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RUNNING HEAD: Test-induced priming and DRM

Test-induced priming impairs source monitoring accuracy in the DRM procedure

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Abstract

Three experiments investigated the effects of test-induced priming (TIP) on false recognition in the Deese/Roediger-McDermott procedure. In Experiment 1, TIP significantly increased false recognition for participants who made old/new decisions at test but not for participants who made remember/know judgements or were given diagnostic information to help them avoid false recognition. In Experiment 2, a TIP effect was observed with old/new recognition but not when participants were required to remember whether study items were spoken by a male or a female. In Experiment 3, false recognition increased when critical lures were preceded by ten studied items but not when preceded by five studied and five unstudied items from the same list. These findings suggest that TIP increases false recognition by disrupting source monitoring processes.

Keywords: Test-induced priming, false recognition, DRM procedure

Test-induced Priming Impairs Source Monitoring Accuracy in the DRM Procedure

In the Deese/Roediger-McDermott (DRM) procedure (Deese, 1959, Roediger & McDermott, 1995), participants study lists of words that are semantic associates of a nonpresented "critical lure". For example, participants study words such as *sour*, *candy, sugar*, and *bitter*, which are associates of the critical lure *sweet*. When subsequently asked to remember the studied words, participants frequently endorse the critical lures as old, with levels of false memory often equaling or even exceeding levels of correct memory. Such associative memory illusions have been explained in terms of an activation-monitoring account (see Roediger, Watson, McDermott, & Gallo, 2001). Based in part on Underwood's (1965) implicit-associative response theory, this account proposes that the DRM illusion is the result of associations activated during at study, whereby participants spontaneously generate the critical lures in response to the list items. At test, participants are unable to remember the source (internally generated and externally presented) of the critical lures (see Johnson, Hastroudi, & Lindsay, 1993, for an overview of the source monitoring framework). The aim of the current study was to investigate the view that false recognition in the DRM procedure can also be produced by associations activated at test.

Findings from the majority of DRM studies have emphasized the role of associations activated at study in producing the effect. For example, levels of false memory are greater when lists are presented in blocked rather than random sequences (e.g., Toglia, Neuschatz, & Goodwin, 1999), in long rather than short lists (Robinson & Roediger, 1997), and in conditions that encourage relational rather than item-specific processing (McCabe, Presmanes, Robertson, & Smith, 2004). The magnitude of the effect decreases when participants are warned about it prior to study (Gallo, Roediger, & McDermott, 2001) or when lists are studied under divided attention conditions (Dewhurst, Barry, Swannell, Holmes, & Bathhurst, 2007; Knott & Dewhurst 2007). These and other findings (see Gallo, 2006, for a review) indicate that associations activated at study play a critical role in creating the DRM illusion.

The view that the DRM illusion can also be influenced by associations activated at test was originally proposed by Roediger and McDermott (1995). They analysed output order and found that critical lures were typically produced towards the end of the recall protocols, suggesting they may have been cued by words that were correctly recalled. Roediger and McDermott also speculated that critical lures in recognition tests might be primed by studied items that precede them in the list. However, Roediger et al. (2001) found a negative correlation between correct and false recall and concluded that test associations play little role in the DRM illusion. More recent studies have attempted to increase false memories in the DRM procedure by explicitly cuing associations at test. For example, Reysen and Nairne (2002) used the part-set cuing procedure, in which a subset of studied items is presented as a cue to recall the remaining items. However, Reysen and Nairne found that false recall was reduced by test cues (see Kimball & Bjork, 2002, and Kimball, Bjork, Bjork, & Smith, 2008, for similar findings).

