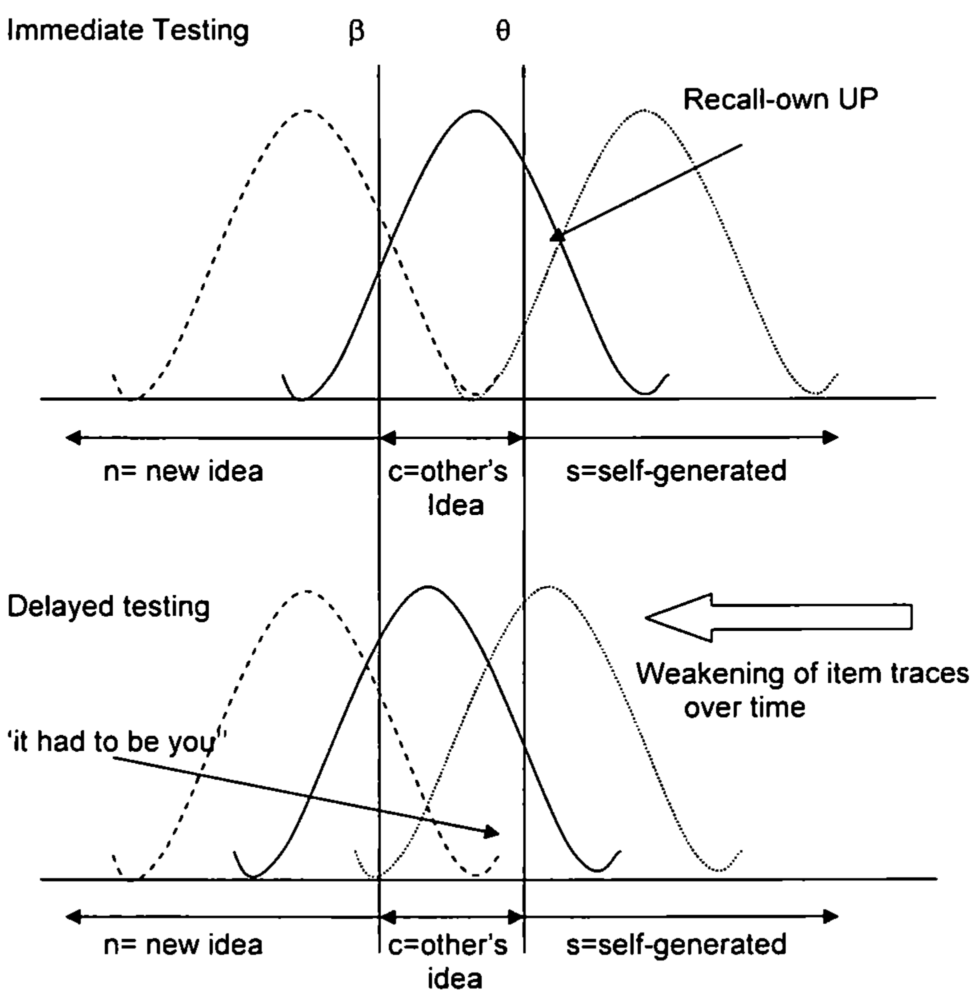
Reconciliating activation strength and source monitoring

6.3.1 Activation Strength

Items produced in the generation phase of the 4 stage paradigm would invariably differ in their levels of associated activation strength from ideas that were not produced (Marsh & Bower, 1993). Theoretically, items that participants generated themselves would be the strongest ideas (as a result of the effort that they exerted during the self generation; generation effect; Slamecka & Graf, 1978) and new or distracter items would be the weakest ideas (as participants had had no prior exposure to such ideas). Items from an external source, prior to any elaboration (e.g. another participant), would vary in strength but reside in between the two (due to the lack of self-engagement with the idea but exposure to the idea during the generation phase). Marsh and Bower (1993) claimed that participants utilise a decision criteria to establish the source of the information based on a given benchmark level of strength. Hence, if an item is below this level then an item will be regarded as a new idea, if it falls above this level it may be regarded as self-generated and if it is in between the two it would be regarded as an externally generated idea (see figure 6.3.1.1 for a pictorial demonstration).

The effects of participant performance (correct recall and generate-new plagiarism) following a one week delay in Experiment 2 (and 3) can be accounted for using Marsh and Bower's (1993) model (see also Brown & Halliday, 1991; Bredart et al. 2003; Marsh & Bower, 1993; Marsh & Landau,1995; Marsh et al. 1996,1997; Marsh, Ward et al. 1999). Specifically, during delayed testing, the number of ideas that were correctly recalled markedly decreased compared to the rates obtained during immediate testing. This is indicative of a weakening in item trace strength over time (both for self and other generated information) to a level more comparable with non-presented or genuinely new items (shift below β see figure *1.3.1.1*). Moreover, this depleting activation strength (in the absence of rehearsal or elaboration) may simultaneously explain the (numerical) increased likelihood of such ideas being incorrectly presented and plagiarised as new in this study. In addition, this idea of weakening trace strength over time is also consistent with the increasing rates of plagiarism obtained across tasks (i.e. recall-own to generate-new) in Experiment 2 (see also Marsh & Bower, 1993).

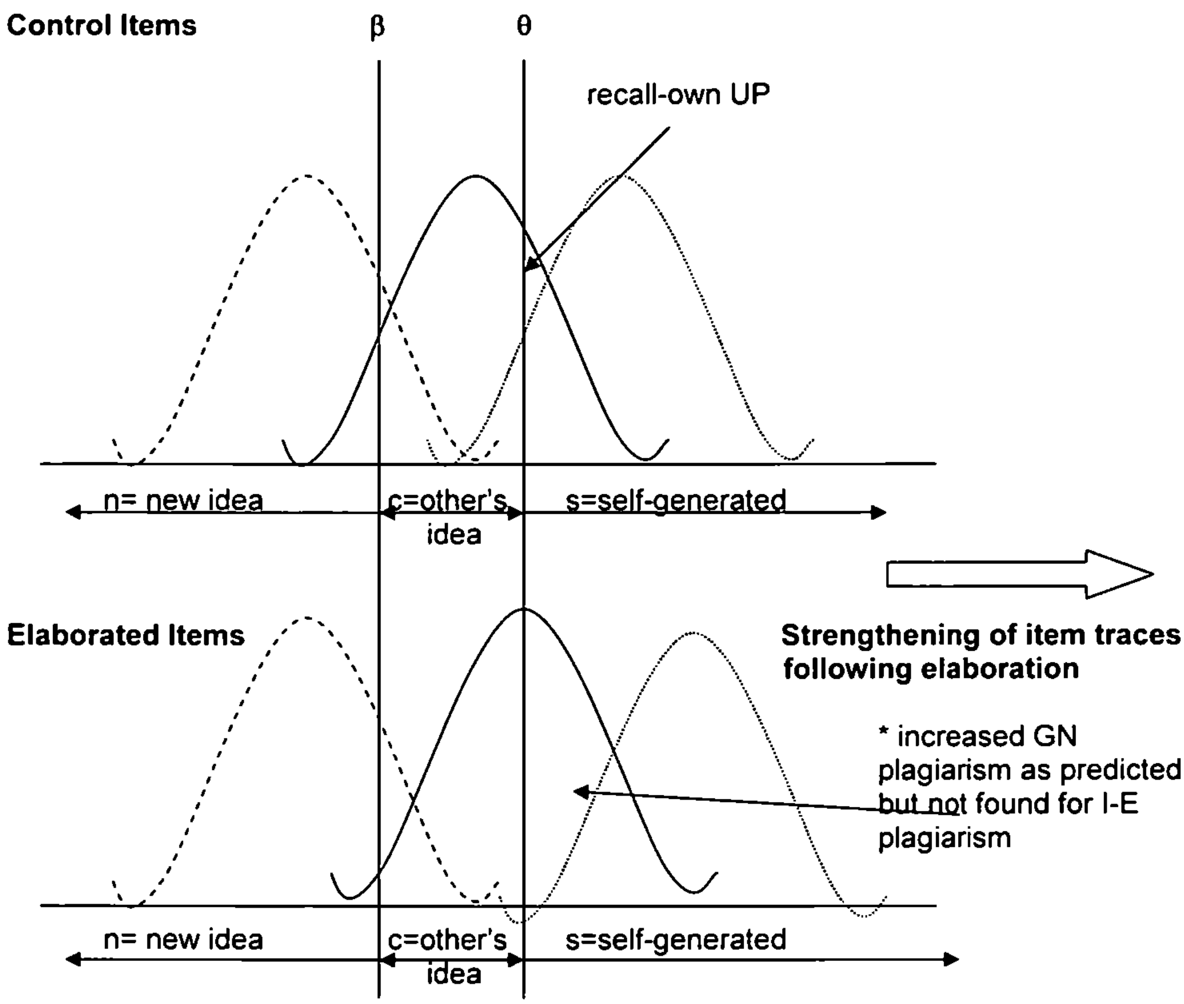
However, strength would suggest that weakening traces of other's ideas over time would also decrease the risk that such ideas would be confused with self-generate ideas and thus plagiarised in the recall-own phase. However, more plagiarism was observed following the delay in the recall-own task than following immediate testing (Experiment 2). Hence, participants here may have shifted and therefore liberalised their response criteria. Moreover, a strength account would accordingly predict that the 'it had to be you effect' whereby ideas to which participants are unsure of the source (e.g. own ideas) are attributed to an external source rather than an internal one (Johnson & Raye, 1981) would become more prevalent over time. This follows as when the strength of one's own ideas weakens over time it may drop to a level more comparable to others ideas and be attributed as such (see figure 6.3.1.1). However, in this research programme the data do not appear to support this prediction as following a one week retention interval participants were no more likely to incorrectly attribute one of their prior control ideas to an external source (e.g. another participant's idea) than a new source. This was the case in each of the source monitoring experiments (Experiment 9 t(32)=1.647, p=.109, Experiment 10 t(32)=1.292, p=.204 and Experiment 11 t(30)=.661; p=.514). Yet this assertion may be interpreted with caution as no immediate testing was conducted, but as there was no evidence for the 'it had to be you' effect more indirect evidence is provided to support the idea that participants may shift their response criteria following a one week delay.



- - - *hypothetical distribution for new ideas*
—— *hypothetical distribution for others' ideas*
……… *hypothetical distribution for self-generated words*
β= generate-new criterion – any item falling below will be considered as a new candidate.
θ = recall-own- item whose strength exceeds would be considered self-generate.
n = will be labelled new idea
c = will be labelled computer (externally) generated idea
s = will be labelled self-generated ideas

***Figure 6.3.1.1**:* Hypothetical pictorial representation of Marsh and Bower's (1993) Activation Strength Model following a retention interval.

Marsh and Bower (1993) demonstrated that strengthening ideas (others and own) by performing a deeper semantic encoding has the reverse effect on performance by increasing item trace strength. This manipulation was claimed to not only improve participant recall but also to aid ability to discriminate between old and new ideas and hence reduce generate-new plagiarism (Marsh & Bower, 1993). This pattern was numerically demonstrated in Experiments 3, 4, 5, 6, 7 and 8. Moreover, it was predicted according to the strength model, that increasing the strength of others' items towards the status of self generated items should also increase confusion between others' and self-generated ideas (as the distributions should overlap) and accordingly increase recall-own plagiarism (Marsh & Bower, 1993) (see figure 6.3.1.2). However, in this research programme, rates of plagiarism appear not to be exclusively influenced by demonstrations of item strength. This follows as consistently, the different elaboration manipulations (I-E and G-E, Experiment 4, 5, 6, and 7 & 8) resulted in comparable performance on the two aforementioned tasks that provide direct (i.e. correct recall) and indirect (generate-new plagiarism) measures of item strength (Experiment 4, 5, 6 as hypothetically depicted on figure 6.3.1.2). However, only G-E and not I-E hindered performance and increased plagiarism in the recall-own phase relative to control. Given that there were no significant differences between the two forms of elaboration across studies, a strength model fails to account for this data because recall did not differ between the two elaboration methods but plagiarism in the recall-own tasks did. Therefore, while the overall results for correct recall and generate-new plagiarism do not necessarily contravene the predictions made according to strength, results in the recall-own task (and source monitoring task Experiments 9 and 10 &11) do given that the difference between G-E and I-E cannot be accounted for in terms of strength.



— — — *hypothetical distribution for new ideas*
——— *hypothetical distribution for others' ideas*
……… *hypothetical distribution for self-generated words*
β= generate-new criterion – any item falling below will be considered as a new candidate.
θ = recall-own- item whose strength exceeds would be considered self-generate.
n = will be labelled new idea
c = will be labelled computer (externally) generated idea
s = will be labelled self-generated ideas

Figure 6.3.1.2: Pictorial representation of Marsh and Bower's (1993) Activation Strength Model following idea strengthening due to elaboration.

This difference between the two different types of elaboration has previously been explained as a function of the different decision processes that guide participant performance in the two testing phases. Where idea familiarity or activation strength (Marsh & Bower, 1993; Landau & Marsh, 1997) is sufficient to drive successful performance in the generate-new phase (i.e. if a participant can remember the idea they can deduce that the idea is not new), it may not be sufficient to drive performance in the recall-own phase as remembering an item as 'old' is not sufficient enough to prevent plagiarising that 'old' idea - that may have been generated by someone else - as one's own. Hence, in the recall-own phase, an additional judgement that evaluates source (whether the idea was really their own idea or another participant's idea) would be required. Consequently, performance in the recall-own phase is more vulnerable to factors or processes (such as the elaboration performed) that may affect memory representations.

6.3.2 Source monitoring

The source monitoring framework maintains that it is this characteristic detail of memory traces (e.g. semantic detail, special and temporal detail, affective information and cognitive operations) from the conditions under which a memory was acquired, that guides successful source attributions. Internally and externally generated ideas differ. While, self-generated memories may be schematic (i.e. formed by expectations of familiarity with the source) and reflect the cognitive operations that were attained during creation, externally generated memories tend to be more contextual and perceptual (see Johnson et al. 1993; Raye & Johnson, 1981). During generative-elaboration, participants may have carried out processes similar to those involved in the generation of ideas in the first instance as participants would have likely stored a record of the associated cognitive operations (Johnson et al. 1993; Johnson & Raye, 1981) that went into generating those improvements. Therefore, the memory representations of such G-E ideas may somewhat resemble the representations of their own internally generated ideas. In contrast, since imagining an event requires mental effort, plus evidence (including details) of sensory, perceptual (i.e. colours, perceptual clarity and vividness) and contextual information, (Finke et al. 1988; Johnson, Foley, & Leach, 1988; Johnson et al. 1988; Johnson & Raye, 1981; Johnson, Raye, Foley, & Foley, 1981; Johnson et al. 1982; Suengas & Johnson, 1988). I-E ideas may not resemble those of their own ideas as such processes used to construct images and rate ideas (I-E) will not reflect those utilised in idea generation (unless imagery is utilised by the participant during generation). Therefore, at test, when participants recall their own ideas and infer the original source of their memories, if the quality and quantity of the memory characteristics of the G-E ideas do resemble their own ideas, they may be confused as such and plagiarised (Johnson et al. 1993). Moreover, this research programme has demonstrated that the degree of these intrusions increases when the intensity of the G-E performed increases (Experiment 8 & 10).

The cognitive operations that are produced in response to such G-E may also involve some personal element that may serve to influence one's source judgements. For example, while participants were devising improvements for another participant's idea, that idea may have cued memories of times when they had seen or used the item in that way (e.g. using a brick to build a bike ramp in the garden). As a result of the effort involved through considering, re-working and improving the idea, it may feel more personally relevant to them by means of personal semantics (e.g. remembering building a bike ramp in the back garden) or personal style (e.g. they are the kind of person who would build a bike ramp in the garden). Thus, when that idea is later recalled, it may be accompanied by the personally relevant information or be recalled in their own natural or familiar style. This idiosyncratic information may then serve as a misleading discriminative cue that results in participants incorrectly assuming that the idea was initially their own. Such effects were not observed with ideas that were rated or imagined because those ideas would not be as cognitively rich, or closely tied to self, or self-style, irrespective of the imagery intensity. Therefore, it may not be the strength or effort *per se* invested that is responsible for the increased recalled intrusions but rather the nature and kind of elaboration and the according impact that that elaboration has upon one's memory characteristics and ability to effectively source monitor.

The idea that source monitoring ability influences plagiarism levels in the recall-own phase is not new but consistent with past research. Landau and Marsh, (1997) used the three stage paradigm while promoting source confusion at generation. Participants were encouraged to guess their computer partner's responses in addition to providing their own contributions. Thus, as similar search processes were required at encoding to derive each type of idea, their idea representations for both types of ideas were similar. Hence, the information from both the sources proved difficult to differentiate and the rates of unconscious plagiarism in the recall-own phase were increased (Landau and Marsh, 1997). Similarly, Macrae et al. (1999) found that when the participant's generating partner was perceptually similar to themselves (i.e. same gender) or when initial information encoding was obstructed (by a radio playing topical news reports during generation) source confusion was also promoted, which accordingly increased the likelihood that participants erroneously believed that another participant's ideas were their own. However, none of the above manipulations, including those in this research paradigm affected the rate at which such ideas were plagiarised as new (this is a point that we will return to).

