

## EXAMINING THE POTENTIAL LINK BETWEEN MUSIC AND RECALL AMONG ORDINARY LEVEL STUDENTS IN PAKISTAN

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### ABSTRACT

*The study focuses on the integrated approach to teaching-learning process. The study employs music in the teaching of Pakistan Studies to Ordinary Level students enrolled for Cambridge International Examinations. The experimental study was comprised of 30 participants, 18 boys and 12 girls (N= 15.5 years) who watched a slideshow comprised of 20 historic figures with a background soundtrack, followed by a written quiz and questionnaires respectively. Findings of the statistical analysis revealed a positive Pearson Product Moment Correlation:  $r=0.852$ ;  $p< 0.01$ . However, no statistically significant differences were found on t-test with regards to the gender of the participants. Further studies in this field, can assist children, especially with memory lapses, to achieve better academic performance.*

**Keywords:** Music, recall, integrated approach, performance

### INTRODUCTION

Cambridge International Examinations (CIE) offers a widely popular educational program in Pakistani context that has earned immense credibility over the decades. Irrespective of being a fairly expensive program in the context of a developing country, the graduates of CIE have not only won laurels abroad but have also contributed to efficient work-force within their own country. The local Pakistani examination system has become outdated and students prefer to appear for CIE as they know that they can still manage to survive decently even with mediocre grades. In view of the stated incentives the students are expected to obtain straight A's or get reasonably good results. Due to the overall demands placed on success factor, students have to endure a great deal of stress which may also lead to the under-performance especially in the case of subjects rely on rote-learning.

Contrary to the expectations, Pakistan Studies 1 (Subject Code: 2059) offered by CIE far less competitive to cater for students learning capacity. The course is offered to Ordinary Level (O'L) students who are about 15-16 years of age. Ironically, despite being offered by CIE, the way of learning is somewhat identical to Pakistan's local educational system. These students need to recall loads of inter-related information, starting from 'The Fall of Mughal Dynasty (since 1707) to the Martial Law of General Pervaiz Musharraf (1999)' under strict time constraints during an exam- retaining information about a time-span which stretches over almost three centuries is certainly a demanding task. To make the matters worse, there is a compulsory question which can be based on any one of the three sections thus students are bound to learn the entire course without exercising their preference for any specific section. On the contrary History offered by CIE for Advanced Level (Subject Code: 9389) divides several eras into units and students can choose their preferred era of interest.

Furthermore, the nature of the examination also requires students to master the skills of recall (at least 57% of the marks weightage is based on the subject knowledge at large). In view of the current scenario, an integrated approach in the classroom can facilitate the recall of factual information by linking it to music.

## **Background**

The integrated approach to learning has been applied in the field of education for the past several decades: the high correlation between music and mathematics has been demonstrated owing mainly to the harmony shared between the two fields (Nisbet, 1990); similarly, the connectivity between the two disciplines has been demonstrated by Vaughn (2000). Interestingly, the prospect of learning relies on memory and its significance has been acknowledged by many researchers for the past several decades. For example, the model of "multi-store model of memory" dates back to 1968 and was presented by Atkinson and Shiffrin's who demonstrated that there are three distinct memory stores: Working /sensory memory, short term memory and long term memory. The amount of attention paid and "rehearsal" of information affects likelihood of this information passing first into short term and then into long-term memory.

Furthermore, sub-classification of memory types has been very popular with the researchers and a multitude of findings have been presented to validate the role of memory in almost all aspects of life but in particular with academia. According to Tulving(2000) echoic memory represents memory for sound, which causes auditory stimulation for a short span of time. If the echoic memory is retained in the long term memory then it can facilitate the formation of new memories. A fairly comprehensive research has been conducted to comprehend the better recall of the firstpresented items relative to the middle of the curve (the primacy effect) proposing a superior transfer of information about these items to long-term store (Glenberg et. al., 1980). Parker (1993) asserts that the sound of music can provide the stimulation of the primary auditory cortex of the other visual sensory stimuli, (e.g. pictures) and both can be combined for effective recall; Sloboda (2010) also relates to the association between music and an object.

Juslin (2010) demonstrated that ‘physiological response patterns to the original events are stored in memory along with the experiential contents’ thus leading to the retrieval of a specific memory. He further emphasizes that music is instrumental in the recall of such memories (cited in Stubing, 2012).For more a sophisticated examinationof the cortical areas, electroencephalogramhas been used for the past several decades to measure brain electrical activity. With the help electroencephalography brain activity can be measured to view how music activates cortical systems in the brain, (Asimov, 1964).