More suggestive evidence for a role of test associations in the DRM illusion comes from studies that used a test-induced priming (TIP) procedure (e.g., Coane & McBride, 2006; Dodd, Sheard, & MacLeod, 2006; Marsh & Dolan, 2007; Marsh, McDermott, & Roediger, 2004). This procedure attempts to induce false memories at retrieval by manipulating the number of studied items that precede the critical lure in the recognition test. Some studies have found that TIP does not increase false recognition (e.g., Dodd, Sheard, & McLeod, 2006), Marsh, McDermott, & Roediger, 2004), though Marsh et al. found that TIP increased false recognition above baseline for nonstudied lists. However, Marsh and Dolan (2007) found that test primes increased false recognition when participants had to respond before a 750 msec deadline (but see Dodd et al. for a null effect of TIP under speeded response conditions). In addition, Coane and McBride (2006) found an increase in false recognition under self-paced test conditions when critical lures were preceded by 6 or 12 studied items.

The positive effects of TIP have been interpreted as evidence that the DRM illusion can be caused by associations activated at test (Coane & McBride, 2006; Marsh and Dolan, 2007), though Coane and McBride acknowledged that the effects of associative activation are weaker at test than at study. However, as noted above, other studies have failed to show a significant effect of TIP on false recognition. The aim of the current study was to determine the conditions under which TIP increases false recognition. In a previous study (Dewhurst et al. (2009), we speculated that TIP might increase false recognition by disrupting source monitoring. Dewhurst et al. found that TIP did not increase false recognition when participants were instructed to categorize recognized items as *remember* responses based on conscious recollection or *know* responses based on familiarity (see Tulving, 1985). It was suggested that instructions to consider the subjective experience of their recognition decisions enhanced participants' source monitoring vigilance. This raises the possibility that the presence of TIP effect is influenced by the degree to which test conditions facilitate source monitoring. However, as Dewhurst et al. did not include a control condition in which participants made old/new decisions without remember/know judgements, this suggestion could not be tested empirically.

Findings from previous studies suggest that the standard DRM effect is influenced by the degree to which instructions influence source monitoring accuracy. For example, Gallo (1997) and McDermott and Roediger (1998) found that forewarning participants about the DRM illusion reduced the likelihood of false recognition (but did not entirely eliminate it). More recently, Lane, Roussel, Starns, Villa, and Alonzo (2008) found that the false recognition was reduced when participants were given diagnostic information that would allow them to discriminate between studied and unstudied items. The specific aim of the current study was to determine whether the effect of TIP on false recognition is similarly influenced by the degree to which test conditions facilitate source monitoring processes.

The three experiments reported below investigated the effects of TIP under a range of test conditions that differed in the demands they placed on source monitoring processes. Experiment 1 compared the effects of TIP in an old/new recognition test with the effects of TIP in two conditions designed to enhance source monitoring (remember/know instructions and forewarnings plus diagnostic information). Experiment 2 featured a source monitoring manipulation in which participants were required to remember whether items had been presented in a male or a female voice at study, a procedure first used by Payne, Elie, Blackwell, and Neuschatz (1996). Experiment 3 employed a variation of the TIP procedure in which critical lures were preceded either by studied items only or by a combination of studied and unstudied items from the same list. The prediction across all three experiments was that any effects of TIP observed in the control conditions would be reduced or eliminated under conditions that required greater source monitoring vigilance.

Experiment 1

Experiment 1 included a partial replication of Dewhurst et al. (2009; Experiment 3) in which the TIP procedure was combined with remember/know judgements. This was compared to a control condition in which participants only made old/new decisions. A third group did not make remember/know judgements but were forewarned of the DRM illusion prior to the recognition test and given diagnostic information designed to help them distinguish between studied and unstudied items. If, as Dewhurst et al. suggested, the effect of TIP is eliminated by increased source monitoring vigilance, then the effect should be reduced or eliminated by the combination of forewarning and diagnostic information.

Method

Participants. Seventy-four undergraduates from Lancaster University took part in Experiment 1 (24 in the remember/know condition, 25 in the forewarned condition, and 25 in the control condition). All were native English speakers between the ages of 18 and 24. They were tested at individual workstations in a group-testing lab and were paid for their participation.