Cumulatively, this research demonstrated that rates of unconscious plagiarism may not only be affected by manipulations that affect encoding and testing (Landau & Marsh, 1997; Macrae et al. 1999; Marsh & Landau, 1995) but by manipulations that are enforced post encoding and during the interval between encoding and testing. That is, improving someone else's idea can have a substantial impact on one's subsequent source monitoring ability and propensity to plagiarise that idea as their own, even when the idea was initially encoded without disruption. Moreover, such errors are robust and not eliminated when participants were made aware of such errors (Experiments 5) or were given strict instructions to monitor their sources (Experiments 9 and 10). This has worrying implications for potential cases of real world plagiarism (see section below).

There are however caveats to the source monitoring account. Although these data appear to follow nicely with this account of unconscious plagiarism there is no identifying evidence. It is very difficult to know what cognitive processes participants are engaging in during generation and while performing different types of elaboration. The process used by participants may be explored using a series of experiments outlined in the 'future research' section below that aims to break down the phenomenology of the G-E (e.g. generation, idea credibility, personal relevance). Additionally, potential evidence of what participants are doing during such tasks may be obtained from various self-report measures such as asking participants to vocalise what they are actually doing when they are improving the ideas, in terms of the level of detail that they provide and also the information about mechanisms that they may be using to complete the task (e.g. mental imagery). Alternatively, providing participants with the memory characteristics questionnaire at test (or a tailored derivative of) (Johnson et al. 1988), could offer insight into the different memory characteristics that are associated with each idea. This would permit comparison of the memory characteristics associated with ideas that participants generated themselves against those ideas that they G-E/improved (and those others ideas that experienced no elaboration). Previously, data from an altered MCQ test indicated that plagiarised ideas may differ from non plagiarised ideas (Bredart et al. 2003 see introduction) and thus, it would be interesting here to ascertain whether these differences would remain following the G-E.

6.3.2.1 Reasons for the difference in source monitoring and recall studies

The source monitoring framework maintains that effective source monitoring also depends on the quality of the decision processes employed to evaluate those sources (Johnson et al. 1993). Monitoring decisions may be based upon discriminating the qualitative differences between memory characteristics either relatively automatically and heuristically (Johnson & Raye, 2000) or more laboured and systematically (Hasher & Zacks, 1993). In the recall-own tasks, a source monitoring component is invariably evoked by participants in response to the task instruction but in such a task, source monitoring is not the participant's primary objective. Hence, participants may be subject to a situation that is akin to a divided attention manipulation as their cognitive resources are split between completing the task goal (e.g. reporting ideas) and monitoring sources effectively. However, as participants are primarily focused upon recalling solutions (or devising new solutions) cognitive resources may be deflected away from the source (Marsh et al. 1997). Therefore, it is likely that within this phase, participants were mainly engaging in more rapid, heuristic source decisions that were likely made with little knowledge of the processes being engaged (Johnson & Raye, 2000).

In contrast, the source monitoring tasks, participants were shown the previously generated ideas and were asked to indicate source as a primary task focus (in Experiments 9, 10 and 11). Therefore, more controlled (Chaiken, Lieberman & Eagly, 1989; Posner & Snyder, 1975; Shallice, 1988) systematic processes were likely to be induced and utilised (Johnson et al. 1993; Landau & Marsh, 1997) to evaluate source. As these decision processes are more stringent than those heuristic processes (that likely guide performance in the recall-own/ generate-new tasks) there was a reduced opportunity in such source monitoring tasks for source error (Marsh et al. 1997). This was previously highlighted by Marsh et al. (1997) who demonstrated levels of 21% plagiarism in the generate-new phase, being reduced to marginal levels of 0.8% in a source monitoring test.

The data in this thesis largely supports this source monitoring explanation based on decision processes at test, as overall (combining conditions) average plagiarism levels (input bound) dropped from 21.2% in the recall-own phase (Experiment 4) and 18.6% (Experiment 4) in the generate-new phase to 4.5% in replication study with a source monitoring test. However, evoking such systematic processing in this study was not sufficient to prevent plagiarised intrusions as the aforementioned G-E effect was observed. Performing G-E statistically increased one's propensity to recognise someone else's idea as their own, relative to any other manipulation (i.e. 9% G-E Vs 3% I-E, representation & control Experiment 9) and this followed despite extremely high levels of correct source recognition (approximately 90%). Additionally, strengthening this G-E only served to increase the overall rate of these intrusions in a source monitoring test. That is, when G-E was conducted once, an average of 4.5% plagiarism was observed across the experiment, with 9% following G-E. However, when G-E was strengthened and conducted twice, the overall rate of plagiarism increased to 6% across the experiment, with a rate of 6% following one session of G-E (on either day 1 or 3) and 9% following two sessions (G-E on both days) (Experiment 10). The global reduction in plagiarism here relative to the recall studies could be attributable to the systematic processes that were additionally engaged in the source monitoring test. Nonetheless, the pattern evident in the recall-own data was prevalent here and therefore, under certain conditions (i.e. following G-E) participants may not always be able to effectively source monitor to avoid plagiarised errors even when such systematic processes that draw upon a person's prior knowledge, metamemory assumptions and plausibility (Cohen, 1981) are induced. This finding lends further support to the notion that performing G-E may result in ideas indistinguishable from one's own.

The extent to which each type of processing may be utilised is contingent upon the demands of the task (Marsh et al. 1997; see also Marsh & Hicks, 1998) but may also be contingent upon a person's goals. In studies where strict instructions warned participants to avoid plagiarism or indicated that their responses would be carefully scrutinised at test, the average number of intrusions decreased relative to conditions where no such warnings were given (Landau et al. 2002; see also Marsh, Ward et al. 1999). Similarly, in Experiment 5 alerting participants to the purpose of the study and offering them a reward incentive to avoid errors also reduced the levels of plagiarism (input bound from 41%/ to 21% or output bound from 41% to 26%) relative to when no such warnings were given. This improved performance may be indicative of the stricter decision processes participants used here in their approach to the task, compared to such performance in the recall-own and generate-new tasks when no such manipulations were imposed. However, this instructional manipulation did not reduce the number of errors to the same degree as seen in Experiment 9 where a more stringent source monitoring test assessed participants' memory (9%). This is an interesting pattern and highlights the possible interaction of heuristic and systematic decision processes that may together determine the type and stringency of the adopted source monitoring (Marsh et al. 1997). Support for this interaction of processes may also be taken from demonstrations where participants have been required to complete the recall-own and generate-new phases under time pressure and plagiarism rates have increased. The processing engaged by participants in completing these tasks may not be exclusively heuristic or automatic as a degree of conscious processing must be evoked during such tasks for the time pressure to have affected plagiarism frequency (or if only heuristic processing was engaged then such heuristic processes must involve some degree of conscious processing) (Marsh, et al. 1997; see also Marsh & Hicks, 1998).

Interestingly, in a similar domain Hicks and Marsh (1999) investigated whether false recognition (reporting that something had been seen when it had not) could be reduced by incorporating more stringent source-monitoring criteria into decision processes. As observed in this research, making stringent source judgements appears to require careful scrutiny of memories and accordingly reduces plagiarised errors. Hence, performing source judgements should also result in reduced false recognition relative to more cursory old-new recognition judgements. This follows as false memories presumably lack memory characteristics relative to memories of perceived information and result in their more frequent rejection in source monitoring tests. Hicks and Marsh, (1999) using a word learning DRM paradigm (Roediger & McDermott, 1995), presented participants with lists of words (e.g. *bed, rest, nap..)* that were associated with non-presented *critical lures* (e.g. *sleep*). False memories were later scored if a critical lure was reported as an old word at test (on any type of test). However, across 3 experiments with varied combinations of sources, false recognition was increased rather than reduced by applying source-monitoring processes. One of the suggestions put forth to explain this counterintuitive result was that source monitoring instructions require subjects to look vigorously for source specifying information and may cause subjects to accept even weak source information as a source guide. This may lead to an overall lowering of the response criterion. It is possible, that in the plagiarism paradigm while participants completed the source monitoring test, if they had lowered their overall response criteria, they would also be more susceptible to plagiarism errors following G-E. This would follow as such memory characteristics would be more readily abundant and be more likely to resemble their own ideas. Hicks and Marsh (1999) argued that source judgments involved a more liberal response criterion than the old/new judgments and that the underlying cognitive mechanisms that are used to determine if an item is old or new are not the same in source memory paradigms as in old/new recognition paradigms. If these assertions are correct, these findings oppose multinomial modelling approaches to analysing source monitoring data (e.g. Batchelder & Reifer, 1990) as such models assume that source judgments happen after old/new judgments have been made, whereas in their studies this appears to not be the case. Moreover, it may be deduced that the psychological parameters that govern old/new detection may not always influence the psychological parameters governing source discrimination. This appears to be consistent with the findings from the generate-new task (that is more comparable with an old/new recognition task) and the finding in the source monitoring task in this thesis as while G-E did not significantly increase the likelihood that participants would plagiarise another participant's ideas as new, it did increase the likelihood that the ideas would be incorrectly recognised as their own on a source monitoring test (relative to I-E and control). This may be indicative of a more liberal decision criterion in the source monitoring task affecting plagiarism rates following G-E. However, rates of plagiarism in the generate-new task were high and were not eliminated by decisions more akin to an old/new judgement (although this measure was confounded by generation here) and the rates obtained following G-E were numerically highest. Clearly the false memory paradigm used here is different to the one used in the plagiarism study so the explanations may differ and not be pertinent to the plagiarism literature. For example, the effect in the false memory studies may be due to *content borrowing* (Lampinen, Neuschatz & Payne, 1999), where a new but related word is seen on the source test and it reminds the participant of an old target word and hence the source of that target may be falsely attributed to the word (Hicks & Marsh, 1999). Nevertheless, Hicks and Marsh (1999) expressed concern that their findings did not follow their initial predictions or recall results and fundamentally highlighted the important difference in memory errors that may ensue following different types of testing.

Consequently, exploring different tests in the unconscious plagiarism paradigm may provide additional insight into the cognitive mechanisms utilised and the way in which such source decisions are made. First, providing participants with a task at testing that better resembles an old/new recognition test that includes all participants' previous ideas with newly integrated ideas would prove interesting in terms of establishing correct recognition rates that may be compared to those attained in source monitoring tests. If source memory was improved it is possible that participants were employing a more stringent decision criterion. In addition, as the largest plagiarism effect sizes within this research paradigm were observed following generative-elaboration within the recall-own task, establishing such recognition rates in the absence of any recall -that may be interpreted as a 'generative' task itself- would be interesting. However, when such comparable source decisions are made in the real world, individuals are likely engaged in a generative task and are highly unlikely to be subjected to all prior ideas at one time.

Second, in this 4-stage unconscious paradigm, participants who completed the source monitoring test may hold an implicit or explicit belief about the proportion of test items that belong to certain classes that may have in turn influenced performance. In the source monitoring studies in this thesis, only half of the participants' prior ideas were re-presented. Dodson and Johnson (1996) systematically manipulated such proportions of different classes of items and found that participants may adjust their performance accordingly at test as 'recollection is not all or none' (p.181). Moreover, implicit beliefs that may be held by participants have been demonstrated to be altered by the characteristics of test (Healy & Kubovy, 1978). Hence, altering and specifically increasing the number of ideas presented on a source monitoring test and exploring whether participant performance would improve may also help to demonstrate the robustness of the obtained plagiarised errors that were observed following G-E.

Third, source decisions can be based upon subjective feelings of remembering that may be incorrectly brought about by the absence of memory characteristics or the presence of qualitative characteristics that lack clarity and sufficient amounts of detail (Hicks, Marsh & Ritschel, 2002). Thus, evaluating participants' remember/know judgements and contrasting them with source monitoring judgements would also add an interesting dimension to these plagiarism findings by evaluating participants' perceptions of the plagiarised ideas. During the recall-own session it is difficult to know what mental processes are exhibited by participants, as is the level of decision criteria that they are utilising. If participants exhibit a lenient decision criterion and have partial memory information for an idea being their own without explicitly remembering its generation, a 'know' response to such a plagiarised idea may be more likely than a 'remember' response. However, it would be interesting to ascertain whether the likelihood of providing a 'remember' response would be increased after participants had engaged in the process of generatively-elaborating someone else's idea and hence whether this generative process sufficiently increased one's propensity to incorrectly 'remember' an externally generated idea being 'generated'

6.3.2.2 Generate-new plagiarism

Participants in this phase were more likely to plagiarise other participants' ideas than one of their own prior ideas. This finding is in accordance with the generation effect that declares that self-generated stimuli are recalled and recognised better than perceived stimuli (Slamecka & Graf, 1978). As previously discussed, self-generated information is more cognitively rich than perceived information as participants have a record of the idea and the operations that were experienced while generating such an idea. This information is intensified in cases where an idea was particularly difficult to generate (see Marsh & Hicks, 1998). Therefore, self-generated ideas were more likely to be remembered and were less likely to be plagiarised as new during testing (Johnson et al. 1993). Very low rates of such intrusions were observed across studies and these rates were unaffected by the different elaboration manipulations.

Moreover, these findings adhere to those that would be predicted by models of strength as self-generated ideas would assume a higher activation strength than other perceived ideas (Marsh & Bower, 1993; see section 6.4.1). Plagiarised ideas in the generate-new phase have been reported to be those ideas with a post-generational activity (Marsh & Landau, 1995). Unconsciously plagiarised errors arise if this heightened availability of such ideas is not linked to the prior experience and rejected, but is rather incorrectly attributed to the spontaneity of having generated something novel (Johnson et al. 1993). Thus, in this generate-new task, when participants are primarily and cognitively engaged in generating new creative ideas, they may only apply a cursory heuristic source decision (Allen & Jacoby, 1990; Jacoby & Kelley, 1987) which may lead to intrusion. Assuming performance in the generate-new phase can be completed without systematic reference to source it will conceivably be less affected by manipulations that affect memory characteristic detail. Hence, the rate at which others' ideas were plagiarised as new may have been relatively immune to the different elaborative manipulations as they lead to memories of equivalent strength. Numerically the highest rates of plagiarised ideas were seen for the control ideas that had received no elaboration but only in Experiment 4 were these control ideas plagiarised statistically more than elaborated ideas. However, across this research program although ultimately the highest rates of plagiarism were obtained in the recall-own phase, interestingly a higher number of participants were likely to exhibit at least one plagiarised error in the generate-new phase (86.8%) than in the recall-own phase (76.1%) phase. This difference may be due to different baseline probabilities, but the generate-new errors were robust and performing elaboration of either kind did not prevent individuals from plagiarising someone else's idea as new.

It is possible that the experimental manipulations may also disrupt generate-new performance. Bink et al. (1999) demonstrated that a consequence of considering more credible information is that people may spontaneously think about the implications of such ideas (Petty & Cacioppo, 1986). When participants were explicitly asked to generate implications of ideas from a less credible source, plagiarism levels were equated with those of the more credible source. Through providing the implications, participants may store extra cognitive operations during encoding (Johnson et al. 1993). As cognitive operations have been demonstrated to revive more quickly than perceptual details in a response deadline procedure (Johnson, Kounios & Reeder, 1994), credible ideas may have revived slightly more quickly. Therefore, the greater availability for this class of item may be mistaken in the editing process of a generative task, not for feelings of oldness but rather for feeling of spontaneity for truly having generated something new. Consequently, performance may not reflect levels of 'activation per se' but rather be operationalised as a quicker revival rate upon re-encountering an idea or item.

Interestingly, however, the authors claim that the storing of these extra cognitive operations did not affect explicit memory measures such as free recall or source monitoring as such measures may depend upon how long a memory takes to fully revive.

The process of idea development (G-E) utilised in this research programme may be a comparable process to the implication generation here. However, in this research paradigm the G-E manipulation did affect the two explicit measures of correct recall and recall-own plagiarism. Consequently, it may be possible that the memory characteristics may also influence generate-new plagiarism. For example, a similar explanation in terms of cognitive operation revival rate and misclassification may help account for why only the G-E ideas (in Experiment 4) were not reduced following the reward incentive manipulation in Experiment 5 where participants were exhibiting more stringent source monitoring (where control ideas and re-presented ideas were). In addition, this explanation may in part account for why ideas that were G-E twice were numerically plagiarised more than those I-E twice, I-E twice reduced plagiarised intrusions relative to I-E once whereas G-E did not follow this pattern. Hence it is possible that if the experimental manipulations were further strengthened, generate-new performance may also be disrupted by G-E. However, these speculations must be interpreted with caution as statistically across studies there was no difference between I-E and G-E on the generate-new tasks.

