Recent Developments on Related Studies of the "Mozart Effect" Phenomenon on Social Learning Behavior

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Abstract

After a five (5) day observation period and successfully documenting the current dynamics of high students in the academic and social settings before the exposure to Mozart's music, the researcher continues with a twenty (20) day observation period of the same participants in their respective environments while exposed to Mozart's music. Before the exposure to Mozart's music, the dynamics of High School students in the Academic setting, during the five (5) day observation period, has shown to have a minimal number of students displaying behavior leading to learning. Presented are the averages of the observed behavior of High School students before the exposure to Mozart's music. On the other hand, the dynamics of High School students in the Social setting, during the five (5) day observation period, many students have not shown behavior leading to social interaction. Presented are the averages of the observed behavior of High School students before the exposure to Mozart's music.

However, after the exposure to Mozart's music, in the academic setting, during the exposure to Mozart's music for a period of twenty (20) days, there was an increase in percentages from Day 16 to Day 20. Every student was eliciting two (2) or more behaviors leading to learning. In comparison to Day 1 to Day 15, the last five (5) days, Day 16 to Day 20, showed very high percentages of students that showed behavior leading to learning. To further illustrate the high percentages of students that showed behavior leading to learning during the Day 16 to Day 20, the following data is presented representing the averages of the percentage of students that showed behavior leading to learning during this time frame.

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The students cited that while they were listening to Mozart's music, they discovered that they could read and study at the same time, the music did not distract them while they were reading or studying. Some students have cited that when they were reviewing or studying their lessons in the past, they were bored and spent little time reviewing or studying. But other students stated that Mozart's music made them enjoy reading and studying because they were not bored. Some students claim that Mozart's music made them feel they could do new things, it inspired them to try to learn how to play chess, to answer the crossword puzzle and to solve the rubix cube. They cited that when they watch students playing chess, answering the crossword puzzle and solving the rubix cube, the music inspired them to play, answer and solve too. One particular student said that, somehow, while listening to Mozart's music and watching other students play, answer and solve, it looked easy and enjoying. While students play, answer and solve the materials, Mozart's music made them nod their heads, wave their hands and tap their feet to the highs and lows of the music. This scenario projected a positive image on other students who were watching them, it made learning to play chess, answering the crossword puzzle and solving the rubix cube easy and delightful, many students also agreed. That is why this particular student tried to learn to play chess, tried to answer the crossword puzzle and tried to solve the rubix cube. To summarize the Group Discussion/Interview, Mozart's music, at first, made them listen and relax, then, with continuous exposure, made them energized and inspired to do things, it also made reviewing/ reading/ studying enjoyable, it established a setting or scenario that learning is easy and delightful, it created an environment conducive to learning.

The researcher acknowledges the importance of creativity and innovation in terms of discovering more methods or strategies on improving intellectual growth of an individual, in this case, the researcher focuses on the Social Learning Behavior of high school students. Based on the work experience of the researcher as a High School Counselor for nine (9) years, many high school students are vulnerable to low academic performance due to numerous factors. As the increase of high school students who have low academic performance, programs in improving and developing academic performance should be implemented along with instilling proper discipline and motivation to students.

The researcher would like to discover other possible programs or methods that could enhance learning and eventually improve academic performance.

About 15 years ago, a professor of psychology stirred up the music world with the idea that listening to Mozart could make you smarter. Before the decade was out, the work of Dr. Frances H. Rauscher, professor of psychology at the University of Wisconsin Oshkosh, had brought forth a veritable flood of pop-psych books, tapes, and CDs promising in newspaper inserts and on television infomercials to boost your brain. One enterprising author even went so far as to trademark the phrase "The Mozart Effect."[1]

As high school students of today, there are a lot of distractions that could disrupt study habits, review programs, and research specially when out of the school campus. Internet, games, media, sports, peers, social problems, and other types of entertainment play tug of war with the time for reading, research, and review. There is a need for supplements to preserve and strengthen the education of our Youth. In this study, the researcher would like to discover if Mozart's music can elicit any form of behavior that would lead to learning, creating an environment that would be conducive for learning in the academic and social setting of high school students

An estimated thirty (30) percent of the student population have low academic performance and are struggling to improve their grades for the first grading period. In line with this, the researcher is motivated to look for supplements that would help Social Learning Behavior of students so as to improve academic performance.