Stimuli and Design. Stimuli consisted of 24 DRM lists of 10 items each, taken from Stadler, Roediger, and McDermott (1999). The lists were divided into two sets of 12, of which one was studied and the other provided the distractor items in the recognition test. The recognition test consisted of 72 studied items (six from each list), the 12 critical lures from the studied lists, 72 items from the unstudied DRM lists, the 12 critical lures for the unstudied lists, and 24 unrelated lures. The independent variable was the position of the critical lure in relation to the list items. For both studied and unstudied DRM lists, six critical lures appeared before the corresponding lists items (unprimed condition) and six appeared after the corresponding list items (primed condition). The proximity of the lists items to the critical lure was randomized. The dependent measures were the numbers of list items and critical lures from studied and unstudied lists endorsed as old.

Procedure. Study items were presented one at a time on Apple Macintosh computers at a rate of one every two seconds. Each list was preceded by the list number (List 1, List 2, etc) displayed for two seconds. Participants were then given a 5-minute distractor task (math puzzles) after which the recognition test was presented. Each test item remained on the screen until the participant pressed a response key indicating an *old* or a *new* decision. Participants were instructed to respond quickly but to try to avoid making mistakes. Response times (RT) for the old/new decisions were recorded in all three conditions.

In the remember/know condition, participants followed up each *old* decision by pressing keys labelled R for remember and K for know. They also had the option of making a guess response if they were uncertain whether or not a word appeared at study. Instructions for remember, know, and guess responses were taken from Dewhurst and Anderson (1998). Briefly, participants were instructed to make a remember response if they recollected some detail of the item's study presentation, such as an image or thought they experienced at the time, a know response if the word felt familiar but they were unable to recollect any detail of its study presentation, or a guess response if they were unsure whether or not the word had appeared at study.

Participants in the forewarned condition received instructions prior to the recognition test, adapted from Lane et al. (2008), in which they were informed of the associative nature of the lists and shown an example, given diagnostic information about the types of information that might enhance memory accuracy (e.g., sensory details, the position of the word in a list, and memories of thoughts and reactions experienced in response to a word), and encouraged to use these characteristics to increase accuracy and avoid endorsing unstudied items as old. Participants in the control condition were not forewarned of the DRM illusion and made old/new decisions without remember/know decisions. In all three conditions, the recognition test was participant-paced and took no longer than 10 minutes.

Results and Discussion

Table 1 shows the mean proportions of false recognition as a function of study condition (remember/know, forewarned, and control) and priming condition (primed versus unprimed), correct recognition, and false recognition of items from unstudied lists. The priming effect (the difference between the means in the primed and unprimed conditions) is also displayed. For the remember/know condition, the proportions of remember and know responses were combined into a single score. Guess responses were not included as they are typically made at or below chance levels.

The false recognition data were entered into a 3 (Study condition: remember/know vs forewarned vs control) x 2 (Priming condition: primed vs unprimed) mixed ANOVA with repeated measures on the second factor. Alpha was set at .05 for this and all subsequent analyses. The main effect of study condition was not significant, $F < 1$, nor was the main effect of priming, $F < 1.8$. There was, however, a significant interaction between priming and study condition, $F(2,71) = 5.72$, $MSE = .03$, $?_p^2 = .14$. Pairwise comparisons revealed a significant priming effect in the control condition but not in the remember/know or forewarned conditions. Specifically, false recognition in the control condition was significant higher when critical lures were preceded by six primes relative to zero primes, $p < .05$, but there was no significant difference between six and zero primes in the forewarned conditions, $p = .30$, and a nonsignificant reversed priming effect in the remember/know condition, $p = .09$. No significant effects of TIP were observed in the separate analyses of remember and know responses.

A similar analysis of the unstudied DRM lists showed nonsignificant main effects of study condition, $F < 1$, and priming, $F < 2.1$, and a nonsignificant interaction, $F < 1.1$. The three groups did not differ significantly in levels of correct recognition or in the false recognition of list items from unstudied DRM lists, both $F < 1$.