6.3.2.3 Relationship between item and source memory

The independence of item memory (where prior information is not remembered) and source memory (where prior information is remembered but the source of that information is not) has been implied in various ways across studies (e.g. Shimamura & Squire, 1987). For example, Schacter, Harbluk and McLachlan (1984) found that the ability to discriminate among multiple information decays more rapidly over a one week delay relative to remembering that the prior event occurred and Voss et al. (1987) found that individuals were better at later recognising (as old) items they had initially produced, than words generated by their partner but that source memory ability for the items was equivalent. Differing findings may be a function of the different decision processes utilised at test rather than the independence of the two measures per se. However, the relationship between item forgetting and source forgetting was initially explored in an unconscious plagiarism domain by Brown and Halliday (1991). At testing, a source monitoring test followed the recall-own and generate-new tests and specifically from this test, measures of source forgetting (i.e. 'own' responses labelled 'others' and 'other's' responses labelled 'own') and item forgetting (the actual 'misses' i.e. 'own' responses labelled 'new' and 'others' responses labelled 'new') were calculated. At immediate testing, participants made half the errors that recall participants made but the two types of errors that they made did not initially differ. However, following a one-week retention interval, source forgetting increased at a higher rate than item forgetting and moreover no significant correlation was observed between the two measures for the source monitoring participants (hits-false alarms). Hence, the authors concluded that there was little relationship between unconscious plagiarism and source memory difficulties (see also Johnson & Raye, 1981; Schacter et al. 1984; Shimamura & Squire, 1987; Voss et al. 1987).

However, Marsh and Bower (1993) claimed that factors that affect item memory also affect source memory. They disputed Brown and Halliday's (1991) finding that source and item memory were independent on the basis of the two indices that they used to reach their conclusion that the measures were uncorrelated. Marsh and Bower (1993), using a similar procedure, observed higher levels of plagiarism (up to nine times) than Brown and Halliday (1991), but still did not observe a positive relationship between the measures. However, they believed this was because source and item forgetting possessed a negative relationship. That is, in this task, as the probability increases for participants to label their own ideas as others' ideas, the probability that the remaining ideas will be simultaneously labelled new decreases. Consequently, Marsh and Bower (1993) maintained that the non significant relationship that was reported by Brown and Halliday (1991) was a function of balancing a true positive relationship between item forgetting and source forgetting with the negative relationship inherent in the two measures. Thus they advocated that the two measures are not independent.

However, crucially here the relationship between item memory and unconscious plagiarism shows a dissociation between recall-own unconscious plagiarism (and source monitoring unconscious plagiarism) and generate-new unconscious plagiarism. Therefore, the different types of unconscious plagiarism cannot both have the same relationship with source monitoring. Also, the source monitoring theory itself could lead to alternate patterns because source monitoring is a function of heuristic (strength) and analytic processes. These two may be separable and so different patterns may be found across different studies if these studies differ in terms of how much they use heuristic/analytic judgements.

6.4 Practical implications

In real plagiarism cases, individuals who are engaged in product generation (i.e. song writing, or academic writing) are conceivably highly motivated to make correct source judgements to prevent themselves from blatantly copying. Where unconscious plagiarism has been implicated, a pervasive theme through many cases has been that the artists (e.g. George Harrison) are so convinced that their composition is original that they are determined to profess their innocence and the originality of their work in court. It is possible that these artists presented their product following a lengthy process of idea development that is somewhat similar to the G-E discussed in this research program. When participants were engaged in a process of improving someone else's idea, rates as high as 70% of those other peoples' ideas were incorrectly reported as their own creative idea and this was observed after only two such generative sessions.

Landau and Marsh (1997) previously claimed that source monitoring in early stages of idea development may obstruct progress because it might inhibit generation of ideas that are similar (but sufficiently different) to older ideas. They therefore suggested that a creative artist (e.g. a writer) might better benefit from source scrutiny once the novel product is finished. In this way the creative process could proceed unimpeded and the writer could later apply the more stringent type of decision processes that are used by participants to avoid plagiarised errors. However, following the idea improvement process (G-E), when participants were highly motivated to be accurate at test to avoid plagiarism errors, high rates of 21% and 9% were nonetheless reported (or incorrectly identified) as one's own (Experiment 5, 9 & 10). Thus, in light of the research presented here, creative artists who do not source monitor until the novel product is finished but who have engaged in an elaborative developmental process, may be particularly susceptible to plagiarised errors.

Moreover, the pressures that face creative artists in industry were not accurately encapsulated in these studies. For example, subjecting participants to factors such as internal 'stress' or external 'time pressure' has been observed to disrupt the source monitoring process by which possible ideas are assessed and to diminish processing capacity that results in an increased probability of source misattribution (Landau et al. 2000; see also Johnson et al. 1993). Additionally, the pilot data conducted in this research programme indicated that a more ecologically valid retention interval of three months further impaired source monitoring ability and served to increase the likelihood of appropriating someone else's idea as one's own. Hence, from these results and those demonstrating intensified effects of repeating such idea development (Experiment 8), it may be speculated that individuals who have engaged in this idea improvement process over extended time frames and who are faced with real deadlines may be even more likely to produce appropriated ideas.

However, one critical question that may be asked in response to these findings, particularly following the idea improvement (G-E), refers to the point at which a 'developed' idea may be considered as a 'new idea'. Answering this question is paramount for the purposes of this research (see future research below) and regarding real world plagiarism cases. In legal terms, there appears to be no universal agreement about what constitutes 'substantial similarity' of two works. In some cases anything recognisable classifies as plagiarism even if the overall similarity is questionable (Challis, 2003). However it is difficult to ultimately assess as many ideas that are generated evolve through a natural process that is likely to be akin to this idea improvement. It is very rare for an idea to be entirely and exclusively original, as one's inspiration is usually obtained from a prior vestige (see Ward, 1994). On occasions individuals are happy to contribute their basic ideas for others to pursue if they are not intending to develop that idea themselves. In cases such as these, this development would not be seen as plagiarism. However, where permission has not been sought to reproduce prior works, an individual's perceptions of plagiarism may vary along with the way that the plagiarism may be dealt with. Cases may be taken to court (e.g. Bright Tunes Music Corp. v. Harrisongs Music, Ltd, 1976)[13] but if a 'borrowed' tune had not been financially lucrative, then taking expensive action may be seen as pointless and in some artist may even regard unconscious plagiarism positively and view the intrusion as a compliment. Hence, cases may be dismissed without legal action (e.g. the song "make 'em laugh" from Singing in the Rain that was very similar to Cole Porter's song "Be a Clown" as cited by Collins, 2002) or be resolved through out-of-court settlements (e.g. Vanilla Ice; Copyright website, 2005) at the discretion of the 'plagiarised' and other artists involved. Therefore, providing an answer to the question 'where should one draw the line?' is beyond the scope of this thesis as each accused plagiarism case is multifaceted, unique and to some degree subjective.

[13] Bright Tunes Music v. Harrisongs Music. 420 F. Supp. 177 (SDNY 1976)

One main problem with cases of 'unconscious' plagiarism that result in legal action is the lack of consistency of the penalties that are assessed, as on occasions, individuals deemed 'unconscious' plagiarists may receive harsher penalties than those whose intent was not regarded as unconscious (Three Boys Music v. Michael Bolton, 2000). Determining whether copyright law should extend to the unconscious is controversial but in legal terms it does. Cases are evaluated on an individual basis but given that governing rules are elusive, standardising penalties is difficult even once the severity of a case is determined. Standardising penalties consistently within academia is also problematic as evaluating one's liability when information is created independently of one's consciousness is difficult. Identical treatment of those plagiarising with and without intent may not be fair as unconscious plagiarists may not be able to prevent such errors. However, in practice this is a contentious question due to the absence of any available measures that may be used to distinguish those deliberate errors from truly unconscious ones. Moreover, institutions that practise leniency towards unconscious plagiarism may actually promote plagiarism by indirectly encouraging deliberate plagiarists to claim 'unconscious' plagiarism as a legitimate 'excuse'. However, creating consistent policies that deal with treatment of plagiarism would be desirable. Regardless of one's intent, plagiarism is still morally wrong and so measures are needed to protect those individuals who create and develop the initial idea from exploitation (although perceptions of such exploitation or consequences of exploitation may vary) and to help prevent individuals from making unconsciously plagiarised errors.

This research has demonstrated that after improving basic information, individuals may inadvertently plagiarise said information as their own even when they are motivated to be accurate (Experiment 5, 9 & 10). Developing basic information is a natural process that people in various positions engage in on a frequent basis. For example, information from elsewhere may be used by students who cut and paste when writing an essay; academics who amalgamate information for lecture notes; politicians proposing a campaign; advertising executives launching a product or researchers designing experiments for a research proposal or devising theoretical models. In all such varied cases, a great deal of time and effort is involved in developing, improving and coherently expressing such 'information'. It is thus feasible that during this generative nurturing process those individuals may experience a degree of source confusion and incorrectly attribute externally derived information/ideas to themselves. The research from this thesis has implied that repeating this generative process intensifies such plagiarism and that over time the possibility of plagiarising may grow. Thus, it may be those individuals who work hard improving information that may be the worst affected. Most importantly however, even when individuals are aware of plagiarism with a desire to avoid reproducing other's ideas, they may nevertheless re-produce such information as their own.

It is very difficult to predict the number of these types of errors that occur in the real world, but it is likely to be substantial. However, the prevalence of unconscious plagiarism and source monitoring errors is only anticipated to increase in the future. This claim is made on the basis of the vast (and growing) array of information that is posted on the internet and the number of individuals globally who have easy access to that information. People are likely to be exposed to an abundance of information (ideas, literature, music) from a host of different sites. Some of these sites may not display valid copyright information (or may not have one) or may contain information that is simply 'cut and pasted' from elsewhere without appropriate referencing (Austin & Brown, 1999). Hence, over time, not only will this increase the difficulty in identifying the true origin of 'plagiarised' material but it will create environments in which it will become increasingly easy for individuals to develop/improve basic information (within a host of domains) and thus be potentially subjected to situations that may be conducive to unconscious plagiarism .

6.5 Future areas of research

In this thesis, it may be construed that following G-E an original idea may not be considered as a plagiarised idea but as a 'new' improved idea. However, this is not anticipated to have influenced the main results seen in this research program for two reasons. First, although participants developed the basic ideas, the function of such uses did not often alter as the ideas given were very diverse and so were not easily confusable with one another. Scoring throughout this research programme was strict and if there was any ambiguity over an ideas' originality then that idea was not scored as an instance of plagiarism. An idea was only scored as an instance of plagiarism when the use was identical to an idea from the generation phase. In the recall-own phase, only in a couple of cases was a non identical idea scored as an intrusion and this only occurred when the functional use was the same, but the wording differed (e.g. a brick as a door stop or a brick as a door wedge). Ideas that had a similar but not identical use (e.g. buttons as a snowman's eyes or buttons as eyes on a teddy) were not scored as an intrusion as clearly determining when such similar uses are true instances of plagiarism is problematic. In general, across the 11 studies, the nature of the uses given for each of the 4 objects were clear and as the given ideas were not often similar the cases of plagiarism were easy to isolate. In addition, scoring ambiguity was reduced by the presence and agreement between two independent raters. Second, the striking finding in this research program with respect to G-E was observed in the recall-own phase. In this phase, the ideas that should have been reported were the participants' own ideas that they initially gave in the generation phase (irrespective of any elaboration that was subsequently carried out). If another's idea was elaborated into a 'newly' developed idea, this should not have had a significant impact upon these recalled results, as such newly-created ideas should not have been reported in the recall-own phase (a marginal number of new ideas were intruded in the recall-own phase but these were excluded from analyses). This would have been a more pertinent problem in the generate-new phase as the scoring regarding developed ideas resembling old ideas would be more subjective. As previously stated, scoring was also stringent in this phase and those questionable ideas were not scored as intrusions. Hence, GN plagiarism rates potentially may have only increased in this phase if a more lenient scoring procedure was utilised. However, differentiating between an initial idea and a newly developed idea in this task is still elusive and implementing a lenient scoring system may have resulted in a type 1 error. Yet, in the real world this is a difficult point to address and returns to the issue outlined above concerning where the line should be draw between a plagiarised and a developed idea, as this process reflects the natural process by which many great ideas are based.

An issue that may have influenced participant performance within this paradigm is the possibility of participants adhering to a response 'bias to self'. In these studies, self generation was a common task and one from which (across the study) the largest proportion of ideas were exposed (among generation and generative-elaboration). Therefore, it is possible that at testing if an idea came to mind and the participant was unsure about source, that rather than attributing the idea to self on the basis of the altered memory characteristics it was attributed to self as generating was the most common task (c.f. Hoffman,1997; Slamecka & Graf, 1978). This is similar to Kahan's (1996) finding where participants imagined or perceived information at encoding, then at test they were more likely to incorrectly attribute previously imagined ideas to having been perceived when they were unsure about source, and this was reversed when cognitive involvement was increased. Kahan termed this affect 'bias towards the real'. In order to rule out this similar possibility within this 4 stage paradigm, the number of ideas that participants generated (at generation and generated to at elaboration) would need to be matched with ideas from a different, external source, so that such task frequency may not influence source attributions.

In this research paradigm the impact that G-E has on rates of recall-own plagiarism did not deviate across studies and was apparent to a considerable degree in each. Consequently, a next important step in this unconscious plagiarism research is to uncover the phenomenology of the effect by specifically investigating the crucial aspects of the generative-elaboration that are responsible for the extremely high rates of self appropriation rates of others' ideas as one's own.

One possible explanation for this effect following G-E may reside in the perceived credibility of the idea. For example, such 'improved' ideas may be regarded as better ideas and so, more appropriate to plagiarise (as compared to non-improved' imagined or rated ideas). Therefore, rather than the process of improving the idea per se driving these intrusions (as previously suggested) the ideas resulting from the improvement process may be responsible for the intrusion. Such a view would fit with data from Bink et al (1999) who had people read potential solutions to a problem (How can the number of traffic accidents be reduced?). The presented ideas were randomly sampled from a single pool, but participants were told that half had been generated by students, and the other half generated by town planners. Later, when attempting to generate their own solutions to the traffic problem, participants were more likely to plagiarise the more credible ideas that had been presented as coming from the town-planners. Whilst this methodology differs from the paradigm used within this research program, it is similar enough to suggest an alternate account of the generative-elaboration effect. It is possible that people plagiarise the ideas they improve because they become more credible, rather than because the elaboration is generative, as previously argued. This possibility could be investigated by encouraging participants to consider generated ideas in a more, or less, credible way by suggesting either why novel uses may fail in their role or why they may be a success.

A second possible explanation for the increased plagiarism rate following G-E may concern the content of the actual elaborations that individuals offer in response to the presented ideas. Specifically, such elaborations may involve personally relevant information. For instance, during generation person A might generate the idea of using a brick as a door-stop. However, at elaboration, person B devised improvements for this idea, that may think of decorating the brick with striped wallpaper or may have even imagined the brick being used in their own home. Hence, at testing, person B might remember the idea of a striped brick door-stop and have to judge whose idea it was. If they particularly like stripes, or they remember the image of the decorated brick in their own home, they may mistakenly believe that this indicates that the idea was originally theirs. That is, they may use personal-relevance as a (mistaken) cue for idea-ownership. This possibility may be tested by encouraging participants to generate idea improvements for either their own use or for use by an older adult.

To date, the studies in this research program are the only ones to use a 4 stage paradigm to investigate the effects of elaboration on unconscious plagiarism. The additional elaboration phase was selected to mimic the effects of idea-development that is likely to happen in real-world situations, since real-world plagiarists are likely to have thought about and cultivated their ideas over an extended period of time. However, all the work conducted that has used the 4-stage paradigm has used the Alternate Uses Test at generation. Although other tasks showing plagiarism have been reported in the literature (e.g. category member generation, Brown & Murphy, 1989; creative drawing tasks, Marsh et al. 1996; brainstorming solutions to a real-world problems, Bink et al. 1999), these have only been studied in the context of the 3-stage paradigm. Consequently, investigating whether the effects of elaboration seen with the Alternate Uses Test will generalise to other problem solving type tasks would be important to explore. Utilising a creative brainstorming task at generation that uses issues that hold relevance to the participants' life (e.g. improving different aspects of university life such as their students' union or their halls of residence) would be interesting.

