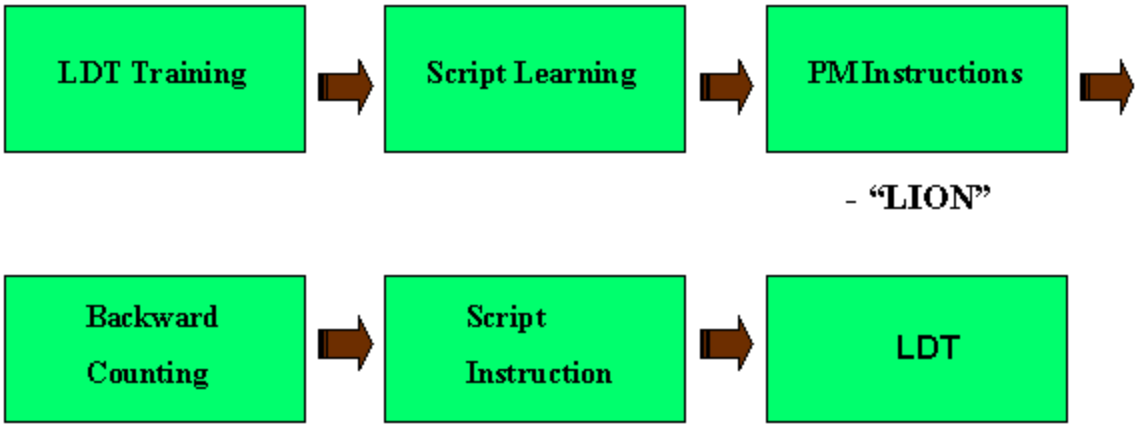
Experiment 1 – Intention Superiority and Prospective Memory

Objective: The purpose of the first experiment was to demonstrate that the intention superiority effect was applicable to event-based PM paradigms. This objective required only a slight change in procedure from the ISE paradigm used by Marsh et al.

Design summary: The design entailed adding a prospective memory target to the lexical decision task used to assess activation. One group of people participated under the same conditions. Two scripts of 10 actions each were used in this study because only a "perform" condition was used. Each action had a noun and a verb component. First, people were trained on the LDT, and then they were trained on the two scripts. Next, they were given instructions about the prospective memory target (a single word…"LION") and asked to count backwards for 30 seconds before being notified which script was to be performed. The following diagram shows the progression of phases for this experiment.



The word "LION" appeared 5 items from the end of the LDT. The LDT itself consisted of 160 items. This set of items was constructed by using twenty words (10 nouns and 10 verbs) from the "to-be-performed" script, twenty words form the neutral (i.e., not performed) script, 40 new words, and 80 nonwords. Theses items were presented in psuedorandom order with the provision that each half of the set contained the same proportion of types of items.

Further detail about the training and instruction given to participants is provided in the design summary of Experiment 2. Both experiments followed the same procedures with the noted exceptions.

Results: Average latencies for the LDT were calculated according to item type. The means and standard errors are given below. All participants successfully completed the assigned task when the target appeared. In addition, no participant failed to recall at least 36 of the 40 studied words from the script during a post-experiment free recall test. The sample size is 14 for this experiment (a few more will be added).

"Performed"	=	604.50 (46.13)
"Neutral"	=	635.16 (49.12)
New words	=	656.10 (33.08)
Nonwords	=	742.57 (53.23)

Performed words differed from the neutral words significantly (Mean diff = 30.67, SEd = 9.32).

Experiment 2 – Contextual effects

Objective: The purpose of this study was to test the claim made by Goshke and Kuhl regarding the persistence of the ISE. Their claim is that activation for the intention is maintained until the intention is completed. (This notion gained some indirect support in Marsh et al.'s experiment that interrupted participants' performance of the scripts. The result of this manipulation was that there was activation for both completed and incomplete portions of the script.)

Design summary: In this experiment, two cover tasks were used. The LDT was still employed, but a word naming and location task was added. The key manipulation was that for some of the participants the expectation of the prospective memory target was "active" during the LDT and for another group the expectation was not active during the LDT. The next section describes in more detail the procedure and instructions for the participants.

Methods details: At the outset, participants were instructed that they would be performing three different tasks in the experiment and that they would first be trained on each task before the experiment began. They were additionally told that two tasks would be performed on the computer and one task would require them to use the props on the table to execute action scripts.