The analysis of RTs was restricted to the 68 participants who falsely recognized at least one critical lure in both primed and unprimed conditions (see Table 2 for means). This analysis showed a significant main effect of study condition, $F(2,65) = 4.05$, $MSE = .96$, $?_p^2 = .11$. Pairwise comparisons showed that participants were significantly faster to endorse a critical lure as old in the control condition than in the remember/know and forewarned conditions, which did not differ significantly from each other, $p = .91$. The main effect of priming was also significant, $F(1,65) = 20.89$, $MSE = .48$, $?_p^2 = .24$, and showed that participants were quicker to endorse a critical lure as old if it was primed rather than unprimed. Separate analyses of RTs for remember and know responses showed that the faster RTs for primed critical lures was reliably present in know responses, $t\ (21) = 3.43$, but not in remember responses, $p = .97$. RTs for unstudied lists were not analysed since fewer than half the participants met the criterion of falsely recognizing at least one critical lure in the primed and unprimed conditions.

The main finding of Experiment 1 was that TIP increased false recognition when participants made old/new recognition decisions, consistent with findings reported by Coane and McBride (2006). However, this effect was no longer significant under conditions that enhanced participants' source monitoring strategies (forewarning participants about the DRM illusion or requiring them to make remember/know decisions). This pattern is consistent with the suggestion by Dewhurst et al. (2009) that TIP impairs source monitoring. It is notable, however, that the TIP effect was reversed in the remember/know group but only reduced in the forewarned group. One possible explanation for this pattern is that, while participants in the forewarned condition were encouraged to increase their recognition accuracy prior to the test, participants in the remember/know condition were reminded to do so on an item-by-item basis, which may have been more effective in terms of maintaining source vigilance. The critical finding, however, is that TIP did not significantly increase false recognition in either condition.

The absence of a TIP effect for unstudied DRM lists contrasts with the findings of Marsh et al. (2004). Although levels of false recognition were numerically higher for primed than for unprimed lures in the control and remember/know groups, these differences were not statistically significant. We can offer no explanation for why we failed to find a TIP effect in unstudied lists, except to note that the levels of false recognition for unstudied lists in the current study were much lower than those reported by Marsh et al.

Experiment 2

In Experiment 1, an effect of TIP was observed in an old/new recognition test but not under conditions that have been found to enhance source monitoring processes (remember/know decisions and forewarnings plus diagnostic information). Experiment 2 featured a more direct test of the view that TIP impairs source monitoring processes by requiring participants to remember source-specific information at test. Based on the procedure first used by Payne et al. (1996), study items were presented auditorially and participants in the source monitoring condition were required to indicate whether study items had been spoken by a male or a female speaker.

Method

The Method was the same as the control condition of Experiment 1 with the following modifications: A new group of 52 undergraduates from Lancaster University took part. Study items were presented auditorially at a rate of 5 seconds per word. Six words from each list were spoken by a male and six by a female, with the gender of the voice alternating randomly within each list (this aspect of the design differs from that of Payne et al., 1999, who used a single voice for each list). At test, participants in the control condition made old/new decisions to each item whereas participants in the source-monitoring condition were additionally asked to indicate whether an item identified as old had been spoken by the male or the female at study, using the options *male*, *female*, and *not sure*. The recognition test was presented visually.

Results and discussion

Table 3 shows mean proportions of correct and false recognition for studied and unstudied lists. The proportions of critical lures falsely recognized were analyzed in a 2 (group: recognition vs source monitoring) x 2 (priming: 0 vs 10 primes) mixed ANOVA with repeated measures on the second factor. The main effect of group was not significant, $F < 1.5$, but the main effect of priming was of borderline significance, $F(1,50) = 3.89$, $MSE = .03$, $p = .05$, $?_p^2 = .07$. This was qualified by a significant interaction between group and priming, $F(1,50) = 4.63$, $MSE = .03$, $?_p^2 = .09$. Pairwise comparisons showed a significant priming effect in the recognition condition, whereby critical lures were more likely to be falsely recognized when primed by 10 studied items, but no significant priming effect was observed in the source monitoring condition, $p = .90$. No significant differences between the recognition and source monitoring groups were observed for correct recognition or for the false recognition of list items and critical lures from unstudied DRM lists.