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David Roden, Posts Tagged 'Mozart Effect': The Mozart Effect Revisited Copyright August 4th, 2009.

Albert Bandura believed in “reciprocal determinism”, that is, the world and a person’s behavior cause each other, while behaviorism essentially states that one’s environment causes one’s behavior, Bandura, who was studying adolescent aggression, found this too simplistic, and so in addition he suggested that behavior causes environment as well. Later, Bandura soon considered personality as an interaction between three components: the environment, behavior, and one’s psychological processes (one’s ability to entertain images in minds and language).[2]

The researcher would like to consult with Bandura’s “reciprocal determinism” as one of the references for this study, if Mozart’s music would have a significant effect on the Social Learning Behavior of high school students. This would involve adolescent behavior, the environment and psychological processes. In the pursuit of discovering supplemental methods that would enhance learning by eliciting any form of learning behavior on both academic setting and social setting of high school students, this study will test the “Mozart Effect Phenomenon” and its effects on Social Learning Behavior of high school students.

Statement of the Problem

This study aims to determine the effect of Mozart’s music on the Social Learning Behavior of high school students in Systems Plus College Foundation, Angeles City during the school year 2009-2010.

This study attempts to answer the following questions:

[2] Dr. C. George Boeree, ALBERT BANDURA 1925 – present, Copyright C. George Boeree 1998, 2006.

1. What is the dynamics of the high school students before the exposure to Mozart's music in terms of:
a. Academic
b. Social

2. What is the effect of Mozart's music on the Social Learning Behavior of high school students in terms of:
a. Learning
b. Social Interaction

3. What programs can be recommended for youth development based from the result of the study.

The study could serve as a guideline for improving learning abilities of children in their nursery, kindergarten and elementary stages. The school could create an ideal environment for these children so that they would learn faster and more efficient. If Mozart's music could elicit any form of behavior leading to learning, then it may enhance the learning process of children, making them learn faster in their academic and social setting. In the early stages of education, any form of supplement that would make education efficient and effective should be taken into consideration. It is during these stages that education is a big influence on their growth and development. If the effects of Mozart's music could elicit any form of behavior leading to learning, then our young children may benefit from this study by creating an atmosphere conducive for fast and efficient learning.

Scope and Limitation

The study will focus on Mozart's music and the effect it has on the Social Learning Behavior of high school students in Systems Plus College Foundation,

Angeles City. The researcher chose only Mozart's music because of the "Mozart Effect Phenomenon". This study will further validate if Mozart's music may have an effect on the Social Learning Behavior of students in their academic and social setting.

The scope of the study will involve the Social Learning Behavior of high school students in their academic and social setting, particularly in Systems Plus College Foundation. There already is an existing culture in Systems Plus College Foundation and this study attempts to discover the effects of Mozart's music on the current dynamics of the students, specifically in their Social Learning Behavior. In this study, the researcher would like to discover if Mozart's music could elicit any form of behavior leading to learning.

Definition of Terms

Mozart's music – musical compositions of Wolfgang Amadeus Mozart ex. Piano Concerto No.23 in A Major K.448 (Presto) (7mins 53secs)

Social Learning Behavior – refers to the process of learning and interaction of an individual in any given environment.

Mozart Effect Phenomenon – a set of research results that indicate that listening to Mozart's music may induce a short-term improvement on the performance of certain kinds of mental tasks known as "spatial-temporal reasoning".

Spatial-Temporal Reasoning - is the ability to visualize spatial patterns and mentally manipulate them over a time-ordered sequence of spatial transformations.

High School students **–** adolescents ages 12 to 16 years old enrolled in Systems Plus College Foundation High School Department.

Academic Setting – the environment of the student during class; environment inside the classroom.

