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Effect of Music Training on Students' Creativity: An Experimental Study

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Abstract

The purpose of this study is to conduct an experimental research to find out the influence of music training on student's creativity. Students were classified into an experimental group and controlled group. Test of Creative Thinking was given to both the groups to determine their creativity. Then music training was imparted only to the experimental group for a period of three months by means of interventional music training module developed by the investigator. Thereafter, Test of Creative Thinking was again given to both the groups. In order to determine whether music training had any impact on the student's creativity, t test was applied to find the mean difference between experimental group and controlled group in the pre-test as well as in the post-test. The outcome shows that no significant difference was found between the experimental group and the controlled group in the pre test while a significant difference was found at the post test between them at .01 levels. Comparison of creativity between the pre-test and post-test was also determined with the experimental group as well as the controlled group. Here, significant difference between pre-test and post-test among experimental group was found at .01 level while significant difference between the pre test and post test among the controlled group was found at .05 level of confidence. Therefore, it can be interpreted that music training given to the students does have a significant impact on their creativity.

Key words: Music training, Creativity, Experimental group, Controlled group, Mizoram

Introduction:

The world is filled with different types of music because there are different kinds of people everywhere. We find that there are many types of music in the world from music genres to lists of music styles. Music is actually all about understanding the basic rules and then expressing it in the form of sound. Writing songs, improvising solos, and re-performing existing songs are some of the ways that musicians create something out of nothing.

It is no wonder that numerous successful people studied music at one point in their lives. People can appreciate songs in languages they don't speak or barely understand. This clearly shows how music can bring people closer to each other, especially when they need to socialize with people from other cultures.

Learning music can be annoying at times, but then it is never easy to learn something new. When we reach a certain level while we learn to play something, we feel totally awesome. We start having a sense of achievement, and when we play for others, we feel much more confident. This feeling becomes utter enjoyment when we play with others.

According to a new extensive study in British Columbia, Secondary school students who enroll for music classes in schools were found to perform better in Math, Science and English than their non-musical peers. And the more engaged the students are in their school music programs, the elevated their academic exam scores tend to be. (Guhn et al 2020)

As published in the American Psychological Association's Journal of Educational Psychology, Guhn et al. (2020) examined the school records of nearly one hundred and thirteen thousand (113,000) public school students in British Colombia. This study found that those who took music classes over several years, starting as early as Grade 5, had higher Grade 10 and Grade 12 exam scores in Mathematics, Science and English than those who did not involve and take part in music.

Rationale of the Study:

In today's world, "Creativity is the driving force behind scientific, technological and cultural innovation, and it can be considered one of the key competencies of the 21st Century," says Ritter and Mostert (2016) the author of a recent study exploring the effects of music on creative cognition. What we need most is creativity, but there is often a lack of it.

Creativity is not only for artists and musicians. Creativity means original ideas, unexpected ideas, insights, and solutions. This uses both the right brain's *divergent* thinking (imagining and expanding thinking to generate novel ideas), as well as the left brain's *convergent* thinking (narrowing down to the best choice). So, you can develop your individual creativity.

Researchers, Simone M. Ritter and Sam Ferguson (2017) have found the effects that different types of music have on creativity which shows that happy music with high emotions increases creativity. It specifically increases the number of ideas. The key is that music needs to have a strong emotional impact and a catchy beat. It is best to listen to one's favorite music or songs without lyrics. Individuals have their own happy songs that boost their moods. Scientists now believe that the happy mood accelerates increased creativity.

As mentioned above, most of the researchers found that regarding music that has anything to do with creativity is based mainly on listening to music. There is a big question lying around with the impact/influence of music training on creativity in general.

This is why it is necessary to conduct an experiment on standardized music training and its influence on student's creativity. Therefore, the present study is an experimental research to find out the influence of interventional music training on students' creativity.

Objectives of the study:

1) To find out the difference in creativity between experimental and controlled group of students prior to music training (pre-test).
2) To find out the difference in creativity between experimental and controlled group of students after music training (post-test).
3) To find out the difference in creativity among experimental group of students prior to music training (pre-test) and after music training (post-test).
2) To find out the difference in creativity among controlled group of students prior to music training (pre-test) and after music training (post-test).

Hypotheses:

1) There is no significant difference in creativity between experimental and controlled group in the pre-test.
2) There is no significant difference in creativity between experimental and controlled group in the post-test.
3) There is no significant difference in creativity between pre-test and post-test among experimental group.
4) There is no significant difference in creativity between pre-test and post-test among controlled group.

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Method of Study:

The present study is to find out the influence of music training on students creativity, so, pre-test and post-test Experimental design was applied for the present study.