The analysis of RTs for the false recognition of critical lures was based on data from 51 participants who falsely recognized at least one critical lures in both primed and unprimed conditions. This showed a significant main effect of group, whereby participants in the control group were faster to endorse a lure as old than participants in the source monitoring group, $F(1,49) = 9.34$, $MSE = .77$, $?_p^2 = .16$. There was also a significant main effect of priming, whereby primed lures were endorsed as old more rapidly than unprimed lures, $F(1,49) = 20.78$, $MSE = .38$, $?_p^2 = .30$. The interaction was not significant, $F < 1$.

The findings of Experiment 2 are consistent with those of Experiment 1. A significant TIP effect was observed when participants made old/new decisions at test, but this was eliminated in participants who were required to make additional source judgements at test. This pattern provides direct support for the view that TIP impairs source monitoring. False recognition rates were somewhat higher in Experiment 2 than in Experiment 1 (and also higher than in Experiment 3 described below). This is likely due to the auditory presentation of study items in Experiment 2, which has been shown increase false recognition relative to visual presentation (e.g., Smith & Hunt, 1998).

Experiment 3

In Experiments 1 and 2, TIP did not significantly increase false recognition when participants were given explicit test instructions designed to increase source monitoring accuracy. The aim of Experiment 3 was to increase source monitoring accuracy indirectly by manipulating the studied/unstudied status of the test primes within the same list. In the *intra-list* TIP condition, all the test primes had previously been presented in the study list. In the *mixed list* condition, critical lures were preceded by a combination of studied items and unstudied items taken from the same DRM list. In both cases, the TIP effect was measured by comparing the primed condition with a condition in which the critical lure was preceded neither by studied items nor by related unstudied items.

If the effect of TIP occurs via the disruption of source monitoring processes, then test primes should increase false recognition only in the intra-list condition, as participants may relax their source monitoring vigilance after responding *old* to a series of related items. Test primes should have less of an effect in the mixed list condition, because the combination of old and new primes will require participants to maintain source monitoring vigilance throughout the recognition test.

Method

The Method was the same as that of the control condition of Experiment 1 with the following modifications: Participants were 50 undergraduates from Lancaster University, none of whom had taken part in Experiments 1 or 2. The stimuli consisted of 24 DRM lists with 15 words per list. Each list was divided into three sets of five words, with each set matched for backward associative strength (BAS) in relation to the critical lure. BAS values were taken from the University of South Florida Free Association Norms (Nelson, McEvoy, & Schreiber, 1998). Ten words from each list were presented at study. The 24 lists were divided into two sets of 12, of which one was studied and the other provided the unstudied items in the recognition test.

For the intra-list condition, the recognition test consisted of 60 primes (10 studied words from each of six lists), the six critical lures for those lists (primed lures), six critical lures from the other studied lists (unprimed lures), 10 items from each of six unstudied lists, the six critical lures from those lists, six critical lures from unstudied and unprimed lists, and 24 unrelated lures making a total of 168 test items. The order of the items in the recognition was semi-random with the constraint that each primed critical lure was preceded by 10 items from the corresponding study list, whereas the unprimed critical lures were not preceded by list items. The recognition test for the mixed-list condition was identical except for the 60 primes, which in this case consisted of five studied and five unstudied items from each of the six lists. List type (intra-list versus mixed-list) was manipulated between groups.