The pilot data here indicated that a 3 month delay between generation and testing increased and in fact nearly doubled plagiarism relative to testing following a one-week retention interval. Although a small sample size was utilised here, the finding was nonetheless significant. This pattern is perhaps explainable in terms of a more lenient decision criterion that is employed over time as memory traces inevitably weaken. However, there is bound to be a point at which these memory traces fade and it is possible that at such a point that these plagiarism rates may be seen to dissipate. Therefore, examining rates of plagiarism following varied retention intervals would be interesting with reference to the generalisability of such studies to real world cases that arise over extended time frames. Along a similar vein, while examining delays the notion of context reinstatement at testing could also be investigated. Previously, when participants have been tested in the same context that they were in during generation (with their initial generating partner), the available memory cues have reduced levels of plagiarism relative to when this context differed at test (without their initial generating partner) (Macrae et al. 1999). In the studies cited in this research paradigm participant have been exposed to the same contextual conditions (generating participants and environment) at generation and testing and thus have also been exposed to various retrieval cues (see Macrae et al. 1999). Removing this context at testing would raise the external validity of the study, as it is unlikely that when individuals are creating/plagiarising external information that they will be immersed in the environment in which they were introduced to the information in the first instance. Therefore, it may be speculated that following G-E, when participants are tested in a different context that plagiarism levels may be raised.

Lastly, an important point that plagues the laboratory based literature is whether participants really believe that the plagiarised ideas were their own, as without a doubt, self-belief is a major component of real world cases of plagiarism. Thus far, degree of belief has not been systematically investigated in laboratory studies. Those studies employing confidence judgments taken following the testing phase have generally revealed lower average confidence ratings for plagiarised ideas than participants' own ideas (e.g. Landau et al. 1997). However, there is a degree of overlap in ratings given to plagiarised- and own-ideas. For example, studies have shown that a substantial proportion of plagiarised ideas (12-32%) are given the highest possible confidence rating (e.g. Bredart et al. 2003; Marsh et al. 1997). To date, whether the generative-elaboration effect has an impact on degree of belief in the plagiarised ideas has not been directly explored. Confidence in the originality of one's recalled ideas may be indirectly sought from the findings that financial inducement to avoid plagiarised errors (Experiment 5) did not remove the G-E effect. Hence, confidence in those ideas is likely to be higher following generative-elaboration (as participants plagiarised so often in this condition), but clear empirical evidence is required to support this claim. Interestingly, research in the imagination inflation domain has demonstrated that repeatedly imagining a fictional event (e.g. Garry et al. 1996), or merely re-exposure to the fictional idea (Sharman et al. 2004) can increase confidence that the imagined event actually occurred. Thus, in this literature, generative-elaboration is not required to produce an effect. There are two potential corollaries of this pattern: either belief in the reality of fictional events and plagiarism of others' ideas are influenced by different factors, or the production of an error and the degree of confidence in that error are influenced by different factors. Obtaining confidence ratings as an additional independent measure in the aforementioned 4 stage paradigm would provide a means to examine whether error rate and belief in those errors are affected by the same variables.

6.6 Summary

This research was motivated by trying to understand real world plagiarism. Across 11 studies, consistently high levels of unconsciously plagiarised errors were obtained. More pertinently, high levels of plagiarism were obtained following idea improvement (G-E), across 4 recall-own studies (20.4%-70.4%) and two source monitoring studies (9%). Hence, this idea improvement process had a powerful effect on plagiarism rates when people later try to recall their own ideas and this was the case when participants were motivated to avoid these errors via written warning, financial incentive and task demands. Hence, this data suggests that real-world conditions that require people to take ideas and work on them are likely to result in those people coming to believe that the original idea was their own. This may therefore constitute a possible mechanism by which creative artists, who may have worked on and invested considerable time and effort into a basic idea, may come to appropriate that idea as their own. Moreover, these mechanisms may not only help to explain unconscious plagiarism but may also offer insight into conceptually related issues concerning how individuals may come to hold certain beliefs, succumb to advertising or political movements and may aid progress in psychotherapy (Bink et al. 1999).

Appendix A

A random list of novel uses that constitute a representation of the ideas generated across experiments.

Brick: A CD Player casing
Brick: A Cushion
Brick: A Mouse mat
Brick: A piece of paper
Brick: As a bowl (some bricks have grooves in the middle)
Brick: as a foot stall
Brick: As a large crayon (as it crumbles and marks)
Brick: As a ruler to draw straight lines
Brick: As a weapon
Brick: As an exfoliate
Brick: As posts for a rounder game
Brick: as the feet of a table
Brick: ashtray
Brick: attach to bottom of shoes to make you look taller
Brick: Balance one upon your head to improve posture
Brick: break up and use to write with
Brick: Build a stand for the TV
Brick: Carve a little house into it for mice
Brick: chair
Brick: computer stand
Brick: cooking pot
Brick: could use to make a maze for an animal
Brick: could use to make a road for toy cars
Brick: crumble it up and make a decoration
Brick: designer table
Brick: Door stop
Brick: drill hole in and use to keep pencils in
Brick: drinks mat
Brick: drop from a cliff to see how far down the water is
Brick: engrave to keep score in games using tally system
Brick: file your nails with
Brick: fish tank
Brick: fishing weight
Brick: hammer
Brick: hold them in each hand for as long as possible to stretch arms
Brick: hollow out and use as shoes
Brick: hot stands for pots after cooking
Brick: in a goldfish bowl, as decoration
Brick: keep as a pet
Brick: kitchen utensil holder
Brick: line them up along the door to stop a draught blowing in
Brick: make stepping stones
Brick: make stilts
Brick: Paint individual faces and suchlike on them and have a brick family
Brick: paint it yellow and use it a marker
Brick: paper weight
Brick: place small candles on top of it for a table decoration
Brick: play jenga with them (tower of blocks, take turns in removing a brick each)
Brick: pretend it is a microphone and sing into it

Brick: Put a small fire out with
Brick: put in a pattern to write a message
Brick: scratch finger nails along the side of it as though its a nail file
Brick: Sculpture
Brick: stack up as a jump in a horse competition
Brick: stand on to reach into a cupboard
Brick: Throw at someone you hate
Brick: Throw them into the sea in a brick throwing contest
Brick: to create a new game
Brick: to cut something on
Brick: to draw, with the dust that comes off it (like chalk)
Brick: to get an apple or something down from a tree, by throwing it up at it
Brick: to keep a door shut
Brick: to play table tennis on
Brick: to prop a window open
Brick: to sit on
Brick: to smash a window with
Brick: to stop a mouse coming out of its hole
Brick: toilet roll holder
Brick: use as a cooking weight
Brick: use as a foot rest
Brick: use as a paperweight
Brick: use as a step
Brick: use as a training weight
Brick: use as plane wheel chocks (to keep plane from moving forward)
Brick: use as prop in a play
Brick: use for a printing picture
Brick: use for vandalism
Brick: use it as a plate stand
Brick: Use it to play the drums with
Brick: use it to stir a large pot of paint
Brick: use lots of bricks to balance on top of each other as a game
Brick: use to break an entry
Brick: use to crush food
Brick: use to weigh things down, i.e. in water
Brick: weight (for exercising)
Brick: you can build a house
Brick: you can place it on a bike to make it go faster
Brick: you can use it as a desk
Button: you could use them as money tokens
Button: As a hat
Button: as a nail head (stick it onto a piece of wire)
Button: As a necklace, if you add string
Button: As a patch for a hole in a jumper
Button: As a strainer, using the holes
Button: As a sweetie
Button: As a toy for a cat
Button: As an object to skim over water
Button: as false nails that you don't have to re-paint
Button: attach to a dogs collar
Button: bottle top
Button: Can string a lot together to make an abacus
Button: Christmas tree decorations
Button: computer button
Button: could make button up shoes

Button: could play a smaller version of bowls with discs
Button: could stick along walls of buildings to give information in brail
Button: could stick on your bag as decoration
Button: cut the middle out and make a ring
Button: decorate a birthday card
Button: decorate around computer monitor
Button: do a picture
Button: door stop
Button: Drop from a high building to dent someone you don't like car
Button: earplug
Button: earrings
Button: Eat soup with
Button: false nails
Button: fishing bate
Button: Fool people into thinking they are flying saucers
Button: Glue it to the TV to make the on/off button more obvious
Button: glue them to the bottom of shoes so you can slide on concrete
Button: have a red self destruct button in a car
Button: hold it vertically on its side on a flat surface and spin it round
Button: insert glass and use as a manacle
Button: light switch
Button: lots sewn onto a jacket for that just off the catwalk look
Button: magnifying glass
Button: make a curtain of buttons
Button: make a necklace out of lots of them, or some sort of jewellery
Button: make abstract art with them
Button: make an ornament
Button: make glasses from them
Button: make into cot mobile
Button: mosaic
Button: necklace
Button: Paint and use as a replacement eye ala a glass eye
Button: Paint loads a make a mosaic
Button: put in someone's shoe to annoy them
Button: put into shoes to get taller
Button: put lots in a plastic container to make a musical shaker
Button: put many in a box to make it rattle (kids toy)
Button: put one that doesn't work on a keyboard
Button: Sell them as souvenirs
Button: sew them to a bag to make it look more interesting
Button: shell
Button: Small Frisbees
Button: stick in belly button
Button: stick lots together and dribble paint through holes to make artists tool
Button: Stick them all over your body and pretend that your a button magnet
Button: Stick to the bottom of shoes and create ice skates
Button: stick to your feet for permanent shoes
Button: stone
Button: sunglasses
Button: tablet
Button: throw into the air like confetti
Button: Throw them like ninja stars
Button: tie 2 together by a length of string to make a throwing weapon
Button: tie lots together to make a belt
Button: to throw at someone

Button: to use a plate
Button: to use as a shaker
Button: to use as a stencil
Button: to use as a toboggan
Button: to use as a tray
Button: use a big one as a plug
Button: use as a remainder, i.e. put notice underneath
Button: use as counters in a card game
Button: use as fins in making a model of a shark
Button: use as guitar plectrum
Button: use instead of Christmas decorations
Button: use it to flip into the air like you use a coin for heads or tails
Button: use them as mini Frisbees
Button: use them as play money
Button: use them for animal toys
Button: use them for tokens in poker
Button: Write words with them by arranging them
Button: you could put them on a candle for a design
Button: you could use them as pretend headphones
Button: you could use them on the bottom of table legs
Paper-clip: A Pen
Paper-clip: A Screw
Paper-clip: A weight
Paper-clip: As a boomerang
Paper-clip: as a hairgrip
Paper-clip: As a stencil for a possible tattoo
Paper-clip: As one of those sword things that go through club sandwiches
Paper-clip: Bend into a needle and sow with
Paper-clip: bend it into letters or words
Paper-clip: Build a replica terminator; out of loads of them
Paper-clip: button
Paper-clip: Chandelier
Paper-clip: clip to ears as decoration
Paper-clip: could use in stead of pegs to hang out washing
Paper-clip: could use instead of false nails
Paper-clip: could use to make a scarf
Paper-clip: curtain hook
Paper-clip: curtains
Paper-clip: decorate photo frame
Paper-clip: door hinge
Paper-clip: ear phones
Paper-clip: fishing hook
Paper-clip: get something out that has fallen down small gap
Paper-clip: hair tie
Paper-clip: hairclip
Paper-clip: heat it up and use it to burn messages into wood
Paper-clip: javelin
Paper-clip: make a 32 of them into various shapes and play chess with them
Paper-clip: make a bridge for mice
Paper-clip: make an anklet
Paper-clip: Make braces to straighten teeth
Paper-clip: make into stick to grow plants up
Paper-clip: make into tongs to pick up rubbish
Paper-clip: make jewellery with
Paper-clip: make to a moving doll/figure for a child

Paper-clip: make wire sculptures
Paper-clip: metal basket
Paper-clip: mobile
Paper-clip: needle (threader)
Paper-clip: open out and use as a switch if the button on your lap top has broke off
Paper-clip: pen top
Paper-clip: put them on a bike wheel so the rattle
Paper-clip: Put through a bulls nose and drag by
Paper-clip: Scratch a tattoo into your arm with one
Paper-clip: Scratch your name into a picnic table with it
Paper-clip: sell them as lucky charms
Paper-clip: Shape them into balls
Paper-clip: shoe laces
Paper-clip: straighten and use as a tooth pick
Paper-clip: tie all your stationary together
Paper-clip: to clean your nails
Paper-clip: to get an object that's stuck in a hole out with
Paper-clip: to get out the rest of a tube e.g.: lipstick
Paper-clip: to hang washing on a line
Paper-clip: to hold nose shut to keep from breathing
Paper-clip: to open a safe
Paper-clip: To open packets etc, when you need a sharp object and you have no scissors
Paper-clip: To pick a lock
Paper-clip: To pick the label of bottles
Paper-clip: to pick up peas with
Paper-clip: to pierce your ear with
Paper-clip: to pinch a balloon
Paper-clip: to reset things like calculators and watches
Paper-clip: to scratch hard to reach places
Paper-clip: to scratch paint off something
Paper-clip: To spell out words by bending it
Paper-clip: to stir paint
Paper-clip: to test a magnet
Paper-clip: to thread a lace through a garment of clothing
Paper-clip: To use as a tool, to get into small spaces
Paper-clip: to use on a corset top to keep it together
Paper-clip: to wear in your hair as hair grips
Paper-clip: tool
Paper-clip: toothpick
Paper-clip: toy
Paper-clip: TV. Aerial
Paper-clip: unbend them to make a hair tie
Paper-clip: unblock the sink with it
Paper-clip: Use as improvised surgical needle
Paper-clip: use as shoe lace
Paper-clip: use end of it to scratch graffiti into a table
Paper-clip: use it as a needle to push string through the place on a camera for a strap
Paper-clip: use it to scratch a cd
Paper-clip: use the end of it to clean a small gap on a piece of jewellery
Paper-clip: use the end of it to clean underneath fingernails
Paper-clip: use them to hang up wet pieces of paper
Paper-clip: use them to poke people
Paper-clip: use them to scratch off nail polish
Paper-clip: use to make guitar frets
Paper-clip: use to replace broken fuses

Paper-clip: use to store paper, i.e. put paperclip through important notices, so don't lose
Paper-clip: use to tie cable together
Paper-clip: use to write in paint
Paper-clip: wind chime
Paper-clip: you could make a lead for a dog
Paper-clip: you could use one as a key
Paper-clip: you could use them as a brush
Paper-clip: you could use them to hang up utensils
Shoe: A bed for a doll
Shoe: A Pet
Shoe: A Plate
Shoe: A Wine glass
Shoe: Adapt it so an animal could wear it
Shoe: aquarium
Shoe: As a bad smell deterrent for rodents
Shoe: as a ball in a game
Shoe: as a desk tidy
Shoe: as a fish tank
Shoe: as a gift wrapping for something small e.g.: ring
Shoe: As a paper weight
Shoe: as a place to hide something in it
Shoe: As a toy in a gold fish bowl
Shoe: As a water ski
Shoe: As an instrument to stoke a fire with
Shoe: bath plug
Shoe: Bird feeder
Shoe: Burn it to keep warm
Shoe: can holder in a car
Shoe: clothes peg holder
Shoe: computer mouse
Shoe: container
Shoe: could break up and use the soles to make a Frisbee
Shoe: could use instead of a hammer
Shoe: could use the leather to make headband or scarf
Shoe: could use the padding on inside of trainers to stuff teddy of pillow
Shoe: cut off sole and use as rubber wire insulator
Shoe: decorate and use as a toy
Shoe: Decorate it and use it as a plant pot
Shoe: door stop
Shoe: Drink coffee out of it
Shoe: drop it if a high building
Shoe: flask
Shoe: football
Shoe: garden ornaments
Shoe: give it to a one legged person
Shoe: glass
Shoe: hanging of ceiling as a wind chime
Shoe: hide and seek for children
Shoe: hold it by laces and twirl around head
Shoe: hold open a door with one
Shoe: holdall
Shoe: keep pens and pencils there
Shoe: Lamp shade
Shoe: make into a lamp
Shoe: make up box

Shoe: Modern art
Shoe: money box
Shoe: prop up to use a s pins for bowling
Shoe: put it in the shower to hold your shampoo
Shoe: put them on your hands to keep hands warm
Shoe: Scoop something out of a deep fat fryer with it
Shoe: Sew the leather upper onto a t-shirt to make an interesting fashion item
Shoe: shoe bag
Shoe: sling for broken arm
Shoe: speaker phone
Shoe: spin it by the laces and get people to jump over
Shoe: store sweets in one
Shoe: strap to knees as knee pads
Shoe: Sun dial
Shoe: throw it up at a window to get someone's attention
Shoe: Tie laces together trip someone up
Shoe: tie shoes around waist with the laces as a belt
Shoe: tie the shoe laces of two shoes together to make a mobile
Shoe: tie them to your head and use them as rabbit ears
Shoe: to hold rice
Shoe: to keep spaghetti in
Shoe: to keep spare change in
Shoe: to throw at someone
Shoe: to trip someone up with
Shoe: to use as a door stop
Shoe: toilet brush holder
Shoe: toy for a pet
Shoe: use 3 as juggling balls
Shoe: use as feet for another object, i.e. a table
Shoe: use as model foe still life painting
Shoe: use as pot for bits &&; bobs
Shoe: use as washing up gloves
Shoe: use in a game - throw as far as can
Shoe: use it as a glove
Shoe: Use it as a mould for a clay shoe statue
Shoe: use it as a piggy bank
Shoe: use it as a weight to balance scales
Shoe: use it instead of a stocking at Christmas
Shoe: use it to break a window
Shoe: use it to carry objects in
Shoe: Use it to hide your valuables
Shoe: use laces as hangman noose
Shoe: use laces of lots of shoes to make jump rope
Shoe: use leather to make bookmark
Shoe: use the shoe laces to make a friendship band
Shoe: use them as stockings if you don't have any and put presents in them
Shoe: use to hit a ball, like a racket
Shoe: use to make shoe shaped cement moulds
Shoe: vase
Shoe: wear it as a hat
Shoe: you can unpick the shoe and use it as a shin pad
Shoe: you can use the laces for a corset
Shoe: you could make a coat for an animal
Shoe: you could use them as a goal post

Appendix B

A randomly selected list of idea improvements that were given by participants during generative-elaboration.