Social Setting – the environment of the student during their free time; lunch break, recess; specifically the Food Court in the High School Department.

REVIEW OF RELATED LITERATURE

In 1993, Dr. Frances H. Rauscher, professor of psychology at the University of Wisconsin Oshkosh, had a group of college students mentally unfold a piece of paper and try to identify its shape. She found that the students who had listened to a recording of Mozart's K448 sonata were better and faster at the task. Dr. Rauscher published the results in the journal *Nature* in the same year. There were only two problems with the Mozart Effect. One was that it didn't last: the students only held on to their newly acquired spatial skills for ten or fifteen minutes. The other problem was that when other researchers tried to verify the effect, some just couldn't. So, over the years since, the idea that Mozart can make you smarter has lost much of its credibility. However, a recent study has found that the Mozart Effect is real — but only for certain people. It definitely works for right-handed non-musicians.[3]

Effect of Music Training on Individuals

- Local/ International Studies

[3] David Roden, Posts Tagged 'Mozart Effect': The Mozart Effect Revisited Copyright August 4th, 2009.

Studies about the concept that music training enhances IQ have received a lot of attention from researchers. The report from Schellenberg is the first to test this hypothesis directly

with random assignment of a large sample of children (N = 144)

to two different types of music lessons (keyboard or voice) or to control groups that received drama lessons or no lessons. IQ was measured before and after the lessons. Compared with children in the control groups, children in the music groups exhibited greater increases in full scale IQ. The effect was relatively small, but it generalized across IQ subtests, index scores and a standardized measure of academic achievement. Unexpectedly, children in the drama group exhibited substantial pre- to post- test improvements in adaptive social behavior that were not evident in music groups.[4]

Another concept that music training can improve verbal memory was tested in children. The results showed hat children with music training demonstrated better verbal but not visual memory than did their counterparts without such training. When these children were followed up after a year, those who begun or continued music training demonstrated significant verbal memory improvement. Students who discontinued the training did not show any improvement. Contrary to the differences in verbal memory between the groups, their changes in visual memory were not significantly different. Consistent with previous findings for adults (A.S. Chan, Y. Ho, & M. Cheung, 1998), the results suggest that music training systematically affects memory processing in accordance with possible neuro-anatomical modifications in the left temporal lobe. [5]

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[4] E. Glenn Schellenberg, Music Lessons Enhance IQ, Psychological Science, Vol. 15, University of Toronto at Mississauga, Ontario, Canada, American Psychological Society Copyright 2004.

[5] Y. Ho, A. Chan, & M. Cheung Music Training Improves Verbal but not Visual Memory: Cross- Sectional and Longetitudinal Explorations in

- Local/ International Literature

At present, much empirical research has been motivated by the hypothesis that formal training music has nonmusical benefits. It is now well established (for reviews see Schellenberg, 2005,2006a) that taking music lessons is associated positively with performance on tasks that measure abilities in the domains of language (e.g. Marques, Moreno, Castro, & Besson, 2007; Moreno et.al., 2008; Patel & Iversen, 2007), spatial reasoning (Hetland, 2000), mathematics (Vaughn, 2000), memory (e.g. Jakobson, Lewyeky, Kilgour,& Stoesz, 2008; Lee, Lu, & Ko, 2007) full-scale IQ (FSIQ; Schellenberg, 2004, 2006b), and virtually any other domain one chooses to study (e.g. Hughes & Franz, 2007; Stoesz, Jakobson, Kilgour, & Lewyeky, 2007). The simplest explanation of the available data is that children with high FSIQs are more likely than other children to take music lessons and to do well on any test they are given (Schellenberg, 2006b). Nonetheless, many scholars including Tierney, Bergeson, and Pisoni (2008) and most of the cited above, continue to promote the notion of links between music training and specific sub-areas of intellectual functioning, which is tantamount to failing to see the forest(i.e. the big pcture) for the trees (i.e. minor details; see Schellenberg & Peretz, 2008).[6]

Mozart Effect Phenomenon

- Local/ International Studies

Children, University of Hong Kong, Neuropsychology Vol. 17, No. 3, Copyright American Psychological Association, Inc. 2003.