Results and Discussion

Table 4 shows mean proportions of correct and false recognition for studied and unstudied DRM lists. The proportions of critical lures falsely recognized were analyzed in a 2 (list type: intra-list vs mixed-list) x 2 (priming: 0 vs 10 primes) mixed ANOVA with repeated measures on the second factor. The main effect of list type was not significant, $F< 1$, nor was the main effect of priming, $F(1,48) = 2.96$, $MSE = .03$, $p = .09$, $?_p^2 = .06$. There was, however, a significant interaction between list type and priming, $F(1,48) = 4.33$, $MSE = .03$, $?_p^2 = .08$. Pairwise comparisons showed a significant priming effect in the intra-list condition, whereby critical lures were more likely to be falsely recognized when primed by 10 studied items. In contrast, no significant priming effect was observed in the mixed-list condition, $p = .80$.

False recognition rates for critical lures from nonstudied DRM lists were analysed in a paired-samples t-test (the distinction between intra-list and mixed list conditions did not apply to critical lures from unstudied lists). This showed a significant priming effect, whereby false recognition rates were greater when critical lures were preceded by 10 related items, $t(49) = 2.11$. No significant differences between the intra-list and mixed list groups were observed for correct recognition or the false recognition of list items from unstudied DRM lists.

The analysis of RTs was restricted to the 41 participants who falsely recognized at least one critical lure in both the primed and unprimed conditions (see Table 2 for means). No significant difference was observed between the intra-list and mixed-list conditions. $F < 1.5$. However, a significant priming effect was observed, $F(1,39) = 6.18$, $MSE = .23$, $?_p^2 = .14$, whereby participants were faster to endorse a critical lure as old if it was primed rather than unprimed.

The main finding of Experiment 3 was that TIP increased false recognition only when all test primes had been presented at study. No increase in false recognition was observed when test primes included both studied and unstudied list items. This finding cannot be explained by differences in study priming, as critical lures were primed by 10 related items at study in both the intra-list and mixed-list conditions. The pattern is, however, consistent with the view that TIP increases false recognition by impairing monitoring processes. Participants are more likely to relax their monitoring vigilance after responding *old* to ten related items, whereas they are more likely to remain vigilant after seeing a combination of studied and unstudied items related to the same theme. That an effect of TIP on nonstudied lists was observed in Experiment 3 but not in Experiments 1 or 2 is likely due to the greater number of test primes in Experiment 3.

General Discussion

The aim of the current study was test the view that test-induced priming (TIP) increases false recognition by disrupting source monitoring. In Experiment 1, TIP increased false recognition in an old/new recognition test but not under test conditions that enhanced source monitoring accuracy (remember/know decisions and forewarnings plus diagnostic information). Experiment 2 showed a significant effect of TIP following auditory presentation at study, but this effect was eliminated when participants were required to remember whether the items had been spoken by a male or a female. In Experiment 3, TIP increased false recognition when critical lures were preceded by ten studied items, but not when they were preceded by a combination of five studied and five unstudied items from the same list. These findings, particularly those of Experiment 2 in which participants were explicitly required to make source judgements, support the suggestion by Dewhurst et al. (2009) that TIP increases false recognition by disrupting source monitoring.

Although enhanced source monitoring prevented the effect of TIP, they did not reduce the false recognition of unprimed critical lures. In other words, the DRM effect itself was not reduced by TIP. This is consistent with previous findings that increased source monitoring demands do not always reduce false memory. For example, Hicks and Marsh (1999) found a reduction in false recall only when DRM lists were presented from two easily discriminable sources, while Hicks and Marsh (2001) found an *increase* in false recognition when participants made source decisions. However, the finding that forewarnings did not reduce overall levels of false recognition in the current study is in direct contrast to the findings of Lane et al. (2008), who reported significantly reduced levels of false recognition when participants were forewarned, prior to the recognition test, of the DRM effect. One possible explanation why TIP did not reduce false recognition of unprimed lures in the current study is that the test primes focused participants' attention on the primed lures. As well as deciding whether or not these items appeared at study, participants were required to make an additional source discrimination (did this item appear in the study list or does it simply feel familiar because it's related to the other test items I've just seen?). It is possible that focusing on this decision made participants less vigilant in their monitoring of the unprimed critical lures. This is consistent with previous findings that false recognition increases when test conditions are more effortful, for example under divided attention conditions (Knott & Dewhurst, 2007).