BUTTON	Improvements
Button as a Frisbee	Frill the edges Take the centre out Luminous colours
Button as a wall decoration	Make it into a clock make it oblong colour co-ordinate it
Button as a shaker	Put buttons in an attractive container Use different sized buttons Many colours of buttons
Button as pretend money	Melt and re-mould Paint pictures of coins on the money Used different sizes
Buttons as catapults	make a dent in the button to sit on the catapult Create catapult that could fire more than one button at a time sharpen buttons
Button as counters	Use different colours Use different shapes bit of rubber on the end to stop sliding
Button to make a photo Frame	Carve them into shapes add glitter use different sizes
Buttons to write messages on the wall	magnetic/Velcro so you can change the message different colours for different people messages different sizes for different priorities
Button to scratch a stone	sharpen edges cut them into different thicknesses (lines) reinforce with metal to make more effective
Button as teddy eyes	paint to look like eyes sew around them - embroidery cut them to shape
Button as a bag decoration	use different coloured thread to attach different designs with varying size buttons enhance the decoration with embroidery
Button to fill a whole	use several to make it look like a feature not a repair colour the button to match the other material re-shape for perfect fit

Buttons as tidily winks	fill button holes appropriate colours/ teams make storage pot
Button as screen saver	superimpose other images onto the button Different photos of sizes and shapes animate the button
Button as an abacus	different colours different textures carve the buttons into different shapes
Buttons to make a trail	use large bright coloured buttons tie them together attach something to make a noise
Button to decorate a cake	make into a smiley face create a layering effect stick them on vertically and horizontally
Button as dials	write numbers on them make holes big enough for fingers use shiny buttons
Buttons as confetti	lots of coloured buttons cut them in half to reduce size/weight include button shavings
Button as wheels	Put an axel through the centre use black buttons use 4 buttons the same
Button as dolls plates	fill in the holes Use different sizes use different colours
Button as a puck in ice Hockey	bright colour so can be easily seen Use a large heavy button carve out the centre and fill with heavy substance
Build a button tower	different sizes make then interlink-able build a base
Buttons as fish tank Decorations	use coloured and shiny buttons build a button arch used varied shapes and sizes
Buttons to make bunting	buttons on string hanging down from the main bunting many sizes and colours thread on string in-between material
Button as a Christmas tree Decoration	spay with festive colours attach to stockings thread on to a paperclip and make a hanging decoration

BRICK

Brick as a weight	Rubber stops at the bottom Make it smooth Round the edges
Brick sculpture	Carve and make abstract combination of different coloured bricks Put it on a stand
Brick as a weapon	Spikes out of the end put a laser on it hide a gun in it
Brick as art	smash up and build as a different shape Put in a different context Frame it
Brick as a BBQ	Put it on legs Put a grill on top Paint the outside
Brick as an ashtray	Carve grooves for the cigarettes create a dip in the middle coat it in glass
Brick to prop up a car	Put padding around brick to prevent scratching layer bricks for height make a wide base
Brick to smash windows	cover with a sheet - makes less noise Sharpen edges Use a heavy brick
Brick to play catch	cover with foam Round off the edges Hollow out the centre
Brick to stand on	put wheels on for easy manoeuvre large bricks for stability stack bricks for extra height
Brick as modern art	Put it in a glass tank Stand against white background use with broken bits to look effective
Brick as a table	Paint bricks Add a table cloth use glass as a table top
Brick as book ends	Reduce in size decorate to look like a book file so smooth

Brick as an iron	heat up the brick smooth the ends add a handle
Brick as a hammer	reduce the size make it harder attach a handle
Brick as a candle holder	carve space for the candle create a grove for the wax make wholes for more than one candle
Smash a brick to make gravel	use different types of brick spray with weed killer add sand
Brick as a paperweight	attach pictures of friends Carve it add a design to it
Brick as a shot put	make it circular make it smooth colour it
Brick as a ruler	ensure side is straight add measurements along the side stick two together to make it longer

PAPERCLIP

Door wedge	Make it heavier Paint it Varnish it
In to a shape	Crimp it Soldier it Right angles
Paperclip as a tie	Rubberise it cover it in cloth make them different sizes
Paperclip to repair a zip	Decorate it Colour it to co-ordinate with clothing rust proof it
Paperclip as rope	Bend all the ends over so there are no sharp ends Spray paint it glue lots together to make it thicker
Paperclip to mend watch strap	cover with leather file the ends to prevent sharp edges put beads through the remainder of the paperclip
Paperclip as radio ariel	bend it into shape

	use many for a longer ariel stick a bead on the end
Paperclip as a hook	twist paperclips together - stronger coat to reinforce hook shape tie it to string
Paperclip to punch holes for brail	sharpen the end to make it easier add a handle make it work electronically
Paperclip as a spring	coil it tightly add rubber centre to make it more springy paint or add tinsel
Paperclip as a bracelet	twist it to look more attractive add beads wrap it with cotton thread
Paperclip as a mini bow and arrow	bend the paperclip into bow shape add elastic band blunten end so it's not dangerous
Paperclip as toothpick	thin the end of the paperclip sterilise point end
Paperclip as a hairgrip	attach feathers Bend into interesting shapes use coloured paperclips
Paperclip to pick lock	make larger by attaching 2 together easy use handle strengthen the metal
Paperclip as a stirrer	elongate attach rubber to prevent burning hands clean it
Paperclip as a shoelace	use flexible metal remove sharp edges use coloured paperclips
Paperclip curtain	attach paperclips to wool use similar sized paperclips used coloured paperclips to create patterns
Paperclip as picture stands	bend into floral shapes attach pretty stones attach to a sturdy base
Paperclip earrings	hang objects from them bend into symbols connect them to make a chain
Paperclip as a guitar pick	bend into shape Fill the hollow centre write your name on it

Paperclip as drum beaters	put a rubber ball on the end use many for increased strength wrap material around the beater
Paperclip as chain mail clothing	similar sized paperclips bend the paperclips to make clasps blunten the ends of the paperclips to prevent scratching
Paperclip to eat with	bend into a fork shape Lengthen attach handle
Paperclip as a pointer	Make it long and thin paint black to make it less obvious put a rubber tip on the end
Paperclip as cufflinks	attach a button to paperclip attach other small items to the paperclip colour them to match tie

SHOE

Food container	Sterilise it Line it Put a lid on it
Shoe to scare birds	Fit it with an explosive Camouflage it Put it in a field
Shoe as earrings	Make shoe out of platinum Embedded with stones small shoe
Shoe as pet toy	line it with fur put bells in it make out of rubber
Shoe as gloves	Line with fur Make finger slots Sew on beads
Shoe as a belt	weave fabric around the laces Use the leather to cut out shapes Hand laces to it for decoration
Shoe to smell out a room	put smelly cheese inside attach the shoe to pulley system so don't have to go near it attach a siren to the shoe
Shoe as a hamster home	Make a lid Put hay inside Make a flap for the door
Shoe as a hat	use laces as a neck tie

	Add accessories Split the sides to fit on head
Shoe as a trophy	spray gold and engrave use football shoes for football prizes etc.. use different sizes for different prizes
Shoe as a flower pot	Water proof it fill with soil and stones for drainage decorate with floral design
Use a shoe as a reminder	paint the shoe yellow attach a note pad put it in an obvious place
Shoe as a desk tidy	Use boots colour them cut the toe out and place rubbers there
Shoe as a mini boat	make water tight make it buoyant add a sail
Shoe as a fan	cut the leather and re-shape attach to the sole paint a design on the leather
Shoes as dumbbells	put different things inside to vary weight remove the heels cover the foot entrance
Shoe as a dog toy	use a hard shoe so they can chew it remove sharp pieces - i.e. heels put treats inside
Shoes for making picture	Use shoe prints use various sizes and sole prints use different textured paint

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1) Stark, L-J., Perfect, T. J. & Newstead, S. (2005). When elaboration leads to appropriation: Unconscious plagiarism in a creative task, *Memory, 13,* 561-573

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Psychology Press
Taylor & Francis Group

When elaboration leads to appropriation: Unconscious plagiarism in a creative task

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Brown and Murphy's (1989) three-stage paradigm (generation, recall-own, generate-new) was used to assess the effects of participant elaboration on rates of unconscious plagiarism in two experiments using a creative task. Following the generation phase, participants imagined and rated a quarter of the ideas (imagery elaboration), generated improvements to another quarter (generative elaboration), and listened to a quarter of the ideas again without elaboration, with the remaining ideas acting as control. A week later, participants attempted to recall their own ideas, and generate new solutions to the same cues. In Experiment 1 both forms of elaboration equally increased correct recall, and decreased plagiarism in the generate-new task. However, generative elaboration led to significantly greater plagiarism in the recall-own task, but imagery elaboration did not. Participants in Experiment 2 were encouraged not to plagiarise by means of a financial incentive. However, they showed the same pattern as seen in Experiment 1. Therefore, contrary to a simple strength account, the probability of a person plagiarising another's ideas is linked to the particular nature of the elaboration carried out on that idea, rather than its familiarity.

The need to correctly attribute a memory, a thought, or an idea to its origin is important for normal human interaction and is inherent in most facets of everyday life (Johnson, Hashtroudi, & Lindsay, 1993). Inevitably, mistakes in this attribution process may occur in life where two information sources become confused. This occurs in unconscious plagiarism, where an individual may unknowingly plagiarise another by claiming a previously experienced idea as their own novel idea. There have been many documented cases of unconscious plagiarism over the years including high-profile cases where public claims have been made about the originality of the work, for example, Freud's theory of bisexuality (1960), George Harrison's song *My Sweet Lord* (Dannay, 1980), and the makers of the 1997 film *The Full Monty* (as cited by Macrae, Bodenhausen, & Calvini, 1999).

Recent research investigating unconscious plagiarism has been based on Brown and Murphy's (1989) experimental paradigm. Their experimental paradigm involved three distinct stages. In an initial generation phase, groups of four participants took turns to generate category exemplars (see also Brown & Halliday, 1991; Macrae et al., 1999). Following this encoding session, participants were instructed to recall their initial responses (recall-own task) and to generate an equal number of new responses (generate-new task). Plagiarism was scored slightly differently in the two tasks. In the recall-own task, plagiarism was counted whenever a participant recalled an idea that had originally been generated by someone else. In the generate-new task, plagiarism was counted whenever a previously generated idea was re-generated, whether originally by someone else, or by the participant. Thus, in the generate-new task participants can plagiarise themselves. More recently, this paradigm has been extended to more creative tasks such as puzzle tasks (Marsh & Bower, 1993), brainstorming sessions (Marsh, Landau, & Hicks, 1997), and drawing novel space creatures (Marsh, Landau, & Hicks, 1996). Here

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http://www.tandf.co.uk/journals/pp/09658211.html DOI:10.1080/09658210444000232

we use the Alternate Uses Test (Christensen, Guilford, Merryfield, & Wilson, 1960).

Brown and Murphy (1989) found that unconscious plagiarism occurred in each of the three phases. The frequency of plagiarism was higher when participants were generating new exemplars (9%) than when they were directly recalling their own exemplars (7%). These repetitions were significantly more frequent than would be expected by chance. Further, plagiarising from others occurred more frequently than inadvertent self-duplication, thus suggesting that people monitor self-generated and other-generated information in different ways (Slamecka & Graf, 1978; Vos, Vesonder, Post, & Ney, 1987).

Using variations in the Brown and Murphy (1989) paradigm, research has shown that delays between initial idea generation and later generation of novel responses significantly increase rates of unconscious plagiarism (Brown & Halliday, 1991; Macrae et al., 1999; Marsh et al., 1996). Additionally, studies have demonstrated that participants are more likely to plagiarise a person of the same sex (Macrae et al., 1999), the person who spoke directly before them (Brown & Murphy, 1989; Linna & Gülgöz, 1994) and ideas from a more credible source (Bink, Marsh, Hicks, & Howard, 1999). Cumulatively, however, in previous studies, unconscious plagiarism tends to be higher when participants generate new ideas than when they recall their own ideas.

One issue of central interest in this work is the difference in the rates of unconscious plagiarism across the recall-own and the generate-new tasks. This is believed to be due to different decision processes being utilised in the two phases (Marsh & Bower, 1993). In the recall-own phase, when participants recall their initial ideas, source-monitoring judgements are required. Participants need to first determine whether an idea is an old idea and second to establish who initially generated it. However, when generating new ideas, less differentiated information is required as participants can rely on judgements of item familiarity (Dodson & Johnson, 1996; Johnson et al., 1993). Therefore, due to the extended use of source monitoring during the recall-own phase, levels of unconscious plagiarism are sensitive to factors related to the attributes of the memory representations. Landau and Marsh (1997) demonstrated this by manipulating the representations of self-generated and computer-generated information. Initially, memory representations were made highly confusable by requiring participants to guess the computer's responses in addition to generating their own ideas. Similar search processes and cognitive operations were utilised to derive each of the ideas and so information from both the sources was more difficult to differentiate. Consequently, rates of unconscious plagiarism in the recall-own phase increased. However, rates of plagiarism in the generate-new phase remained unchanged. This was because the ideas were familiar and could easily be rejected as new ideas. Conversely, when perceptual differentiation was manipulated and the two sources were made easy to distinguish, unconscious plagiarism in the recall-own phase was reduced. This finding has subsequently been replicated by Macrae et al. (1999) who found that source confusion manipulations at encoding and retrieval increased unconscious plagiarism in the recall-own phase but did not increase generative errors.

A neglected area of research that is likely to impact on source judgement is the effect of participant elaboration following exposure to an idea. Elaboration might involve thinking about, evaluating, or developing the idea after the initial generation phase, but before test. Real-life plagiarists inevitably think about appropriated ideas and accordingly invest considerable time and effort into these ideas. The aim of the present work is to explore the possibility that it is this process that is responsible for a plagiarist maintaining their belief in the originality of their work. A number of findings suggest that elaboration should have an impact on rates of unconscious plagiarism. For example, imagination inflation research (e.g., Garry, Manning, Loftus, & Sherman, 1996) demonstrates that a false belief that a fictional event has occurred is created by repeated imagination experiences concerning event information and detail. During this process, and over time, participants come to believe that the imagined event actually occurred. There have been similar results documented within the domain of eyewitness memory. Repeatedly interviewing a witness increases their confidence in their testimony, even for erroneous details (Shaw, 1996).

Elaboration processes are anticipated to be an important component of unconscious plagiarism and provide the focus for this paper. Two specific forms of elaboration were examined. The first was elaboration based on the idea itself. In this condition, participants were required to rate how easily the idea could be visualised and how effective an idea it was. In depth of processing terms (Craik & Lockhart, 1972), this would be regarded as deep processing since it requires both the formation of an image and the consideration of the meaning of the idea. However, crucially, it does not involve the participant developing the idea in any way. The second form of elaboration did just that. In this condition, participants were required to think of three ways of improving the idea. Because this second form of elaboration involves a degree of generation, it will be referred to as *generative elaboration*, to contrast with the previously described *imagery-elaboration* condition. Given that these forms of elaboration also involve being repeatedly exposed to the ideas that were previously generated, two control conditions were used. In addition to the standard baseline condition of single exposure to the generated ideas, there was a condition in which ideas were re-presented, without any accompanying instructions to elaborate. This enabled us to rule out simple repetition as the basis of any effects observed in these conditions. Also, this permitted a comparison to be made between ideas heard once and twice.