Despite the fact that music is fairly popular in the context of Pakistan, there is scarcity of research in the field of music in general and especially its affiliation with Pakistan Studies 1, the subjectoffered by CIE for O’L students. The current study intends to fill the existing gap by establishing the potential link between recall of factual information and music and employ a novel strategy to teach (Pakistan studies 1)O’L students.

## **OBJECTIVES OF THE STUDY**

1. To explore the effectiveness of novel teaching strategies
2. To assess the role of time management in learning
3. To investigate the usefulness of audio-visual aids in learning process
4. To apply the findings of the research in other subject areas
5. To assist students in their learning process
6. To assess students’ involvement in the learning process

## **HYPOTHESES**

1. There is no correlation between music and recall of information.
2. There is no difference between male and females with regards to the recall of information.

## **METHODOLOGY**

The experiment was carried out in a school located in the posh area of Karachi. The study was based on a field experiment since it was carried out in the participants' own environment. A slide show was displayed along with the sound track of a national song followed by a quiz and a questionnaire.

### **Participants of the Study**

The participants of the study were students studying in the mainstream of O'L-2 (class-X) who were preparing for their upcoming exam in the year 2016 for Pakistan Studies 1. All participants belonged to the middle class or upper middle class socio-economic background-a factor that corresponded to the fee-pattern of the school and was informally gathered. The method of convenient sampling was employed and all 30 students 18 boys and 12 girls consented to take part in the research. Informed consent was also obtained by the parents of the participants since all of them were underage.

### **Materials and Equipment**

A specimen paper of Pakistan Studies 1 (For Examinations from 2015) and the course book of O'L (History and Culture of Pakistan 2015) were used to design a slideshow and the questions of the quiz. Selection of the Images for the slideshow was made after reviewing the specimen Paper of Pakistan Studies 2015. The first question (Source-based) of Pakistan Studies specimen paper was selected for the current study which is also a compulsory component of the paper. Question 1 has been divided into four sections (a, b, c, and d). The first section uses a quote of a national leader or an important personality which is referred to as source A (marks: 3). Whereas section b uses a visual stimuli, for example, an Image of the Muslim refugees leaving India for Pakistan in 1947 and is referred to as Source B (marks: 5).

It is noteworthy these short questions are comprised of more than 11% weightage in question 1. However in Section-D the same short questions are further converted into a higher order response from the candidates while exercising their knowledge in writing an analytical answer (How successful was Quaid-e-Azam in establishing the new Pakistan in 1947? Explain your answer. Marks 10). Thus apart from the analytical skills students are required to recall the factual details of the short questions and the weightage of this part amounts 10 almost 14%.

Based on the formation of Question 1, pictures of several historic events were also obtained from the course book to design the slideshow for the current study. Some of the salient images included (Figure: 2.1 King Baber; Source A and Source D page 31; Figure 4.1 Sir Syed Ahmed Khan; and Figure 4.2: Members of the debating club, MAO College-1886).

Initially, participants' were given the choice of three national songs along with the slideshow. However, only one slideshow along with the soundtrack was selected for the current study.

### **Procedure**

The study was conducted in several phases in the regular class of Pakistan Studies 1. A brief introduction of the researcher was made by the subject teacher who described the noble purpose of conducting educational research-to facilitate learning. After the introductory

session the researcher narrated the entire sequence of the experiment. The participants were also inquired about their consent again (although the parents had already consented on behalf of their children) to which they willingly agreed.

Since the study builds on the concept of reinforcement and association, participants were given a choice of three national songs that they had listened to beforehand. The concept was based on recall associated with long term memory. Whereas the short term memory was targeted with the help of the slideshow while building its association with the long term memory. These songs were selected because they were currently played on the social media due to 6th of September (Defence Day in Pakistan to pay tribute to the martyrs of the war of 1965). Out of a choice of three national songs one national was selected which all participants were familiar with.

After obtaining the consent for one of the soundtracks 'Sohnidharti Allah rakhey' (May God protect the lovely country) was played in the class. Meanwhile the slide show, comprised of the 20 images (obtained from the course book) of the historic events as well national heroes, was shown with the help of a projector and an i-pad. Each image had a bold caption at the bottom which either provided the factual details of the event or the name of the personality displayed for the stated duration. Each image was shown for exactly 15 seconds. The total duration of the slide show and the sound track was 05 minutes.