Sample of study:

The sample for the present study comprised of 89 students from Staines memorial secondary school, Aizawl, Mizoram. The students were randomly selected to form two groups' i.e. experimental group and controlled group. There were 46 students in the experimental group and 43 students in the controlled group.

Tools Used:

1) In order to find out the students' creativity, Test of Creative Thinking adapted from Varparhi Khiangte's developed Creativity Test (1987) was used.

2) Interventional music training module which was developed by the investigator was used for the purpose of training the experimental group of students.

Mode of Data Collection:

Since the present study is an experimental research, the investigator chose Staines Memorial Secondary School, Aizawl, Mizoram to conduct the experimental research. Students were divided into experimental group and controlled groups. In order to find out their creativity, Test of Creative Thinking was given to both the groups to determining their creativity. Thereafter, the investigator gave music training only to the experimental group by employing the interventional music training module developed by the investigator. Music training for the experimental group was conducted for three months twice a week. One training class lasted for 45 minutes. Meanwhile the controlled group was not given any training during this period. After three months, the investigator again conducted the Test of Creative Thinking to both the experimental and controlled groups to measure their creativity.

Statistical Treatment of Data:

Scores obtained in the Pre-test of creativity as well as in the post-test of creativity for both the experimental group as well as the controlled group were computed. For analyzing the collected data relevant statistical techniques such as mean, standard deviation, independent sample t-test as well as paired sample t test was employed.

Analysis and Interpretation:

The findings of the present study and their interpretations are presented in the following in accordance with the objectives.

Objective 1: To find out the difference in creativity between experimental and controlled group of students prior to music training (pre-test).

The mean differences in creativity between experimental group of students and controlled group of students prior to music training (pre-test) is tested by applying independent sample 't' test and is presented in the following table – 1.

Table 1: Differences in creativity between experimental and controlled group in the pre-test

Pre-test on Creativity	Number	Mean	SD	MD	SEM	t-value	Sig. level
Experimental group	46	63.60	15.47	4.77	3.46	1.37	NS
Controlled group	43	68.37	17.18				

Table No - 1 reveals that the't' value for the significance of difference in creativity between the experimental group and controlled group in the pre-test is 1.37, whereas the required

't' value with df=87 to declare the difference as significant is 1.99 at .05 level. Since the calculated 't' value is lower than the criterion 't' value, it can be concluded that there is no significant difference in creativity between the experimental group and controlled group in the pre-test. Therefore, hypothesis no. 1 which assumes there is no significant difference in creativity between the experimental group and controlled group in the pre-test is accepted. This indicates that no significant difference in creativity was found between the experimental group and the controlled group in the pre creativity test.

Comment & explanation: Although the difference in the mean is not statistically significant, the mean value of controlled group is higher than the experimental group in the **pre-test** i.e before music training was given to both controlled & experimental group. However, if we look at Table-2 below, in the **post-test** i.e after music training was given to the experimental group only, the mean of the experimental group is much higher than the controlled group. This is because music training has been given to the experimental group while no training in music was given to the controlled group. This shows that music training has a great influence on the creativity of the students.

Objective 2: To find out the difference in creativity between experimental and controlled group of students after music training (post-test).

The mean differences in creativity between experimental group of students and controlled group of students after music training (post-test) is tested by applying independent sample 't' test and is presented in the following table – 2.

Table 2: Differences in creativity between experimental and controlled group in the post-test

Post-test on Creativity	Number	Mean	SD	MD	SEM	t-value	Sig. level
Experimental group	46	88.30	24.58	17.14	4.38	3.90	.01
Controlled group	43	71.16	15.44				

Table No - 2 reveals that the 't' value for the significance of difference in creativity between experimental group and controlled group in the post-test is 3.90. Since the calculated 't' value is greater than the criterion 't' value, it can be concluded that there is a significant difference in creativity between the experimental group and controlled group in the post-test. Therefore, hypothesis no.2 that states there is no significant difference in creativity between experimental and controlled group in the post-test is rejected since there exist a significant difference between these two groups at 0.01 level of confidence. The mean of the experimental group is higher than the mean of the controlled group. This means that the music training given to the experimental group has significant impact on their creativity since they scored much higher than the controlled group in the post test.

Discussion:

When creativity level of the experimental group and the controlled group of students were compared in the pre-test, it was found that there was no significant difference in their creativity level. Now, this finding is not surprising because no music training was given to both the experimental group and the controlled group before the pre-test. Now, after music training was given only to the experimental group, creativity level was again compared between these two groups by giving them post creativity test. Here, it was found that significant difference was found between these two groups. Creativity level had soared much higher among the experimental group compared to the controlled group. Therefore, the reason why creativity level increased so much in the post-test among the experimental group can be accounted for the music training that they have undergone in between the pre-test and post-test. Consequently, it can be safely concluded that music training had an impact on the creativity level of school students.

