TITLE: THE ROLE OF HANDS-ON ACTIVITY IN THE CONSOLIDATION OF LONG-TERM MEMORY

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ABSTRACT:

The present study examined the role of hands-on activities in the Consolidation of Long-Term Memory in students of Elementary school. The research subjects included 54 students of which 22 participated in a hands-on activity about microorganisms (Microworld), and the remaining 32 did not participate hands-on. A pre- and post-test was used to assess the students´ learning. We evaluated the performance of the 22 "hands-on" students in three separate surveys: one test applied before the hands-on activity to test pre-knowledge (T0), another test applied immediately after the hands-on activity to test knowledge acquired (T1), and a third test that was applied 18 months after the hands-on activity to test knowledge retained (T2) – the students now studying in the 8th grade. The third test (T2) was applied with the "hands-on" students (22 in total) and an additional 32 students that did not participate in the T0 test, T1 test, or the hands-on activity. The results show that the mean score of the T1 and T2 tests was higher than T0 test. Considering a maximum score of 50 points, the mean from T0, T1 and T2 was 20.72 ± 5.38 (40%); 35.8 ± 6.7 (72%) 31.09 ± 10.7 (62%), respectively. There was no significant difference between T1 and T2, a positive result showing that the students retained the knowledge from the hands-on activity over the 18 month span. The score of the students who did not participate in the hands-on activity (TU) was significantly lower (16.53 ± 6.1) than the students that participated in the activity. In Brazil, microorganism is a subject studied in the 6^{th} year of school; therefore, it makes sense for the T0 test (currently in the 6^{th} year) to have a higher score than the TU (in the 8^{th} year). In summary, the "hands-on" students demonstrated a higher retainment of knowledge than the students who did not participate. In conclusion, students who learn with hands-on methodology retain knowledge in the long-term memory more-so than those who study with lectures.

Keywords: hands-on activities, learning long-term, memory, knowledge

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