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Original Research Paper

Education

EFFECT OF IMMEDIATE AND DELAYED REVISION ON SHORT AND LONGTERM ACADEMIC ACHIEVEMENT

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ABSTRACT

Context The concept of working memory proposes that there is a dedicated system that maintains and stores information in the short term, and that this system underlies human thought processes[1]. We evaluated, how early and delayed repetition of class lessons by students does enhance academic achievement in short and long-term.

Objective: Our objective was as to comparatively study the academic achievement and retention in two study groups involving immediate and delayed revision respectively.

Hypothesis: There is no significant difference in academic achievement either short term or long term in two study groups involving immediate and delayed revision.

Definition: *Immediate revision* is recapitulation of lesson daily at the end of daily teaching. *Delayed revision* recapitulation of lesson after entire completion of course at end of two weeks. *Achievement* the recall of lessons learned and assessed by written test (post test 1). and second written test three months later.(post test 2).

Results We found that the early and delayed revision of lessons learned in class did not had any significant difference in terms of short term academic achievement but there was a significantly greater amount of retention and hence long term better academic achievement for those students that had undergone repeated daily revision of lessons.

Conclusion We conclude that daily immediate revision of class lessons vs. delayed revision did not alter the short term memory gain but daily immediate revision of class lessons does significantly improve long term retention and hence is a better teaching methodology. We recommend more research and analysis of this subject that will give more evidence in appraisal or improvement in our present conclusion.

KEYWORDS : Repetition, academic achievement

INTRODUCTION

The common teaching methodologies in the Indian school include lectures, demonstration, experimentation etc and an essential component is revision of class lesions that promote grasping and retention of the subject. There are basically two ways of revision. One involving revision the salient features of the topic immediately at the end of the class and other at the end of the course, we call it as delayed revision.

Which method is better and what effect does it have on short term and long term academic achievement is not fully understood. Studies have shown that repetitions if well designed are effective in learning and that delayed revision over time produces better learning benefits[1]. Delayed revision is particularly beneficial if long-term retention is the goal as it minimizes forgetting and wider spacing is generally more effective than narrower spacing, however the teacher should also keep in mind that there may be a time point where revisions that are too much delayed are counterproductive because of forgetting the previous learning altogether A good theoretical approach would be to have the length of the spacing interval equal to the retention interval of an individual and then gradually expanding the time duration can have positive impact.

However what should be the ideal time gap and how often a lesson should be revised for optimal retention and learning so that the students have maximum benefit out of it is a question with varying opinion Since there are many comforting views and theories for early and delayed revision strategy, because factors that determine the learning are multiple and vary from geographic region to region. Hence we planned to conduct a study that would be more representative and applicable to our students.

Methodology:

The study was carried out at Maharana Mewar Public School Chittorgarh, Rajasthan, India in year 2009 among class VIII students and the period of study was 90 days. The study was a randomized control study the sample size of study was 80. Each group had 40 students with male and female in ratio of 1:1. Randomization was done using randomization table. The two randomized groups so obtained were subjected to same teaching method in similar physical environment (sound, light, background noise etc) for a period of fifteen days. In first group immediate revision of the salient teaching points was done daily, after teaching the topic, within the 45 minute duration long teaching period. In second group daily teaching of topic did not follow any revision, rather a delayed revision of the entire lesson was done in last two days with overall duration of study being same for both groups that is 45 minutes daily for 15 days. The two groups were then subjected to a set of 32 objective type questioners on day 15 of study and a repeat test with another 32 objective questioner on day 90 of study so as to find out the effect of early and delayed revision on short and long term academic achievement.

Statistical analysis

The data was collected and was analyzed using STATA (version 10.0, statcorp, TX) continues variables were expressed as means, standard deviation for normally distributed variables or medians. The Mann Whitney U test was used for comparing non normally distributed measures. Odds ratio and 95% confidence interval (CI) were calculated where applicable. Multiple logistic regression analysis was performed including univariate variables with significant values of p 0.05

RESULTS

Table 1: Test 1 for immediate achievement

Group	n	Total score	Mean x	SD
Immediate Revision	40	1193	32.24	1.390
Delayed Revision	40	1160	32.22	1.006

P value= 0.941, mean difference= 0.020, 95% confidence interval= -0.520 to +0.560

Figure 1: Mean score in the two groups in TEST 1

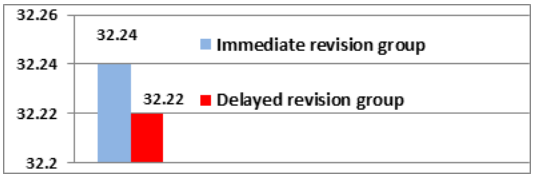
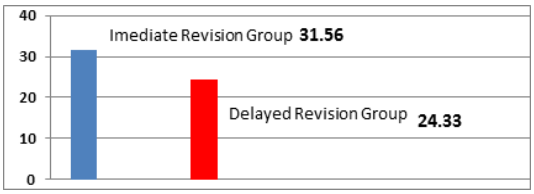


Table 2: Test 2 for delayed achievement

Group	n	Score x	Mean	SD
Immediate Revision	40	1168	31.56	0.997
Delayed Revision	40	876	24.33	0.8100

P value =0.0001 mean difference =7.23 95% confidence interval =6.825 to 7.634

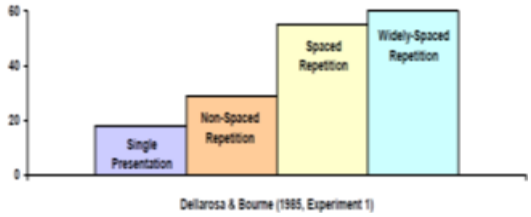
Figure 2: Mean score in the two groups in TEST 2



DISCUSSION

It is generally believed that in learning and memorizing the class lessons a wider gap of time require extra cognitive effort and such effort creates stronger memory traces and hence better remembering. Wider spicing create memory traces that are more varied than narrow spacing[2] , and produce more forgetting during learning that prompt learners to use different and more effective encoding strategies that aid remembering in the future.