Objective 3: To find out the difference in creativity among experimental group of students prior to music training (pre-test) and after music training (post-test).

The mean differences in creativity among experimental group of students prior to music training (pre-test) and after music training (post-test) is tested by applying paired sample 't' test and is presented in the following table – 3.

Table 3: Differences in creativity between pre-test and post-test among Experimental group

Experimental Group on Creativity	Number	Mean	SD	MD	SEMD	t-value	Sig. level
Pre-test	46	**63.60**	15.47	24.69	2.46	10.05	.01
Post-test	46	88.30	24.58				

Comments: t test was done through SPSS, and it shows that the mean of the Pre-test is 63.61

Table 3 reveals that the't' value for the significance of difference in creativity between pre-test and post-test among experimental group is significant. Therefore hypothesis no. 3 that states there is no significant difference in creativity between pre-test and post-test among experimental group is rejected as creativity of students between the two tests differed significantly at .01 level of confidence. It is found that the mean of the post-test is much higher than the pre-test indicating that interventional music training given to the experimental group in between the pre-test and post-test had a great influence in the students' creativity. Students'

creativity improved a great deal because of the music training given to them in between the two tests.

Objective 4: To find out the difference in creativity among controlled group of students prior to music training (pre-test) and after music training (post-test).

The mean differences in creativity among controlled group of students prior to music training (pre-test) and after music training (post-test) is tested by applying paired sample 't' test and is presented in the following table – 4.

Table 4: Differences in creativity between pre-test and post-test among the controlled group

Controlled Group on Creativity	Number	Mean	SD	MD	SEMD	t-value	Sig. level
Pre Test	43	68.37	17.19	2.79	1.01	2.56	.05
Post Test	43	71.16	15.44				

As seen in Table No -4, it has been found that the 't' value for the significance of difference in creativity between the pre-test and post-test among the controlled group is 2.56. Since the calculated 't' value is greater than the criterion 't' value, it can be concluded that there is a significant difference in creativity between the pre-test and post-test among the controlled group. Therefore, hypothesis no.4 that states there is no significant difference in creativity between pre-test and post-test among controlled group is rejected since there exist a significant difference in creativity between these two tests at 0.05 level of confidence. The mean score of the post-test is higher than the mean score of the pre-test. This indicates that even though music training was not given to the controlled group, their creativity also improved significantly in the post test.

Discussion: When pre creativity test and post creativity test was administered to the experimental group and the controlled group, it was found that there was a significant increase in their creativity level for both the groups. It may also be noted that music training was given only to the experimental group, but the controlled group who were not given any training in music were also found to increase their creativity level in the post creativity test. Now if we closely examine the difference in the mean between pre-test and post-test among the experimental group, it was found to be 24.69. However, the difference in the mean between pre-test and post-test among the controlled group was found to be only 2.79. This clearly shows that improvement in creativity among the experimental group who had undergone music training was much more as compared to the controlled group who had not undergone music training. Thus, we can confidently conclude that music training did have an impact on students' creativity. The probable reason why controlled group who had not undergone music training also improved their

creativity could be because of practice effect. The same test which was administered in the pre-test was administered again in the post-test. Therefore, students could have come out with some more ideas in the post-test because of their experience. But the fact that the experimental group improved their creativity level to a much higher extent clearly proved that music training did have an impact on their creativity level.

Conclusion:

The present study reveals that there is positive influence of music training in student's creativity. There are numerous students among secondary school students in Aizawl who wish to learn music in the school if it was introduced as one of the curricular activities. In the present experimental study, music training was carried out to the experimental group within 3 months and it was found that among those who have undergone music training, students' creativity increased to a great extent. If music training could lead to an increase in creativity level among the students within just a span of three months music training, one can imagine how creative our students would be if music was introduced as a core subject in all the schools of our country.

Some private schools in Mizoram have introduced music class as a co-curricular activity but it has been found that they do not have any kind of professionally trained course or professional teachers, so most of them just waste their time singing some commonly known songs with teachers who are available. Some school offered piano lessons and some schools taught their students how to play the guitar. But no proper music class had been carried out in any of these schools. It is suggested that for those who have already introduced music as co-curricular activity in their schools should also follow a professionally designed course and appoint professional music teachers so as to maintain standard music class. This would also motivate students with music aptitude to enroll themselves in music class, besides, many students who have no idea about music can also learn music and this would be a good thing because by learning music their creativity would also increase (as found out by the present study) which would be beneficial not only for the students but for the whole nation in general.

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