The goal was to determine whether these different types of elaboration had differential impacts on plagiarism rates. Both forms of elaboration require deeper processing of the original ideas and so would be expected to increase the idea's strength in memory. Activation strength is currently the dominant model used to explain unconscious plagiarism (Bink, Marsh, & Hicks, 1999; Marsh & Landau, 1995). In this view, higher rates of plagiarism are anticipated in the recall-own task, as items with greater strength are more likely to be plagiarised (Marsh & Landau, 1995). Marsh and Bower (1993) suggested that as the activation strength of externally generated ideas is increased, their activation level becomes closer to that of self-generated ideas and so intrusions of plagiarised ideas occur. This view also predicts that both forms of elaboration should reduce plagiarism, relative to baseline, in the generate-new tasks. This follows because any increase in strength would lead to greater discrimination between new and old items, and thus reduce intrusions from previously elaborated ideas. Thus the simple strength account of unconscious plagiarism predicts that elaboration should show a dissociation across the two measures of plagiarism, but makes no predictions regarding the two forms of elaboration beyond that predicted by strength. That is, if one form of elaboration leads to stronger memory traces, as indexed by higher recall, one might consequentially expect to see higher rates of plagiarism in the recall-own task, and lower rates of plagiarism in the generate-new task in that condition.

An alternative viewpoint leads to a different set of expectations, however. In line with the source-monitoring framework (Johnson et al., 1993), one might expect participants to make an attribution about an idea that is currently in mind on the basis of the qualitative aspects of that idea. That is, a person might conclude that a particular idea is new because of the cognitive operations that led to it, or they may conclude the idea is a memory because of its perceptual qualities. or because they also can access other ideas associated with the event at encoding. In this view, the different forms of elaboration might have differential effects on unconscious plagiarism because they lead to different kinds of traces being laid down, and so different attributions. This difference is likely to emerge in the recall-own task. This follows because both forms of elaboration would lead to greater discrimination from new ideas than control items, and so show less unconscious plagiarism in the generate-new task. However, in the recall-own task, there is likely to be greater overlap between the processes of originally generating an idea and thinking of ways of improving that idea, than there is between originally generating that idea and imagining it and rating its quality. This follows because generating an idea and thinking of ways of improving an idea both involve generative processes, and participants may erroneously attribute the generation of the ways of improving the idea to the generation of the original idea.

There may also be scope in such a view for an effect due to personal style or personal semantics to emerge. That is, participants may think of ways of improving an idea that makes it "their kind of idea". For example, Person A might generate the idea of using a brick as a doorstop. However, Person B might think of improving this by decorating the brick using floral-design wallpaper. Later, Person B might recall the elaborated idea and, focusing on the floral attribute, believe that the idea must have been their own, since they particularly like flowers. This would be a use of personal style. An example of personal semantics would be if a participant had thought of decorating the brick so as to match their wallpaper at home. Recalling the brick as being decorated in the style of one's own home-décor might later be taken, erroneously, as evidence that the idea must have been one's own.

Thus, this view anticipates that elaborative encoding instructions that allow participants to generate ways of improving an idea will lead to substantially more plagiarism in the recall-own task than instructions that merely require participants to imagine an idea and judge it. Even though both may lead to memories of the same strength, as indexed by correct recall, it is the qualitative nature of the traces that will lead to these differential levels of unconscious plagiarism in the recall-own task.

The present work utilised the original Brown and Murphy (1989) paradigm of group generation followed by a later test session involving recall of old ideas and generation of new ideas. In addition to the standard methodology there was also an elaboration phase where participants were required to think about a subset of the ideas that had previously been generated. However, rather than using category generation as the original group task, the Alternate Uses Test (Christensen et al., 1960) was used. This task was selected as it has parallels with the category generation task but also requires a degree of participant creativity, within constraints that enable scoring procedures to be employed. This task also has the benefit of creating ideas that can be improved upon, unlike simple category membership. The testing session followed 1 week after the initial generation and elaboration stages. The expectation was that any form of elaboration would lead to a reduction of unconscious plagiarism in the generate-new task. However, the issue of particular interest was the rate of plagiarism in the recall-own task. Here, the strength account would predict that both forms of elaboration would lead to increases in unconscious plagiarism, while the source-monitoring account would predict that unconscious plagiarism would be particularly inflated by elaboration that involves thinking of idea improvements.

EXPERIMENT 1

Method

Participants

A total of 40 undergraduate students participated in the generation phase. However, 2 participants failed to attend the second testing session and so only 38 participants completed the experiment. Participants were undergraduates from the University of Plymouth and received partial fulfilment of a course requirement for their participation in this study.

Procedure

Four participants were randomly assigned to a group and given a seat around a central table. The participants were informed that they would hear a list of category names (e.g., a newspaper) and they would have to think of novel, non-conventional uses for the items (e.g., to make a paper hat). After the experimenter read aloud the first category (either brick, shoe, paper-clip, or button) participants were instructed one at a time to share their idea with the group. The order that participants were asked their ideas was denoted by a Latin square design. This decreased the likelihood that the participant would plagiarise the person who spoke directly before them, as they could not anticipate when they were going to speak (Marsh & Bower, 1993). Moreover, explicit instructions stated that they must listen to all the others' exemplars to prevent themselves from generating the same ideas as another person. The experimenter recorded all the generated ideas. For each of the four categories, each participant generated four novel uses. Accordingly, for each category there were 16 generated exemplars. Examples, of generated ideas included "to use buttons to play tiddly winks", "to use a shoe as a flower pot", and "to use a paperclip to decorate a picture frame".

The elaboration phase immediately followed the generation phase. Of the previously generated ideas, a quarter (one idea from each participant, from each category) was then subject to the following condition treatments. For the *imagery-elaboration* ideas participants rated the ideas on 5-point rating scales for how easy they were to imagine (*1 = difficult to imagine, 5 = easy to imagine*) and how effective they thought the ideas would be (*1 = not effective, 5 = very effective*). For the *generative-elaboration* ideas participants wrote down three ways to improve the given idea. For the *re-presented* items participants heard the ideas a second time but were not instructed to elaborate them in any way. *Control* ideas were not re-presented at this stage.

The order in which participants performed these tasks was counterbalanced across the groups. The experimenter read these ideas aloud in a predetermined random order, instructing the participants to rate, elaborate, or listen to the idea, as appropriate. This task completed the first session, which lasted approximately 40 minutes.

One week later, participants returned to complete the recall-own and generate-new phases individually on computer. In the recall-own phase, participants were shown the four category headings (e.g., *brick*) that they had previously generated to in the first session, with four blank spaces under each. The categories were displayed one by one in a random order for each participant. Participants were instructed to type in all of their own ideas from the first session (16 ideas). Recall was not timed or forced. If participants could not remember all of their ideas, then they were permitted to leave blank spaces. Once this had been completed, the same category headings were repeated in a random order. However, participants were asked to generate four completely new uses for each category that had not been previously generated (in any of the categories). If participants failed to enter four ideas, a message was displayed alerting them that they had not provided four ideas and could not proceed until all the ideas had been typed in. This session lasted approximately 20 minutes.

Results

Unconscious plagiarism was scored if an idea was identical or very similar to an idea previously generated by another participant (e.g., use brick as a doorstop or use a brick to wedge a door open). Furthermore, if a recalled/generated idea was identical or very similar to a previous idea from a different category, the idea was scored as an instance of unconscious plagiarism. Inclusion of these ideas did not alter the pattern or significance of the results. Responses were categorised independently by two raters. In the recall-own phase the raters indicated whether the ideas were correctly recalled, plagiarised, or new ideas (that were not generated in the initial phase). In the generate-new phase, raters determined whether the ideas were new, plagiarised, or duplicated ideas (i.e., ideas that appeared in the generate new phase more then once). The inter-rater agreement across all the ideas was 98.7%. Discrepancies occurred when ideas from the generation phase were similar to ideas produced as new ideas, for example "to use button as eyes on a teddy bear" and "to use buttons as eyes on a snowman". In instances such as these, the idea was not classified as being plagiarised. However, there were very few examples like these and all were resolved by discussion.

All of the participants exhibited an unconsciously plagiarised error in at least one of the phases (recall-own or generate-new). The overall numbers of ideas correctly recalled and unconsciously plagiarised in each of the tasks are summarised in Table 1.

Correct recall

In total, 460 ideas were reported. Of these ideas 331 ideas (72%) were correctly recalled, where each participant on average correctly recalled (i.e., did not plagiarise) 8.7 (SD = 2.5) of their initial ideas. The top row of Table 1 shows the effects of elaboration on correct recall. A within-subjects ANOVA revealed a main effect of elaboration status on participants' performance, $F(3, 111) = 10.26$, $p < .01$. Multiple pairwise compar-

TABLE 1
Experiment 1

	Elaboration status							
	Control		*Re-presented*		*Imagery elaboration*		*Generative elaboration*	
Task	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Recall	1.42^{a}	1.13	2.24^{b}	1.24	2.63^{b}	0.97	2.42^{b}	0.98
UP (RO)	0.53^{a}	0.73	0.63^{a}	1.05	0.55^{a}	0.76	1.7^{b}	1.8
UP (GN)	0.95^{a}	1.01	1.03^{a}	0.88	0.39^{b}	0.72	0.61^{ab}	0.89

Experiment 1: Mean rates of correct recall and plagiarism within the recall-own (RO) & generate-new (GN) phases for control ideas, ideas that were repeated and ideas the were subject to imagery elaboration and generative elaboration.

Means within a row that share the same superscript letter do not significantly differ from one another ($p < .05$ after Sidak adjustment).

Recall = Correctly recalled ideas in the recall-own task.

UP (RO) = Unconscious plagiarism in the recall-own task.

UP (GN) = Unconscious plagiarism in the generate-new task.

isons between means were conducted, with a Sidak-adjusted alpha level of .05. These revealed that the baseline condition was significantly lower than all the remaining conditions, which did not differ. This lack of difference suggests that imagery elaboration and generative elaboration produced memories of equivalent strength.

Unconscious plagiarism

Recall-own task. In this task, participants were required to remember as many of their own initial ideas as possible. Unconscious plagiarism occurred when participants recalled someone else's idea as their own. A plagiarised idea was only counted once. Of the 460 ideas that were reported, 129 ideas (28%) were unconsciously plagiarised. In the recall-own phase, 79% of participants (30 of 38) unconsciously plagiarised at least one idea that another group member had originally generated in the encoding session. Additionally, 57.9% (22 of 38) of participants made two or more intrusions.

A within-subject ANOVA revealed that the elaboration manipulation reliably affected rates of unconscious plagiarism, $F(3, 111) = 11.01, p < .001$. The means are displayed in the second row of Table 1, and were compared by Sidak-adjusted multiple comparisons as before. These revealed that generative-elaborated ideas were plagiarised more often than any of the other ideas. Therefore, conducting generative elaboration during idea encoding significantly increased the later plagiarism of those ideas. The remaining means did not differ significantly.

Generate-new task. Participants were required to generate four new ideas per category cue, but often participants unconsciously plagiarised another persons' ideas or inadvertently duplicated one of their own previous ideas (self plagiarism). In total, 602 ideas were generated and of these, 474 (78.7%) were new ideas, 113 (18.8%) had previously been generated by someone else, and 15 (2.5%) were participants' own ideas that they had inadvertently re-presented as new. The small remainder were duplicated ideas at test that were excluded from the analysis.

Self-plagiarism. There was a very small number of these types of intrusions and there was no significant main effect of elaboration status on self-plagiarism rates, $F < 1$.

Unconscious plagiarism. In the generate-new phase, 97.4% of participants (37 of 38) plagiarised by reproducing an old idea that had been previously generated by another group member. Moreover, 68.4% (26 of 38) made two or more of these intrusions. The effects of elaboration on rates of these errors can be seen in Table 1. A within-subjects ANOVA revealed a significant main effect of elaboration status on the rate of unconscious plagiarism for others' ideas, $F(3, 111) = 4.51; p < .05$. Follow-up tests were conducted as before, and revealed that the mean for the imagery-elaborated ideas was significantly lower than both control and re-presented ideas, but that no other comparison was significant.

Discussion

There were three measures of interest in this study. On two of them, recall and plagiarism in the generate-new task, there were equivalent levels of performance in the two elaboration conditions relative to the two control conditions. The only difference observed between the two forms of elaboration occurred in the rate of unconscious plagiarism seen in the recall-own task. In this task, generative elaboration led to considerably higher rates of plagiarism than imagery elaboration, which did not differ from the two control conditions.

This pattern is interesting for a number of reasons. First, the results strongly refute a simple strength account. There are two measures of memory strength available. The most direct is correct recall and on this measure neither form of elaboration exceeds the re-presented control. More pertinently, the two forms of elaboration did not differ, with in fact numerically higher recall for imagery elaboration. Thus, this measure refutes the idea that generative elaboration produces the strongest memories. Exactly the same conclusion can be drawn from the indirect measure of strength, the ability to avoid generate-new plagiarisms. Here again the two forms of elaboration are not statistically different, although they do reduce plagiarism on the generate-new task relative to either control or re-presented ideas. Further, it is the imagery condition that is numerically the lowest, suggesting stronger memories than generative elaboration. Thus both measures are consistent with imagery elaboration producing memories that are strong, if not stronger than the generative elaboration. Additionally, the generate-new plagiarism data, although not the recall data, suggest that both forms of elaboration produce stronger memories than re-presentation. Finally, both recall and generate-new plagiarism data indicate that re-presentation creates stronger memories than single presentation.

Using these measures of strength to predict plagiarism in the recall-own data produces a series of predictions that are not met. Strength would predict more recall-own plagiarism of re-presented ideas than control data; this was not found. Nor was there the expected increase in plagiarism following imagery compared to either re-presented or control. Conversely, in recall-own plagiarism, whilst strength would predict no difference in recall-own plagiarism (or perhaps a difference favouring imagery elaboration), a large difference favouring generative elaboration was found. Thus, a strength account is wrong on almost all accounts.

Whereas a memory strength account cannot explain the elevated levels of unconscious plagiarism seen in the generative-elaboration condition, a source-monitoring account readily explains this pattern. These data are in line with the idea that participants make attributions about the qualitative aspects of ideas that come to mind in the recall task. Ideas that were originally generated by someone else, but have been added to by the participant, were more than three times as likely to be plagiarised than control ideas or imagined ideas, and more than twice as likely to be plagiarised as repeatedly presented ideas. In fact, the magnitude of the effect was particularly surprising. On average, in the generative-elaboration condition, participants recalled an average of 2.4 items, and plagiarised a further 1.7 items. Thus, plagiarised items constitute 41% of all responses in that condition. Previous studies have shown much lower rates of plagiarism, more in line with the levels seen in the control condition here. The highest rates of plagiarism reported previously were those in the recall-own phase in Macrae et al. (1999). They reported plagiarism levels of between 14% and 24%, which are still well below the rate in this study.

There are a number of potential factors that may contribute to the high levels of plagiarism seen in the present study. This study is the first to use the Alternate Uses Task in this manner. Although it is not an overly demanding task, there may be certain task-specific factors operating that make it difficult for participants to complete. For example, the ideas may be less discriminable from each other than on some of the previously used tasks. Similarly, the use of an extended delay is not typical of the literature, but is consistent with previous work showing that delays increase rates of plagiarism (Brédart, Lampinen, & Deleldre, 2003; Brown & Halliday, 1991; Macrae et al., 1999; Marsh et al., 1996). In addition, the fact that in three out of four conditions participants encountered the ideas twice may also contribute to the higher rates of plagiarism. Nevertheless, while these factors might account for a general increase in plagiarism errors, they cannot account for the particular increase seen only in the generative-elaboration condition. However, because the general levels of plagiarism observed in this study were high, there was a concern that the levels were elevated as a result of participants not using a strict enough decision criterion to monitor their responses given in the recall-own and generate-new phases. Therefore, it was decided to conduct a replication of the study with an additional manipulation that encouraged participants to think more carefully about their answers before making a response.

EXPERIMENT 2

This study replicated Experiment 1 except for one detail. Participants were offered a financial incentive for not plagiarising any previously generated ideas, in order to encourage them to monitor their decision processes more carefully. Participants were told that a prize of £50 would be shared between all participants who avoided plagiarised errors. They were told that in the previous study this would have resulted in two or three participants sharing the money. The expectation was that this manipulation would encourage participants to monitor the source of their ideas carefully, and so reduce the overall plagiarism rates from Experiment 1. There was no strong expectation that this would affect the pattern of effects seen previously, although it did allow the testing of the possibility that the particularly high rates for the generative-elaboration items were due to this factor. As a manipulation check, participants were also asked to rate how hard they tried to not plagiarise any of the previously given ideas at the end of the study.

Method

Participants

A total of 40 undergraduate students participated in the idea-generation stage of the study. However, 4 participants did not attend the second test session and so only 36 participants completed the experiment. Participants were undergraduates from the University of Plymouth and received partial fulfilment of a course requirement for their participation in this study. None had taken part in Experiment 1.

Procedure

The procedure was identical to the Experiment 1, except for the incentive not to plagiarise. Before they began, participants were instructed that there was a reward available for all the participants who did not plagiarise any of the previously generated ideas. They were informed that a £50 cash prize would be equally split between the participants who did not re-produce any ideas from the initial session (previously given by themselves or any of the other participants). It was made clear that in previous studies only 5–10% of participants have been able to successfully do this. Consequently, their share in the money should be sizeable. At the end of the study, participants were asked to indicate how hard they tried to not plagiarise any of the previously given ideas using a 5-point rating scale from 1 = *not hard at all* to 5 = *very hard*.

