# RELATIONSHIP OF ACQUISITION AND RECALL ON THE REY COMPLEX FIGURE DRAWING TEST

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## Introduction

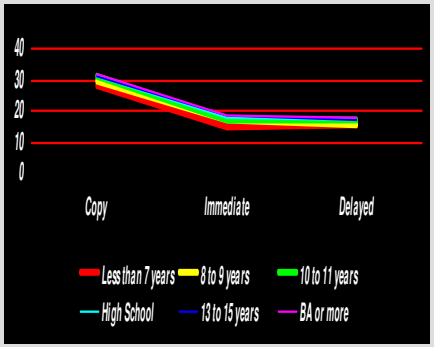
**Objective: The role of attention to detail during the acquisition of tasks involving subsequent recall is often discussed in rehabilitation textbooks (Elsinger, 2002; Raskin & Mateer, 2000). That is, the failure to attend to information may lead to an inability to recall that information even in the absence of neuropsychological trauma. As a consequence, the level of attention during the initial presentation of information often becomes a goal of treatment of neuropsychological disorders (Johnstone & Stonnington, 2001). The Rey Complex Figure Drawing Test (RCDFT) offers a means of assessing the impact of attention during the acquisition stage of visual memory task on subsequent free recall. In addition this test also provides a means of discriminating between the effects of level of attention and the effects of immediate recall.**

## Procedures

**Subject Selection:**

**We used a clinical sample as normative groups often are often screened to insure a good level of attention during the acquisition condition. Potential participants for this study came from an archival review of patients referred for neuropsychological assessment. Although the source of the referral was not recorded, , most of the participants had been involved in motor vehicle accident. The assessment occurred at different points in their recovery. No measure of effort was included in the data analysis.**

**There were 465 male (60.5%) and 303 female patients. The patients had an average age of 40.3 years (SD = 14.05, n = 768) and reported 12.8 years (SD = 3.29) of educational exposure. Handedness was as primarily right- (688, 89.5) versus left (70, 9.1%) or ambidextrous (10, 1.3%). Results of intellectual assessment indicated an overall level functioning that fell within the upper portion of the Average range (FSIQ = 100.1; SD = 14.74, N = 722) with equivalent levels of verbal (VIQ = 101.8; SD = 15.11, N = 663) and non-verbal functioning (PIQ = 98.3; SD = 14.59, N = 667).**




**Assessment:**

**Completion of the RCFDT was the criteria for participation in this study (Meyers & Meyers, 1994). All testing was done on an individual basis. Raw scores from the copying (REYCOPY Mean = 31.1, SD = 4.38), immediate (REYIMM Mean = 17.9, SD = 6.98), and delayed reproduction (REYDELAY Mean = 16.9, SD = 6.89) were used as dependent variables.**

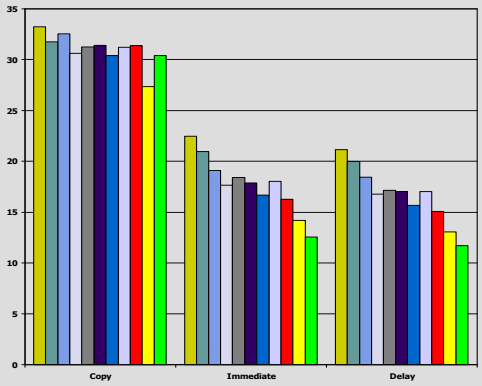
**Analyses:**

**Variables reflecting the participants' age, education, gender, and were entered into the MRA to determine the overall relationships of demographic factors to performance during the copying portion of the RCFDT. Next, the relationship of the copying scores to performance during the immediate recall condition of the RCFD was examined, while controlling for the effect of demographic variables. The level of free recall during the delayed condition was estimated using scores from the copying condition and demographic variables to determine the impact of attention on long-term recall. The level of free-recall during the immediate recall portion and demographic variables was also used to estimate the impact of acquisition on subsequent recall.**
**Acquisition:**

**There was a significant relationship between demographic variables and scores from the copying condition (MRA = .536, F-value = 20.079, df = 3/764, p < .001). The estimated Copy score was computed as 31.347 + (Age * -.071) + (Education * 0.22*) + (Sex * 0.209).**