On the completion of the slideshow students were provided with a written quiz which contained images. During this quiz the participants had to recall the historic events and the names of the national heroes shown in the slideshow and write them in the blanks provided underneath the images (as used in the specimen paper of Pakistan Studies 1). The sequence of the slideshow was repeated in the quiz as well. The activity required participants to simply recall the names or events and no other higher order analytical question was used.

Soon after ten minutes the quiz-sheets were collected and the participants were provided with the questionnaires. The questionnaire consisted of two sections. The first section was related to obtaining biographical information about the gender and age of the participants, whereas the second section was comprised of ten items. Participants had to mark on a 6-point scale ranging from "Strongly Agree" to "Strongly Disagree". For example item 2 'music is essential for concentration' and whereas item 7 of the questionnaire was a critical question 'Listening to music helps me to recall the exact information'.

The experiment was standardized by employing several measures: soundtrack of the same national song, followed by a quiz and filling out of questionnaires. All participants were given the exact time limit; the overall experiment took half an hour: the slide-show and sound track lasted for five minutes displaying each figure for exactly 15 seconds, followed by the quiz lasting for 10 minutes and filling out of questionnaires which consumed 05 minutes. Since students were occupying the same seats during the entire process, so apart from the introductory session no additional time was required for the arrangements.

## **RESULTS**

The results obtained were interpreted and analyzed for both hypotheses. For obtaining the result of the first hypothesis the percentage of the correct answers on the quiz was obtained and then compared with the score on the questionnaire. The statistical analysis of the data was done by employing Pearson Product Moment Correlation which linked the recall of information to the soundtrack for 85% of the participants whereas 10% of them did not find

the soundtrack to be helpful in recalling the information. 5% reported that the sound track interfered with the recall of details.

It was hypothesized that there would be a higher positive correlation between the score on the quiz and the score on the questionnaire. Initially, the score of the quiz was compared the aggregate score of the questionnaire for each participant. Later on, the aggregate scores of the two instruments were further analyzed with the help of Pearson's correlation, showing a positive Pearson Product Moment Correlation of 0.852 and 0.895.  $r=0.852$ ;  $p < 0.01$ . The correlation was fairly high, which suggested a fairly strong relationship between the scores on the quiz and the questionnaire.

A t-test was used to assess the difference between the male and female participants of the study but the test was not statistically significant thus indicated that both groups of the study male and female were equally benefitted by the experimental strategies which also can be linked to higher positive correlation on the test scores holistically.

## **DISCUSSION**

The study offers valuable findings in facilitating learning while focusing on 'recall' and establishing its association with visual and auditory stimuli. The current study mainly draws upon the visual stimuli used in the exam paper and builds a framework around it and hypothesizes that learning can be presented more effectively if a combination of sensory stimuli is used. For example in the current study it was a combination of two senses- auditory and visual stimuli: soundtrack and figures respectively.

Although the book is also regarded as visual stimuli but due to the scripted nature of the text students are required to apply higher order skills and imagery to create mental pictures for interpreting the language. With the help the slideshow the present study demonstrates that students could readily relate to the incidents and events better.

The research shows the influence of recall at a very basic level which can become more refined if more insightful longitudinal researches can be conducted in future for more accurate findings. Moreover, the success in CIE exams is partially dependent on a student's ability to recall the information correctly; dividing up the facts of the history of Pakistan will assist them in their learning thereby enhancing their skill of selection as well.

The study has employed a national song to investigate recall and no statistically significant difference was found between the test scores of male and female participants. However, further research by using different types of auditory stimuli like can provide more insightful information about recall and assist in learning. The study, however, has not investigated the part played by previous knowledge and since it was a snapshot analysis and no comparisons were made with students' earlier academic performances.

The role of chunking could have further highlight other significant aspects of the study; some significant findings by Tulving and Pearlstone (1966) also suggest that formation of data into categories affects the amount of recall of information. Since the nature of the study simply focused on recall this aspect was not explored in detail.

## **RECOMMENDATIONS**

The proposition of integrating music with learning though appears to be a novel idea in Pakistan, however the incredible findings related to eliciting factual information can be further explored and establish its link with the long term memory. For more effective and

reliable findings more in-depth analysis is mandatory in providing a new dimension to learning.

In order to facilitate students' learning with regards to their recall strategies, more longitudinal researches can be conducted for other subjects at several levels as well. Most of subjects in CIE lay at least 30% emphasis on knowledge and the factual recall of information and the same information is further utilized in answering higher order questions. Future research can focus on highlighting individual traits and more context-based research in integrated learning especially for students with learning difficulties (Lesiuk, Polak, Stutz, & Hummer, 2011).

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