[6] E. Glenn Schellenberg, Commentary on "Effects of Early Musical Experience on Auditory Sequence Memory" by Adam Tierney, Tonya Bergeson, and David Pisoni, Empirical Musicology Review Vol. 3, No. 4, University of Toronto, 2008).

A study was conducted about the effect of music listening for performance on a 25-question portion of the analytical section of the Graduate Record Exam by 72 undergraduate students (M age 21.9 yr.). Five levels of an auditory condition were based on Mozart Piano Sonata No. 3 (K. 281), Movement I (Allegro); a rhythm excerpt; a melody excerpt; traffic sounds; and silence. Participants were randomly assigned to one of the stimuli. After a 5-min., 43-sec. (length of the first Allegro movement) listening period, participants answered the questions. Analysis indicated participants achieved significantly higher mean scores after all auditory conditions than those in the silent condition. No statistically significant pairwise mean difference appeared between scores for the auditory conditions. Findings were interpreted in terms of an arousal framework, suggesting the higher means in all auditory conditions may reflect immediate exposure to auditory stimuli.[7]

However, another study has shown no evidence of a Mozart effect in upper-primary-school-age children. Children performed no differently on tests of spatiotemporal reasoning following passive exposure to Mozart, popular music, or silence. Predictions made by the trion model were not upheld. Despite being rated as more complex by the children, K. 448 did not enhance spatiotemporal performance compared to repetitive music or silence. Taken together, theoretical concerns with the trion model (cf. Schellenberg, 2001) and the lack of behavioral data demonstrating a Mozart effect in children (Hallam, 2000; McKelvie & Low, 2002) suggest that complex music does not prime children's brains for spatiotemporal tasks. In contrast, predictions of the arousal-mood model were partly upheld. Exposure to popular music was associated with enhanced positive mood, arousal, and increased preference; however, these

[7] Edward A Roth, Kenneth H Smith, THE MOZART EFFECT: EVIDENCE FOR THE AROUSAL HYPOTHESIS, Perceptual and Motor Skills. Missoula: Oct 2008. Vol. 107, Iss. 2; Copyright 2009.

changes did not result in improved spatiotemporal performance. Rather, participants in this study showed short-term stability in their performance of the spatiotemporal task, with pretest spatiotemporal performance most strongly predicting posttest experimental scores.[8]

- Local/ International Literature

There is much attention that has recently been drawn to the possibly positive effects of listening to Mozart or other classical music on cognitive performance. Students listening to Mozart's piano music for 10 minutes before testing performed better in IQ spatial reasoning tasks than when they had listened to a relaxation tape or remained in conditions of silence. Repetitive music had no positive effect on spatial reasoning or short-term memory performance measured with 16 short-term memory items. While the effect of Mozart's classical music on intellectual performance of the students was consistent in the in the above studies, the neurophysiological basis of this effect has remained obscure.[9]

Furthermore, present interests in associations between music and intelligence stems from two independent areas of research (Schellenberg, 2003). One focuses on the short-term effects of simple listening to music. The so called Mozart effect refers to the finding that passive listening to music composed by

[8] Rudi Crncec, Sarah J Wilson, Margot Prior, NO EVIDENCE FOR THE MOZART EFFECT IN CHILDREN; [2] ,Music Perception. Berkeley: Apr 2006. Vol. 23, Iss. 4; Copyright University of California Press Apr 2006.

[9] Synnove Carlson, Pia Rama, Denis Artchakov, Ilka Linnanski, Learning And Memory, Neuro Report Vol. 8, No. 13, Effects of music and white noise on working memory performance in monkeys, University of Helsinki, Finland, 1997.