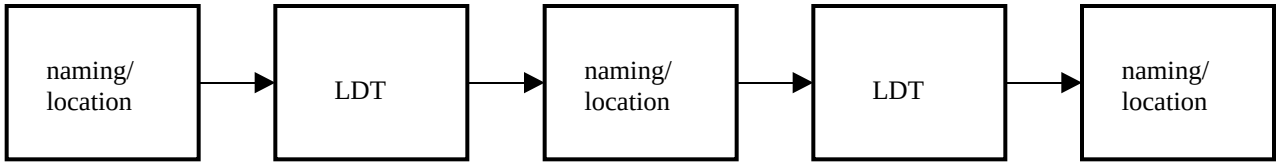
Training began with the two computer tasks, LDT and word naming/location. Each task was explained and practice trials for each were presented. An LDT trial consisted of a fixation point appearing on the screen for 1 second followed immediately by the presentation of a letter string. Participants were to press one of two buttons on a response box depending on whether the letter string was a valid English word or not. A button prompt was displayed on the screen to help speed responses. A word naming/location trial consisted of an array of four connected boxes displayed on the screen with a word being presented in one of the four boxes. The participants were instructed to say the word aloud and then press a button on the response box that corresponded with the box in

which the word appeared. In both tasks, participants were instructed to perform as quickly and as accurately as possible.

Next, participants were given an explanation of the action scripts. Participants learned two scripts of 10 actions each with the expectation that one of the scripts would be required to be performed during the experiments. Script learning proceeded as follows. Participants were presented with each script separately and asked to memorize all actions word for word and in order. Presentation of the scripts began with the title being shown for ten seconds. Thereafter, each action was shown for at a rate of one every 10 seconds (with the title and the preceding actions remaining on the screen. After all the actions for a given script were shown, the entire script remained on the screen for an additional 30 seconds.

After each script was studied in this manner, the experimenter gave a brief demonstration of the scripts. This demonstration involved a recitation of each script, pointing to each prop and explaining any action that was unclear from the script learning. The participant then studied each script again (just as they had done previously). Script-learning concluded by having the participant recite each script while simultaneously pointing to each prop, and by having the participant complete a written free-recall test. The participant was corrected during recitation, and additional study time was provided to any participant who needed it.

Following the training session, instructions were given as to how the experiment would proceed. Here is a schematic for how the blocks of trials were arranged:



Participants were only told that they would begin the experiment with the word naming/location task and would continue with this task until they were presented with a prompt to begin the LDT task. A prompt to return to the naming/location task was also presented.

In addition, half of the participants were told that whenever they saw the word LION in the **naming/location** task that they were to stop the computer task and perform one of the two scripts that they learned previously. The other half of the participants were told that if they saw the word LION in **either the naming/location task or the LDT** that they were to perform one of the scripts. They were told that they would only have to perform one script and that they need not worry about the other script. Once the participant understood these instructions, a screen was shown indicating which script was to be performed and which script was to be "ignored." This screen was displayed for 8 seconds before the first naming/location trial started.

The word LION never appeared in either of the cover tasks. The participant was queried after the last block of naming/location task as to the intention to perform the script and the nature of the PM cue. The participant then performed the appropriate script and completed a written free-recall test of both scripts.

Results

The group that was instructed that the target word (i.e., "lion") would appear in the naming/location task only (the "naming" group) did not show the intention superiority effect. On the other hand, the group that expected the target word in both tasks (the "both" group) did show the effect. The means for the naming group were as follows: words from the performed script, mean = 595.42 (SEm = 20.34), words for the not-performed script, mean = 598.72 (SEm = 20.38), new words, mean = 652.34 (SEm = 20.61), and nonwords, mean = 742.54 (SEm = 27.83). The means for the both group were 572.52 (SEm = 22.86), 607.61 (SEm = 34.48), 642.14 (SEm = 25.73), and 704.27 (SEm = 35.22) respectively. There were 18 participants in the naming group and 16 participants in the both group.

The performed words did not differ from the neutral words (Mean diff. = 3.30, SEd = 14.75). The means for the performed and neutral words did differ in the "both" group (Mean diff. = 35.08, SEd = 15.43).