Results and discussion

Unconscious plagiarism was scored in the same way as in Experiment 1. The same two raters were used and the inter-rater agreement was 99.3%, again with discrepancies resolved through discussion. When participants were asked how hard they tried to not plagiarise any of the previous ideas, 86.7% of participants responded with a 4 or higher. The mean rating on the 5-point rating scale was 4.4 (SD = 0.9).[1] Excluding those who had given a lower rating than 4 did not alter the results and so all the data were retained. The number of correctly recalled ideas and the number of plagiarised ideas in the generate-new and recall-own tasks are given in Table 2.

Correct recall

In total, 417 ideas were reported, 347 (83.2%) of which were correctly recalled (i.e., not plagiarised). Each participant on average correctly remembered 9.6 (SD = 2.9) ideas. A within-subjects ANOVA revealed that there was a significant main effect of elaboration status on rates of recall, $F(3, 105) = 7.31$, $p < .05$. Differences between the means were examined by Sidak multiple comparisons with an adjusted alpha level of .05. These revealed that the ideas that had received generative elaboration or imagery elaboration or had been re-presented were recalled more often than control ideas. As in Experiment 1 there were no other significant differences, thus providing no evidence for differential memory strength as a result of elaboration type.

TABLE 2
Experiment 2

	Elaboration status							
	Control		*Re-presented*		*Imagery elaboration*		*Generative elaboration*	
Task	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Recall	1.75^{a}	1.25	2.8^{b}	1.16	2.47^{b}	1.18	2.58^{b}	1.0
UP (RO)	.25^{a}	.50	.31^{a}	.82	.47^{a}	.81	.92^{b}	1.0
UP (GN)	.58^{a}	.60	.47^{a}	.77	.28^{a}	.57	.58^{a}	.69

Experiment 2: Mean rates of correct recall and plagiarism within the recall-own (RO) & generate-new (GN) phases for control ideas, ideas that were repeated and ideas the were subject to imagery elaboration and generative elaboration.

Means within a row that share the same superscript letter do not significantly differ from one another ($p < .05$ after Sidak adjustment).

Recall = Correctly recalled ideas in the recall-own task.

UP (RO) = Unconscious plagiarism in the recall-own task.

UP (GN) = Unconscious plagiarism in the generate-new task.

[1] Due to an administration error, seven participants did not receive this rating scale to complete.

Unconscious plagiarism

Recall-own task. Unconscious plagiarism was scored in the same way as in Experiment 1. In the recall-own phase, of the 417 ideas that were produced, 70 (16.8%) were unconsciously plagiarised. During this task, 75% of participants (27 of 35) unconsciously plagiarised at least one idea that another group member had originally generated. Additionally, 44.7% of participants (17 of 35) made two or more intrusions. As shown in Table 2, the elaboration manipulation reliably affected rates of unconscious plagiarism, $F(3, 105) = 6.32$, $p < .05$. Follow-up tests revealed that the generative-elaboration ideas were plagiarised at a higher rate than baseline ideas, re-presented ideas, and the imagery-elaborated ideas. The remaining comparisons between cell means were not significant. Therefore, as in Experiment 1, generative elaboration alone increased the later plagiarism of ideas.

Generate-new task. In total, 563 ideas were generated and of these, 481 (85.4%) were new ideas, 69 (12.3%) were unconsciously plagiarised ideas, and 13 (2.3%) were participants' own ideas that they had inadvertently re-presented as new.

Self-plagiarism. There were a very small number of these types of intrusions, only 27.8% (10 of 36) of participants plagiarised one of their earlier ideas. Only two participants made more than one intrusion. Moreover, there was no significant main effect of elaboration status on self-plagiarism rates, $F < 1$.

Unconscious plagiarism. In the generate-new phase, 91.7% of participants (33 of 36) plagiarised by reproducing an old idea that had been previously generated by another group member. Moreover, 55.6% (20 of 36) made two or more of these types of intrusions. A within-subjects ANOVA revealed that there was no significant main effect of elaboration status on the rate of unconscious plagiarism, $F(3, 105) = 1.65$, $p = .182$. As in Experiment 1, the lowest level of unconsciously plagiarised ideas was in the imagery condition.

Experiment 2 therefore largely achieved its aims. Rates of plagiarism were reduced from the previous study, although the magnitude of the reduction was larger in the recall-own task. Overall, in the recall-own task, mean number of plagiarised ideas per person dropped from 3.4 (Experiment 1) to 1.9 (Experiment 2). The equivalent figures for the generate-new task were 3.0 and 1.9. Thus, it appears that our incentive did result in participants making fewer intrusions on average. However, interestingly, this effect did not translate to the number of participants making any kind of plagiarised response. In Experiment 1, 79% of participants made a plagiarised response on the recall-own task, and 97.4% of participants did so on the generate-new task. In Experiment 2, 75% of participants made a plagiarised response in the recall-own task, compared to 91.7% in the generate-new task. In fact, in Experiment 2, there was no one who met the criterion of totally avoiding plagiarised responses.

Against the background of reduced rates of plagiarism, the basic pattern of findings seen in Experiment 1 was replicated. In the recall-own task, there was a significant effect of elaboration type, which was entirely due to the generative-elaboration condition. Although the mean number of plagiarised ideas per person dropped from 1.7 in Experiment 1, to 0.9 in Experiment 2, this remained at around double the rate seen in the other conditions. In contrast, the mean number of plagiarised responses in the imagery elaboration condition was only 0.4, which was in line with the rates seen for re-presented items (0.3) and control items (0.3).

The effects seen in the generate-new task were less clear-cut, although still in line with the previous results. In Experiment 1 the ideas that were subjected to both the baseline measures (control and repeated ideas) were plagiarised significantly more than the imagery-elaborated ideas and numerically more than the generative-elaborated ideas. However, in the second experiment, there was a significant reduction in the plagiarism in the control and re-presented condition compared to Experiment 1, and consequently there was little difference between the plagiarism levels across the manipulation of elaboration. However, once again the lowest rate of plagiarism was seen in the imagery-elaboration condition, again suggesting that imagery produces strong memories.

As before, a strength account cannot account for these data. The recall data suggest that control items are weaker that the other three kinds of item, which do not differ. Numerically, the highest recall is seen for re-presented items. The plagiarism data in the generate-new phase suggest no differences in strength but numerically it is imagery elaboration that minimises plagiarism to the greatest degree. Thus, neither measure suggests that generative-elaboration produces "strong" memories, but it is this condition that shows double the rate of plagiarism in the recall-own task, compared to the other conditions.

One pattern that is hard to explain is why the incentive manipulation only reduces plagiarism in the control and re-presented conditions. Clearly a simple threshold shift that might be utilised in a strength model such as a signal detection theory cannot explain this finding. However, since our main focus was on comparison of the two forms of elaboration, this pattern was not central to the current argument. What is pertinent is the replication of the pattern of reduced generate-new plagiarism for imagery compared to generative elaboration in Experiment 2. Although neither study showed a significant difference, overall generate-new plagiarism following imagery was about half that seen for generative elaboration. As we argued above, if the ability to reject ideas as being old rests on a measure of strength then this pattern would be consistent with imagery elaboration producing stronger memories. This pattern therefore serves only to strengthen the claim that the increased plagiarism for recall-own following generative elaboration could not be due to strength. Of course it is also possible that plagiarism in the generate-new task does not stem from strength alone. There may also be a metacognitive component such that participants apply a "memory criterion" (Mazzoni & Kirsch, 2002) to generated ideas. Thus, when an idea comes to mind, any associated imagery that is produced might lead to the conclusion that the idea is old and should be rejected. On the assumption that the imagery-elaboration condition creates more visual traces, this might explain why fewer generate new ideas are plagiarised following imagery.

GENERAL DISCUSSION

Overall the financial incentive used in Experiment 2 resulted in few systematic changes between the experiments. Both experiments produced substantial rates of unconscious plagiarism. Although the extent to which participants plagiarised was reduced in Experiment 2, relative to Experiment 1, the results from each experiment followed largely the same pattern. In both, elaboration status influenced correct recall, with poorest performance in the control condition. For plagiarism in the recall-own task, both experiments showed that only generative elaboration caused elevated levels of plagiarism. For plagiarism in the generate-new task, the pattern was less consistent. In Experiment 1 only imagery elaboration decreased plagiarism relative to the baselines, while in Experiment 2 plagiarism of the baseline ideas was reduced and there were no significant differences between conditions. Taken together, these results are inconsistent with a strength-based account of unconscious plagiarism, and are more supportive of a source-monitoring account of unconscious plagiarism errors.

Marsh and Bower (1993 see also Brown & Murphy, 1989; Marsh & Landau, 1995) originally suggested that in the recall-own task participants plagiarise ideas that have a high activation strength. They maintained that increasing the activation level of externally generated ideas makes these ideas more comparable to self-generated ideas. Therefore, the "overlap" between the ideas increases, and accordingly so does the rate of unconscious plagiarism in the recall-own phase. Conversely, increasing activation strength allows ideas to be rejected as old in a generate-new task, and so would be expected to lower plagiarism when new responses are required.

Our strategy in interpretation of our data to test these ideas has been to take the recall performance as an indicator of memory strength, and use this to make predictions about plagiarism rates in the two tasks. Clearly, given that there were no significant differences between the forms of elaboration in the two studies, a simple strength model fails to account for our data because recall did not differ between either of the elaboration methods but plagiarism in the recall-own tasks did. The same arguments apply to comparisons involving the re-presented ideas. A strength hypothesis would also have predicted that representation, which improved recall, would also have increased plagiarism in the recall-own task relative to baseline, but it did not.

If one adopts a similar strategy, and takes plagiarism in the generate-new condition as a proxy measure of strength, one runs into similar difficulties. Assuming that stronger memories are easier to reject as old in the generate-new task, but harder to distinguish from old in the recall-own, leads to the prediction that the two forms of plagiarism should be negatively correlated across conditions. This is clearly not the case. For instance, in Experiment 2, generative elaboration leads to numerically the highest rates of plagiarism in both tasks. Thus, however we operationalise memory strength, our data do not seem to conform to the predictions from the strength hypothesis.

One surprising aspect of the data in these studies was performance in the re-presented ideas condition. Merely re-presenting ideas, without instructions to elaborate in any way, had a substantial impact on rates of correct recall. In fact, in both experiments recall rates for this condition did not differ from the elaboration conditions, and were significantly higher than control ideas. However, given the increased recall seen in this condition, it is important to note that this was not reflected in higher rates of unconscious plagiarism in the recall-own task. Clearly our re-presentation control condition involves presenting participants with ideas to hear again, in the context of other ideas that they are being asked to imagine/elaborate. It would be naïve to assume that participants do not carry over some of the processing from the elaboration conditions to the re-presented ideas. What impact is this likely to have had? Foremost it can only serve to reduce differences in processing between the re-presented and the other conditions. If we were able to demonstrate robust effects, this would suggest that perhaps the effects we obtained are underestimates of the true effects.

We were able to explore this issue by comparing those ideas that were re-heard *before* any elaboration instructions were given, with those that followed either the imagery or generative elaboration. For correct recall and generate-new plagiarism there were no significant effects of presentation order in either experiment. However, for unconscious plagiarism in the recall-own phase, order was significant, $F(2, 35) = 4.73$, $p < .02$, with re-heard ideas presented first producing 0.36 plagiarisms, ideas following imagery rating 0.27, and those following generative elaboration 1.33. Thus, these data mimic exactly the pattern seen in the full data set, suggesting that those who carry out generative elaboration first carry this over to listening, and hence produce more plagiarisms. Those who begin with imagery elaboration show no such effect. The same broad pattern was observed in Experiment 2 (listen first 0.07, image first 0.25, generative elaboration first 0.70), but this did not reach statistical significance, $F(1, 35) = 1.83$, $p < .18$. Thus together the data suggest that listening a second time does not increase plagiarism, compared to baseline, except when preceded by the generative-elaboration instruction.

There are a number of potential reasons why generative elaboration increased plagiarism in the recall-own task. One, in line with the source-monitoring framework, is that the different forms of elaboration resulted in qualitatively different kinds of traces being laid down at encoding. When participants generated their ways of improving an original idea, they will have stored a record of the associated cognitive operations (Johnson & Raye, 1981; Johnson et al., 1993) that went into generating those improvements. It is this additional information (including the quality and detail) at recall that assists the participant in distinguishing between internally and externally generated ideas and inferring their origin (Johnson & Raye, 1981). During generative elaboration, participants may have carried out processes similar to those involved in generation of ideas in the first instance. Consequently, the memory representations would resemble the representations of their own ideas. Thus, at recall when source-monitoring judgements are made, if the perceptual detail for an externally generated idea is lacking but there is an abundance of associated cognitive operations, then the sources of the two types of ideas may be confused (Landau & Marsh, 1997; Marsh & Bower, 1993). Such a process would result in the original sources of the idea being misplaced and others' ideas incorrectly claimed to have been self-generated. Conversely, processes used in constructing images and rating the quality of ideas do not resemble those utilised in generation, and so the representations will not be confused at test. This idea is consistent with past research (Landau & Marsh, 1997; Macrae et al., 1999; Marsh & Landau, 1995).

These additional cognitive operations seen in the generative-elaboration condition may also involve some element of personal style or personal semantics that serve as a semantic cue. In reality monitoring literature, it is well documented that internal and external events differ (see Johnson & Raye, 1981) and internal memories provide additional cues that allow the origins of the ideas to be distinguished. Johnson and Raye (2000) maintain that the source of information is not stored with a memory but is inferred through an automatic heuristic process that is based on an evaluation of various information features. Therefore this additional personal information may incorrectly influence participants' source monitoring judgements.

While participants were performing generative elaboration by devising novel uses for ideas, they may have associated personally relevant information to the idea. Other participants' ideas may have cued memories of times when they have seen or used the item in that way (e.g., to use a shoe to hide money in). As a result of thinking about and improving the idea, the source may be confused and the idea may feel more personally relevant. What is personally relevant might consist of personal semantics (e.g., remembering using their shoe to hide money) or personal style (e.g., that they are the kind of person who hides money). This familiar style of the idea may be achieved through participants re-working the idea throughout the elaboration period. The effort exerted may serve to change the expression of that idea to fit the person's own style. Consequently, when the participant later recalls the idea, they may remember the personally relevant information, or recall the idea in a way that is familiar, natural, and in their own style. This idiosyncratic information may then serve as a misleading discriminative cue, and hence participants may erroneously decide that the idea was something that they had originally generated. Such effects would not occur with ideas that were merely rated or imagined because they are not so closely tied to self, or self-style. Therefore it is not the strength or effort *per se* that is responsible for the increase in recalled intrusions but rather the nature and kind of elaboration.

This research was motivated by trying to understand real-world plagiarism. Across two studies, the results indicated that generative elaboration has a powerful effect on plagiarism rates when people later try to recall their own ideas. These data suggest that real-world conditions that require people to take ideas and work on them are likely to result in those people coming to believe that the original idea was their own. This may therefore constitute a possible mechanism by which creative artists, who may have worked on and invested considerable time and effort into a basic idea, may come to believe someone else's idea is their own. Moreover, the results from Experiment 2 suggest that this process may occur even when people are warned about plagiarism and are consciously trying to avoid it.

Manuscript received 15 September 2003
Manuscript accepted 1 April 2004
PrEview proof published online 9 July 2004

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Elaboration Inflation: How Your Ideas Become Mine

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Abstract

Unconscious plagiarism occurs when individuals claim previously experienced ideas as their own. Using an adaptation of Brown and Murphy's (1989) 3-stage paradigm, participant elaboration was investigated using the Alternate Uses Test at generation. Following generation, ideas were imagined and rated (imagery-elaboration), improved in 3 ways (generative-elaboration), improved by another participant and then imagined and rated (rich imagery-elaboration) or not re-presented. A week later, participants recalled their original ideas and generated-new ideas. Relative to control, elaborating or imagining an idea previously generated by someone else improved recall and reduced plagiarism in the generate-new task. However, in the recall-own task, generative-elaboration alone led to high levels of plagiarism in the recall-own task. Consequently, it is the generative nature of the elaboration performed on an idea that influences later idea appropriation.

Elaboration Inflation: How Your Ideas Become Mine

Memories are not objective snapshots of the past but rather subjective reconstructions of events that are vulnerable to post-event information (Loftus & Pickrell, 1995). Misinformation provided after an event may be integrated into a person's memory, modifying his or her belief of what was personally experienced. While these modifications may be relatively minor (e.g. a stop sign becoming a yield sign: Loftus, Miller & Burns, 1978) or more acute (e.g. Nourkova, Bernstein & Loftus, 2004), distinguishing the sources of these facts without corroboration can be extremely difficult (Loftus, 2002). Moreover, post-event suggestion can plant and create entirely false memories (see Loftus & Bernstein, 2005 for a summary) for traumatic events (Porter, Yuille & Lehman, 1999), unlikely events (Mazzoni, Loftus & Kirsch, 2001) and even impossible events (Braun, Ellis & Loftus, 2002).