Mozart produces temporary increases in spatial abilities (Hetland,2000b; Rauscher, Shaw, & Ky, 1993). Subsequent studies indicate, however, that the Mozart effect is difficult to replicate (Chabris, 1999; Steele, Bass, & Crook, 1999; Steele, Dalla Bella, et al., 1999)When evident, it can be attributed to differences in arousal and mood generated by different testing conditions(Husain, Thompson, Schellenberg, 2002; Nantais & Schellenberg, 1999; Thompson, Schellenberg, & Husain, 2001)Compared with sitting in silence for 10 minutes, listening to Mozart induces more positive moods and relatively optimal levels of arousal, which lead to higher levels of performance on tests of spatial abilities.[10]

Despite issues with face validity, the Mozart Effect has been seriously discussed in such prestigious publications as Science and Nature, and still frequents the pages of respected psychology journals. At times, there have been problems replicating the basic effect, but it has been suggested by Rauscher, Shaw, and Ky (1998) that inconsistent results by other researchers can be attributed to methodological differences.

Although other researchers cited that because of multiple intelligences, the Mozart effect, and emotional intelligence theories have inadequate empirical support and are not consistent with cognitive neuroscience findings, these theories should not be applied in education. Proponents countered that their theories had sufficient empirical support, were consistent with cognitive neuroscience findings, and should be applied in education (Cherniss, Extein, Goleman, & Weissberg, 2006; Gardner & Moran, 2006; Rauscher & Hinton, 2006). However, Gardner and Moran offered no validating evidence for multiple intelligences, Rauscher and Hinton concluded that "listening-to-Mozart" studies

[10] E. Glenn Schellenberg, Music Lessons Enhance IQ, Psychological Science, Vol. 15, University of Toronto at Mississauga, Ontario, Canada, Copyright American Psychological Society 2004.

should be disregarded, and Cherniss, Extein, Goleman, and Weissberg agreed that emotional intelligence lacked a unitary empirically supported construct.[11]

On the other hand, studies from Nantais and Schellenberg (1999) had no difficulty replicating the basic finding: That is, they found a significant increase in performance on spatial-temporal tasks for subjects that heard a musical piece; but, there was no marked difference between those that heard Mozart or those who heard Schubert. Likewise, other researchers (e.g., Ashby, Isben, & Turken, 1999; Steele, Bass, & Crook, 1999) also observed that changes in mood can have a significant effect on cognitive performance, and that the original experimental conditions (e.g., listening to Mozart, relaxation music, or silence) likely each have an affect on mood and arousal. As such, the argument emerged that observed performance differences may occur due to improvements in mood and arousal rather than from neurophysiological priming. In addition, Thompson, Schellenberg, and Husain (2001) reported that individuals that listened to Mozart performed better on spatial tasks, but also scored higher on positive mood and arousal ratings. Subjects that scored low on mood and arousal showed no effect of the music. By examining participant's spatial abilities after listening to a Mozart sonata (expected to produce positive mood), and an adagio by Albinoni (a sad piece), they were able to provide additional support for the arousal and mood hypothesis.[12]

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[11] Lynn Waterhouse, Inadequate Evidence for Multiple Intelligences, Mozart Effect, and Emotional Intelligence Theories, Educational Psychologist, Philadelphia Vol. 41, Iss. 4; Copyright 2006.

[12] H. D. Cassity, T. Henley, R. Markley, The Mozart Effect: Musical Phenomenon or Musical Preference? A More Ecologically Valid Reconsideration, Journal of Instructional Psychology. Mobile: Mar 2007. Vol. 34, Iss. 1; Copyright Journal of Instructional Psychology Mar 2007.

Effect of Background Music on Individuals

- Local/International Studies

One large study of 20,000 people showed music changes mood and the changes in mood were very uniform. A large number of people listened to classical music by various composers from various musical periods and were asked how the music made them feel. Another study showed that the effects of mood varied from person to person depending on their musicality. Non-musical people enjoy music rarely and when they do, the enjoyment is slight, while semi-musical people enjoy music quite often and when they do, it is enjoyable to them, while musical people enjoy music rarely, due to discriminating tastes, but when they do, it is with the greatest intensity.[13]