Not all previous studies have reported significant effects of TIP on false recognition. As noted earlier, Dodd et al. (2006) found no effects of TIP, while Marsh et al. (2004) found a significant effect on unstudied lists but not on studied lists, a pattern in direct contrast to those observed in Experiments 1 and 2 of the current study. The effect of TIP thus appears to be relatively fragile. However, in the current study a significant TIP effect on studied lists was observed with old/new recognition tests in three experiments. Crucially, this effect was no longer reliably observed when test conditions emphasized accurate source monitoring. Other studies have reported an effect of TIP when source monitoring is compromised (e.g., with speeded response deadlines; Marsh & Dolan, 2007, but see Dodd et al.). Considered together, these findings suggest that a critical factor in determining whether TIP increases false recognition is the degree to which test conditions facilitate source monitoring.

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Table 1

Mean proportions of correct and false recognition (with standard errors) as a function of study condition and priming for studied and unstudied DRM lists in Experiment 1.

[pic]**Studied lists**

	List items	*Critical Lures*		
Study condition		Primed	Unprimed	Priming effect
Control	.67 (.04)	.68 (.05)	.53 (.05)	.15
Forewarned	.64 (.04)	.56 (.05)	.51 (.04)	.05
R/K (total)	.62 (.03)	.53 (.04)	.62 (.04)	-.09
Remember	.44 (.03)	.27 (.05)	.31 (.04)	-.04
Know	.18 (.01)	.26 (.03)	.31 (.03)	-.05

Unstudied lists

	List items	*Critical lures*		
Study condition		Primed	Unprimed	Priming effect
Control	.17 (.03)	.25 (.05)	.20 (.04)	.05
Forewarned	.15 (.03)	.23 (.05)	.24 (.05)	-.01
R/K (total)	.14 (.03)	.19 (.06)	.14 (.04)	.05
Remember	.03 (.01)	.04 (.02)	.04 (.02)	.00
Know	.11 (.02)	.15 (.04)	.10 (.03)	-.05

Table 2

Response times (in msecs) for falsely recognized items in Experiments 1 and 2.

[pic]

Experiment 1

Study condition	*Primed*	*Unprimed*	*Priming effect*
Control	1127	1512	-385
Forewarned	1491	2149	-658
R/K (total)	1547	2137	-590
Remember	1812	1796	16
Know	1428	2327	-899

Experiment 2

Study condition	*Primed*	*Unprimed*	
Control	1212	1707	-495
Source monitoring	1686	2297	-611

Experiment 3

List type	*Primed*	*Unprimed*	
Intra-list	1173	1390	-217
Mixed lists	1306	1615	-309

[pic]

Table 3

Mean proportions of correct and false recognition (with standard errors) as a function of study condition and priming for studied and unstudied DRM lists in Experiment 2.

[pic]**Studied lists**

	List items	*Critical Lures*		
Study condition		Primed	Unprimed	Priming effect
Control	.71 (.03)	.76 (.05)	.61 (.04)	.15
Source monitoring	.64 (.03)	.62 (.04)	.62 (.05)	.00

Unstudied lists

	List items	*Critical lures*		
Study condition		Primed	Unprimed	Priming effect
Control	.13 (.02)	.19 (.05)	.16 (.04)	.03
Source monitoring	.10 (.02)	.13 (.03)	.18 (.04)	-.05[pic]

Table 4

Mean proportions of correct and false recognition (with standard errors) as a function of list type and priming for studied and unstudied DRM lists in Experiment 3.

[pic]

Studied lists

	List items	*Critical Lures*		
List type		Primed	Unprimed	Priming effect
Intra-list	.68 (.04)	.58 (.05)	.44 (.06)	.14
Mixed list	.72 (.04)	.50 (.06)	.51 (.06)	-.01

Unstudied lists

	List items	*Critical lures*		
		Primed	*Unprimed*	*Priming effect*
	.18 (.02)	.27 (.04)	.21 (.03)	.06

[pic]