The following graph shows that repetitions are better than single presentations of learning material, spaced repetitions are better than non-spaced repetitions, and widely-spaced repetitions are better than narrowly-spaced repetitions[3]. Of course, the results in the graph below represent only one research study and results may vary depending upon the learners, the learning materials, and many other factors as well.



significant difference in terms of short term academic achievement / working memory as students in both the groups the groups obtained almost similar marks and the result was comparative. The score was 1193 for immediate revision group and 1160 for delayed revision group (P =0.941) the mean difference of score was 0.020 with 95% confidence interval between -0.520 to 0.560. The reason for similar academic achievement in short term in both groups could be because of the *recency effect*[4]. The recency effect is where you finish. You remember the end the best. One cannot define and discuss the recency effect in learning without understanding the Primacy Effect.

The theory of *Primacy Effect* is that you remember some things at the beginning of an event because it occurred first[5]. There is the beginning, a long middle that blurs together. You remember things because that is where you started. It means that we remember things more which we see or hear first, this becomes primary. In learning, this means that we remember best what we learn first we remember what was learnt at the beginning of a lesson when the Primacy Effect is at work .For students to remember there's no one size fits all technique for revision. They have to see what works for them and analyze their path. However there is a antagonist to this recency effect and that is the short term memory .Short-term memory is the second stage of the multi-store memory model proposed by the Atkinson-Shiffrin[6]. And it is characterized by limited capacity of content and easy frangibility by distractions. If a person is distracted, information is rapidly lost from this store. And hence students are more likely to remember the lessons learned in a class with minimal noise and visual disturbances such as minimal use of mobile phones and other personal electronic devises. Short-term memory is commonly conceptualized as the temporary retention of information before it becomes permanent or long-term memory. Short- and long-term retention is separate processes, and items do not have to pass through short-term memory in order to reach long-term memory.

In our study we found that for long term retention of class lessons daily revision was a effective tool as evident from higher average score of 31.56 as compared to 24.33 for those students using delayed / deferred revision of content the difference was highly significant with P value =0.0001 mean difference was 7.23 with 95% confidence interval between 6.825 to 7.634. students are more likely to recall a lesson if they conceptualize the theme rather than just speaking out loudly again and again because this type of learning only add to maintenance rehearsal .Maintenance rehearsal is a type of memory rehearsal that is useful in maintaining information for short period because this usually involves repeating information without thinking about its meaning or connecting it to other information[7] An example of this type rehearsal would be repeating a phone number mentally, or aloud until the number is entered into the phone to make the call. But this method will not help students because it will not help them in long term academic achievement. An hour, or even five minutes after the call, the phone number will no longer be remembered.

One should realize that learning does not usually occur in one-time and takes place over a period of time. Learning occurs by repetitions of learning points over time. The spacing effect occurs when we present learners with a concept to learn, wait some amount of time, and then present the same concept again. Delayed revision can involve a few repetitions or many repetitions. Regardless of the way repetitions are manifested, if two or more presentations of the same learning point are repeated with some sort of time delay between them, they are likely to produce better learning.

CONCLUSION

Working memory and short term academic achievement is not effected by quick sequenced revision or a delayed revision of lessons learned in class.

Long term academic achievement and hence retention is enhanced by delayed recall and repetition as it probably converts more of short term memory into permanent memory.

Teaching methodology involving daily recall of salient learning points from class lessons is significantly better teaching methodology than delayed recapitulation/ delayed revision.

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Conflicts of interest
There are no conflicts of interest

REFERENCES

1. Thalheimer, W. (2006, February). Spacing Learning Events Over Time: What the Research Says. Retrieved November 31, 2006, from http://www.work-learning.com/catalog
2. Carrier, M., & Pashler, H. (1992). The influence of retrieval on retention. Memory and Cognition, 20, 632-642.
3. Denise Dellarosa And Lyle E. Bourne, JR Memory & Cognition 1985, 13 (6), 529-537
4. Lauber, Stephen, "Differentiation Strategies: Teaching Grade-Level Content to ALL Students, posted 10/21/14, http://dataworks-ed.com/author/stephen/
5. Alexandra B. Morrison, Andrew R. A. Conway, and Jason M. Chein Primacy and recency effects as indices of the focus of attention(2014 Jan) Front Hum Neurosci. 2014; 8: 6.
6. R.C.AtkinsonR.M.Shiffrin (1968)Human Memory: A Proposed System and its Control Processes Psychology of Learning and Motivation Volume 2, , Pages 89-195
7. David Fegen,Bradley R. Buchsbaum, and Mark D'Esposito (2014) The Effect of Rehearsal Rate and Memory Load on Verbal Working Memory Neuroimage. Jan 15; 105: 120–131.