Similar false memories have been observed in twin studies, where one twin is involved in an event but where both claim ownership of the event memory (Sheen, Kemp & Rubin, 2001). The nature of the events in question may vary from mundane events (Küntay, Gülgöz & Tekcan, 2004) to quite significant events such as running away from home (Sheen, Kemp & Rubin, 2001). However, with no experimental intervention, one twin may come to possess a false belief. What may have caused this error? A conceptually related type of source confusion occurs in unconscious plagiarism when individuals assume ownership of ideas that are not their own. Indeed one could argue that one of the twins has plagiarised the other's memories. In both real life and in the laboratory, people unconsciously plagiarise experienced information by reproducing it under the illusion that it is new, or that they originally produced it. This phenomenon has particular implications for those who work in a creative discipline and strive to produce something high-quality and novel. Plagiarism cases have emerged that span time and disciplines, from Freud's theory of bisexuality (1960) to recent music copyright infringement cases (e.g. *Three Boys Music V. Michael Bolton*, 2000)[1].

Empirical studies based on Brown and Murphy's (1989) 3-stage paradigm have consistently demonstrated that participants can be induced to plagiarise in the lab. The

[1] Three Boys Music v. Michael Bolton, 212 F.3d. 477 (9th Cir. 2000)

procedure involves an initial generation-phase where participants complete a generative task, such as category generation (see Brown & Murphy, 1989; Brown & Halliday, 1991; Macrae, Bodenhausen & Calvini, 1999), puzzle tasks (Marsh & Bower, 1993) or a brainstorming session (Marsh, Landau & Hicks, 1997). Following generation, participants try to recall their previous contributions and then generate-new exemplars/solutions that were not previously given. Plagiarism occurs when participants unintentionally reproduce previous, externally generated ideas as either their own (recall-own phase) or new ideas (generate-new phase). Initially Brown and Murphy found levels of plagiarism in each task at around 7-10% and 9-14% respectively. However, these rates are inflated when creative tasks are implemented (Marsh & Bower, 1993; Marsh, et al. 1997) and when retention-intervals separate generation and testing (Brown & Halliday, 1991).

Landau and Marsh (1997) have demonstrated that manipulations can affect plagiarism in the recall-own and generate-new task differently due to different memorial processes being utilised in each. In the generate-new phase, participants need to make a judgement that resembles an old new judgement as they must refrain from presenting an old idea as new. In this phase, activation strength may guide performance as an increase in strength would lead to greater discrimination between old and new ideas (Marsh & Bower, 1993; Marsh & Landau, 1997). However, in the recall-own task, an additional source evaluation is required to verify an idea's origin. The participants must determine whether an 'old' idea was originally produced by themselves or another someone else. The source monitoring framework suggests that individuals assign source on the basis of the experiential details associated with their memories. These details differ in type and kind and may be contingent upon the initial encoding processes (Johnson, Hashtroudi & Lindsay, 1993). For example, while perceived information may be perceptually rich as a result of seeing the information first hand, dreamt information may be more cognitively rich as a result of the processes engaged throughout dream construction (Johnson, Hashtroudi & Lindsay, 1993). Fundamentally, factors that reduce the efficiency of source-monitoring such as source similarity (Landau & Marsh, 1997) and cognitive distraction at encoding or testing (Macrae, et al. 1999) only increase plagiarism in the recall-own phase. More recently, Stark, Perfect and Newstead (2005) have demonstrated that additional processing between encoding and testing also hampers later source-monitoring.

Stark, Perfect and Newstead's (2005) rationale for their approach stemmed from the fact that real-world plagiarism undoubtedly involves prolonged idea attention rather than a single exposure. In their study participants initially generated novel-uses for objects such as a button (e.g. use as counters) and then either devised ways to improve generated ideas (e.g. colour-code them), termed generative-elaboration, or rated idea imaginability, termed imagery-elaboration. An increase in recall-own plagiarism was only observed following generative-elaboration. That is, participants only claimed others' ideas as their own after devising idea-improvement and not after forming a mental image. Stark et al. argued that a strength-based account cannot explain this finding since imagery-elaboration actually produced as strong memories as generative-elaboration, as measured by correct recall and reduction in generate-new plagiarism. Instead they favoured a source-monitoring account (Johnson, Hashtroudi & Lindsay, 1993) maintaining that processes employed in generative-elaboration may resemble those used in the original generation-phase and consequently representations of improved ideas may reflect those of internally generated ideas.

Findings from the imagination inflation literature suggest that imagining a fictitious event can increase one's confidence that a simple (Garry, Manning, Loftus & Sherman, 1996) or complex (Wright, Loftus & Hall, 2001) event occurred. Moreover, imagining common and bizarre actions increases confidence that those actions were performed (Thomas & Loftus, 2002). Although the precise mechanisms responsible for this effect are unclear, Garry and Polaschek (2000) suggested that the act of imagination evokes detailed mental images or increased familiarity that later results in source confusion and increased certainty in event reality. However, more recently simple exposure to an event by solving anagrams (Bernstein, Whittlesea & Loftus, 2002), paraphrasing (Sharman, Garry & Beuke, 2004) or even explaining event information without specific imagination has also been demonstrated to induce this 'imagination' inflation effect (Sharman, Manning & Garry, 2005). Hence, these findings can be more effectively explained using a processing fluency account. If the familiarity induced by imagination or exposure is incorrectly attributed to a prior experience rather than the experimental manipulation, then a misattribution is made. Consequently, the lack of an imagery effect in Stark, Perfect and Newstead's (2005) study is surprising if familiarity *per se* can cause source-monitoring errors. One possibility is that their lack of an imagery effect on plagiarism rates in the recall-own phase was a consequence of the imagery-elaboration condition not constituting a strong enough 'imagination' manipulation to drive processing fluency. The intensity of the imagination manipulation provides the focus of the current paper.

In this study, the two types of elaboration used in Stark, Perfect and Newstead (2005) were retained; imagery-elaboration (imaginability ratings) and generative-elaboration (idea improvements) while a third elaboration condition was included that attained a more detailed mental image of the ideas which we termed rich imagery-elaboration. Here participants imagined and rated the original ideas together with the improvements that were previously provided by another participant. Since the ideas that one participant generates are later imagined by another participant, any differences in plagiarism cannot be due to idea content. There was also a baseline condition where ideas received no elaboration. Our expectation was to replicate the findings of Stark, Perfect and Newstead (2005) regarding inflated levels of plagiarism in the recall-own phase with the generative-elaboration but not imagery-elaboration alone.

However, the imagination of ideas elaborated by others provides an interesting test case. On the one hand, these ideas are elaborated in more depth and are likely to result in richer images than either imagery-elaboration or control. Consequently, this additional processing may sufficiently strengthen familiarity or processing fluency and induce source confusion. Accordingly, both generative-elaboration and rich imagery-elaboration should show higher plagiarism than imagery-elaboration and control. On the other hand, forming images of others' elaborations or improvements involves no *generation*. Therefore, while the memory characteristics of improved ideas (generative-elaborated ideas) may resemble the cognitive operations of self-generated ideas, the memory characteristics of rich imagery-elaboration ideas would instead contain enhanced perceptual information. Consequently, at recall, this difference in distinctive information may aid source identification and specifically reduce the likelihood of self-appropriation. In this source-monitoring view, only generative-elaboration should produce elevated plagiarism relative to rich imagery-elaboration, imagery-elaboration and control. As in Stark, Perfect and Newstead (2005), elaboration of any kind is expected to strengthen memories and so increase correct recall (Craik & Lockhart, 1972) and decrease plagiarisms in the generate-new phase, relative to control items.

Method

Participants

Thirty-two undergraduate students from the University of Plymouth participated in return for partial fulfilment of a course requirement.

Procedure

Participants were tested in pairs. The experimenter individually read aloud category names (e.g. brick, shoe, paper-clip and button) and participants generated 4 novel, non-conventional uses for each item (e.g. brick as a door-stop). Additionally, the experimenter contributed 8 novel uses for each category that were randomly selected from a pool of ideas given in Stark, Perfect and Newstead (2005). Participants were explicitly instructed to listen to *all* the ideas to prevent them from re-production. Ideas were given in a pre-determined random order and the experimenter recorded all the ideas.

Following this generation-phase, participants completed a 5 minute picture-puzzle distracter task while the experimenter wrote down the to-be-elaborated ideas (from the generation-phase) in each participant's booklet. A quarter of the ideas (one idea from each participant, per object) were subject to each of the following conditions. For the *imagery-elaboration* ideas, participants rated the ideas on five-point rating scales for imaginability (*1=difficult to imagine, 5=easy to imagine*) and effectiveness (*1=not effective, 5=very effective*). For the *generative-elaboration* ideas, participants wrote down three ways to improve a different sub-set of ideas. For the *rich imagery-elaboration* ideas, participants imagined the ideas (in a pre-determined random order) that their partner had just improved (generative-elaborated). To ensure each idea and improvement was read participants rated the ideas subsequent imaginability and effectiveness. *Baseline* ideas were not re-presented.

One week later, participants completed the recall-own phase. The four category headings (e.g. *brick*) from the first session were shown, in a random order with four blank spaces. Participants wrote down the ideas that *they* generated in the first session (recall was not forced). Then, in the generate-new phase, the category names were randomly re-presented and participants generated 4 *new* uses for each.

Results

Recall-own task

In the recall own phase, participants were asked to recall as many of the 16 ideas that *they* initially proposed in the generation phase (four ideas per object). These results are reported in terms of the number of ideas that were correctly recalled and unconsciously plagiarised.

Correct Recall: In total, 403 ideas were reported of which 286 ideas (71.0%) were correctly recalled. Participants correctly recalled (i.e. did not plagiarise) a mean of 9.0 (SD = 2.61) of their initial ideas (16 in total). A within-subjects ANOVA revealed a main effect of elaboration status on recall performance, $F(3,93)= 7.54$; $p<.001$, as illustrated in Table 1. Multiple pair-wise comparisons were conducted, with a Sidak-adjusted alpha level of .05. These comparisons revealed significantly fewer baseline ideas were recalled compared to elaborated ideas. However, there were no differences in recall performance between the different kinds of elaboration.

Table 1 about here.

Unconscious Plagiarism: If participants incorrectly reported an idea that was the same or similar to one from the initial phase (partner/experimenter given) the idea was classed as a plagiarised intrusion (e.g. paperclip hair slide or paperclip hair grip). The inter-rater reliability between two independent-raters' judgements of what constituted plagiarism was 98.7% with the discrepancies resolved by discussion. Of the 403 reported ideas, 116 ideas (28.8%) were plagiarised. Additionally, 75.0% of participants (24 of 32) unconsciously plagiarised at least one idea from the generation-phase while 71.9% (23 of 32) made two or more intrusions.

A within-subject ANOVA revealed that the elaboration manipulation reliably affected rates of unconscious plagiarism $F(3,93)=12.61$, $p<.001$. The means are displayed in the second row of Table 1, and multiple comparisons conducted as before. The analysis revealed that all of the elaborated ideas (generative-elaborated, imagery-elaborated and rich imagery-elaborated) were plagiarised more often than the control but generative-elaborated ideas were plagiarised significantly more than any of the other ideas. Crucially, there was no difference between the two forms of imagery-elaborated ideas. Therefore, conducting generative-elaboration during idea encoding significantly increased the later plagiarism of those ideas, but imagining already elaborated ideas did not.

Generate-new task

When participants generated new ideas, plagiarism was scored when a previously generated idea was mistakenly reproduced. In total, 495 ideas were given, 379 (76.6%) were new, 99 (20.0%) were previously generated by someone else and 17 (3.4%) were a participant's own inadvertent reproductions. The small remainder were duplicated ideas at test that were excluded from the analysis.

Unconscious plagiarism; 90.6% of participants (29 of 32) re-presented an idea from the generation-phase and 84.4% (27 of 32) presented two or more of these old ideas. The effects of elaboration on rates of these errors can be seen in Table 1. The baseline ideas were plagiarised numerically more than any of the elaborated ideas but, a within-subjects ANOVA revealed that this difference was not significant $F(3,93)=1.68$, $p=.177$.

Discussion

Performing both imagery-elaboration and generative-elaboration during the retention interval increased the rate of correctly recalled ideas and simultaneously reduced the rate of generate-new plagiarisms. The only observed difference was in the plagiarism rates in the recall-own task, with generative-elaboration resulting in elevated levels of plagiarism, as in Stark, Perfect and Newstead (2005).

The key measure of interest here was the rich imagery-elaboration, where participants rated and imagined already improved ideas. Crucially, these ideas were matched in content with the generative-elaboration condition, unlike in Stark, et al. (2005). As expected this rich imagery-elaboration resulted in a comparable increase in correct recall and decrease in generate-new plagiarism relative to the generative-elaboration and imagery-elaboration. However, in the recall-own task the observed level of plagiarism did not differ from the imagery-elaboration condition. So, although constructing a rich mental image may have increased activation-strength or familiarity of the rich imagery-elaboration ideas, it did not increase the likelihood of participants appropriating another's idea. Therefore, plagiarism was contingent upon participants' self-generation of idea improvements. Simply imagining another's idea improvements for those same ideas did not result in a comparable plagiarism. Consequently, while familiarity misattribution may explain how fictional events may be "personally experienced as real memories" (Loftus & Bernstein, 2005, p110), here, in a plagiarism domain, increased familiarity cannot explain how individuals incorrectly come to believe that ideas originating elsewhere were their own. In this study, despite all classes of elaborated ideas (imagery, rich-imagery and generative elaborated) being equally familiar they were not equally plagiarised.

These data can be explained in terms of the source-monitoring framework (Johnson, Hashtroudi & Lindsay, 1993) and therefore adhere to Stark, Perfect and Newstead's (2005) source-monitoring account of unconscious plagiarism. Generating improvements to an idea shares cognitive operations with the process whereby participants originally generate an idea. Thus at recall, if participants use cognitive operations to decide source (Johnson, et al. 1993), then generative-elaboration will lead to error (as thought processes may resemble those utilised in own idea generation) and hence self-appropriation of another's idea. Such errors would not be observed with imagined ideas due to the lack of generative cognitive operations (associated with generative-elaborated ideas) but presence of rich perceptual information (lacked by generative-elaborated ideas). Consequently, at recall, these memory characteristics may aid performance and simultaneously help prevent imagery-elaborated and rich imagery-elaborated ideas from being incorrectly presented as self generated ideas.

The magnitude of the rates of plagiarism that we observed in the recall-own task, are worth emphasising. In the control condition, which used the basic 3-stage paradigm of Brown and Murphy (1989), we observed a plagiarism rate of 11% which is in line with previous reports (e.g. Brown & Murphy (1989), 7-14% ; Brown & Halliday, (1991), 13%). However, following generative-elaboration, this figure rose to 38%, which is more in line with Stark, Perfect and Newstead (2005) who found 41%. Hence, this is a powerful effect with potential real world relevance.

These findings add to the growing evidence that memories are not objective but vulnerable and fallible. There is a wealth of research that demonstrates that post event manipulations may modify a person's belief of what was personally experienced (see Ayres & Reder, 1998 for a review) or may create a false belief that something happened when it did not (see Loftus & Bernstein, 2005). However, this study demonstrated that post-event manipulations may also alter a person's belief that an idea was his or her own (self-generated) when it was not.

When something novel is devised from information originating elsewhere, a great deal of time and cognitive effort is likely invested into idea re-working and improvement. Thus, real-world creative artists may be engaged in a prolonged version of this generative-elaboration. It is also possible, though speculative, that the twins who plagiarised their sibling's memories, repeatedly thought about or talked about the event during their lives. Consequently, investigating generative-elaboration could provide a mechanism that enhances understanding of how those striving to be creative may unknowingly appropriate others' ideas as their own. In making this claim we sincerely hope that we have avoided this error ourselves.

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Table 1

Mean rates of correct recall and unconscious plagiarism (UP) within the recall-own (RO) & generate-new (GN) phases following different kinds of elaboration in the retention interval.

	Elaboration carried out during the retention interval							
Outcome measure	Control		Imagery Elaboration		Generative Elaboration		Rich Imagery Elaboration	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Recall	1.56^a	.98	2.44^b	1.05	2.63^b	1.11	2.31^b	1.02
UP (RO)	$.19^a$	.47	$.84^c$	.95	1.67^b	1.61	$.97^c$	1.17
UP (GN)	1.03^a	1.10	$.59^a$	.84	$.84^a$	.92	$.63^a$	.83

Notes: Means within a row that share the same superscript letter do not significantly differ from one another (p<.05 after Sidak adjustment).