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Elaboration Inflation: How Your Ideas Become Mine

LOUISA-JAYNE STARK* and TIMOTHY J. PERFECT

University of Plymouth, Plymouth, UK

SUMMARY

Unconscious plagiarism occurs when individuals claim previously experienced ideas as their own. Using an adaptation of Brown and Murphy's (1989) three-stage paradigm, participant elaboration was investigated using the Alternate Uses Test at generation. Following generation, ideas were imagined and rated (imagery-elaboration), improved in three 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.

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 et al., 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

*Correspondence to: Louisa-Jayne Stark, University of Plymouth, Drake Circus, Devon PL4 8AA, UK.
E-mail: lstark@plymouth.ac.uk

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 (1960) theory of bisexuality to recent music copyright infringement cases (e.g. *Three Boys Music V. Michael Bolton*, 2000).[1]

Empirical studies based on Brown and Murphy (1989) 3-stage paradigm have consistently demonstrated that participants can be induced to plagiarise in the lab. The procedure involves an initial generation-phase where participants complete a generative task, such as category generation (see Brown & Halliday, 1991; Brown & Murphy, 1989; 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; Landau & Marsh, 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 (see also Macrae et al., 1999). 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 et al., 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 et al.'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

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

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 et al., 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 et al.'s (2005) 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 et al. (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 et al. (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 et al. (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 object names (e.g. brick, shoe, paper-clip and button) and participants generated four novel, non-conventional uses for each item (e.g. brick as a door-stop). Additionally, the experimenter contributed eight novel uses for each object that were randomly selected from a pool of ideas given in Stark et al. (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 four *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, $F(3,93) = 7.54$; $p < 0.001$, as illustrated in Table 1. Multiple pair-wise comparisons were conducted, with a Sidak-adjusted alpha level of 0.05. 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.

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 $F(3,93) = 12.61$, $p < 0.001$. 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

Table 1. Mean rates of correct recall and unconscious plagiarism (UP) within the recall-own (RO) and generate-new (GN) phases following different kinds of elaboration in the retention interval

Outcome measure	Elaboration carried out during the retention interval							
	Control		Imagery-elaboration		Generative-elaboration		Rich imagery-elaboration	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Recall	1.56^{a}	0.98	2.44^{b}	1.05	2.63^{b}	1.11	2.31^{b}	1.02
UP (RO)	0.19^{a}	0.47	0.84^{c}	0.95	1.67^{b}	1.61	0.97^{c}	1.17
UP (GN)	1.03^{a}	1.10	0.59^{a}	0.84	0.84^{a}	0.92	0.63^{a}	0.83

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

participant's own inadvertent reproductions. The small remainder were duplicated ideas at test that were excluded from the analysis.

Unconscious plagiarism

Participants (29 of 32; 90.6%) 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 $F(3,93) = 1.68$, $p = 0.177$.

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 et al. (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, p.110), 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 et al., 1993) and therefore adhere to Stark et al.'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 three-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 et al. (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 Ayers & 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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