**Immediate:**

**When the effects of demographic variables was controlled, there was a significant association between scores from the copy and immediate recall conditions (MRA = .539, df = 4/758, p < 0.001). The estimated Immediate scores was computed as -2.188 + (Age * -.093) + (Education * 0.145) + (Sex * -.955) + (REYCOPY * 0.749).**




**Delayed and Copying:**

**Scores from the delayed-reproduction condition were significantly related to the level of accuracy demonstrated during the copying condition (MRA = .536, df = 4/747, p < 0.001) even when the effects of demographic differences were controlled. The delayed condition score was estimated by 1.981 + (Age * -0.098) + (Education * 0.136) + (Sex * -1.003) + (REYCOPY * 0.723).**

**Delayed and Immediate:**

**The scores from the immediate reproduction condition also had a significant relationship to the level of accuracy during the delayed reproduction condition (MRA = .914, df = 4/746, p <L 0.001). The predicted delayed score based on the immediate-score was 1.343 + (Age * -0.017) + (Education * 0.033) + (Sex * -0.126) + (REYIMM * 0.891).**

## Conclusions

**Age and education have a significant relationship with the accuracy of reproduction during the copy-, immediate-, and delayed-condition. This relationship reduced the discrepancy between the estimated and obtained scores.**

**Scores from the acquisition stage of the RCFDT were significantly related to the patients' ability to use their non-verbal memory to retrieve and reproduce details from a complex designs during the immediate-retrieval condition, even when the effects of demographic background was controlled. The use of scores reflecting the acquisition of visual information during the learning portion of the RCFDT assessed the impact of attention on the subsequent level of free-recall.**

**The relationship between the level of accuracy during the copying condition compared to the delayed condition was significant. The magnitude was similar to the level found among scores from the copying and immediate reproduction condition.**

**Nevertheless, the relationship between the level of accuracy of reproduction during the delayed condition and the level of free-recall during the immediate-recall condition was highly significant. The magnitude of the impact of the level of immediate recall was much stronger than for the level of attention during the copying condition.**

**These results indicate that role of attention during the acquisition stage of complex visual learning improve our understanding of performance on subsequent stages of retrieval and recall.**

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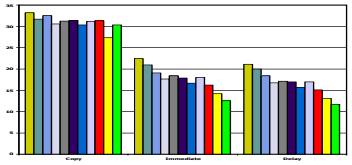
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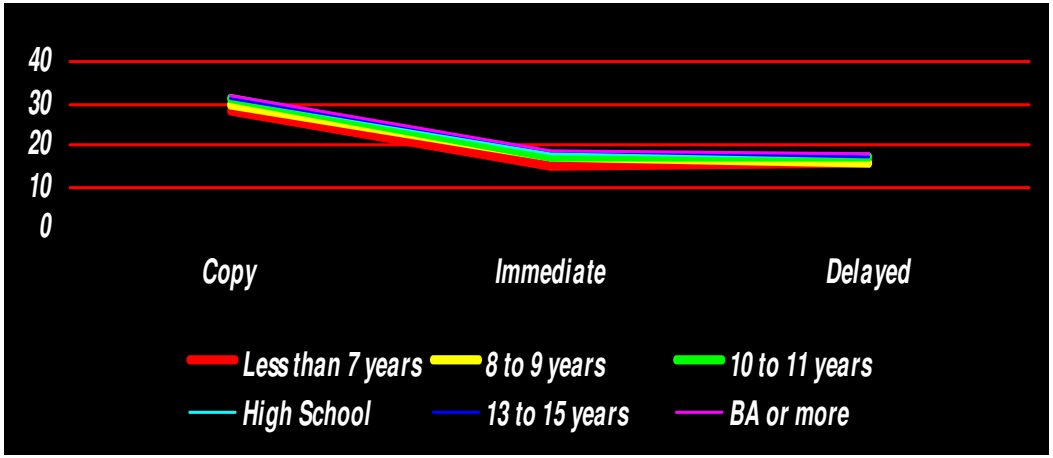
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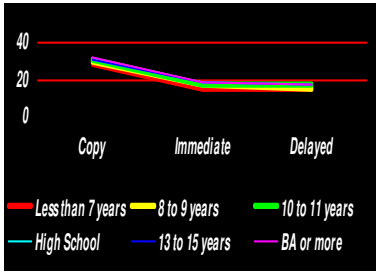
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