An eight month study was conducted by Frances H. Rauscher of the University of California at Irvine, in which 19 preschoolers, ranging in age from three to five, received weekly keyboard and daily singing lessons while another 15 preschoolers received no musical training at all. At the start, middle and end of the study, the subjects were tested on five spatial reasoning tasks. After only 4 months, scores on the test to assemble a puzzle to form a picture improved dramatically for the group with the musical training, while the control group didn't, even though both groups started out with the same scores. It can be understood that this kind of improvement may not be substantial enough to alter the way people are fundamentally taught, but its results cannot be ignored. Rauscher

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[13] Schoen, Max. The Psychology of Music: A Survey for Teacher and Musician. New York: The Ronald Press Company, 1940. Copyright 2001.

explains, "Music instruction can improve a child's spatial intelligence for a long time, perhaps permanently".[14]

- Local/ International Literature

It is universally understood that people strive to learn to become wiser and more informed about the world around them. The more people learn, the more powerful they can become. It is the speed at which people learn that separates the geniuses from the average people from the learning disabled. Geniuses don't run into problems while learning, because they learn so fast. It is everyone else that could really use help. One solid way to increase the speed at which people learn is with music. People learn through music and their minds grow faster because of it. Some music, when implemented properly, can have positive effects on learning and attitude. Music is a powerful thing, and when we understand its significance, it can bring dramatic changes both positive and negative into our lives.[15]

Music and the arts are what make life worth living and without them, people lose hold of their culture and diversity. The ideal way to learn in the future would be to fully incorporate music into the curriculum of every school. If every school supported and encouraged their students to freely pursue music with the culture of music in their everyday lives, people would become much more efficient in their learning and would become much better students on the whole. Music is a power too great for man to comprehend at this point but through

[14] Bower, Bruce. "Tuning up young brains." Science News. 27 Aug. 1994 Copyright 2004.

[15] Kristian David Olson. The Effects of Music on the Mind: Beyond Soothing the Savage Beast. Copyright 1996.

further study man can learn how to better harness its power to use it to its full potential. [16]

With its resulting improvements in spatial reasoning, music can also be a very helpful tool when actually implementing it into the classroom and involving it with learning basic curriculum. In New York City, a program called Learning through an Expanded Arts Program, or LEAP, has been going on for a while now in which music and the arts is implemented into the school curriculum to improve scholastic scores of children at all levels. One way in which music is implemented is with math. They call it "musical math," in which the teacher incorporates rhythm with counting and gaining a grasp on the fundamentals of math.[17]

The power of music to affect memory is quite intriguing. Mozart's music and baroque music, with a 60 beats per minute beat pattern, activate the left and right brain. The simultaneous left and right brain action maximizes learning and retention of information. The information being studied activates the left brain while the music activates the right brain. Also, activities which engage both sides of the brain at the same time, such as playing an instrument or singing, causes the brain to be more capable of processing information.[18]

Synthesis of the study

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[16] Kristian David Olson. The Effects of Music on the Mind: Beyond Soothing the Savage Beast. Copyright 1996.

[17] Dean, Jodi, and Ila Lane Gross. "Teaching Basic Skills Through Art and Music." Phi Delta Kappan. Apr. 1992: Copyright 2000.

[18] Laurence O'Donnell. Music and the Brain. Originally published in Music Power. Reprinted, Copyright 1999.

Studies have suggested that Mozart's music have positive effects on the Spatial-Temporal Reasoning. Many experiments have been conducted to students and have proven that exposure to Mozart's music before the IQ Test have helped students get higher IQ scores compared to students who were not exposed to Mozart's music. Studies have also shown that Mozart's music activates both left and right brain with its' 60 beats per minute pattern, maximizing learning and retention of information. Some researchers have cited that the Mozart Effect is difficult to replicate. Nevertheless, the Mozart Effect Phenomenon has truly become a study that would be very beneficial to every individual who value the concept of education. This study is focused on the effect of Mozart's music on Social Learning Behavior of students and if Mozart's music can create an environment ideal for learning.

Conceptual Framework

Education is very important, and every parent, teacher and educator would agree that the Youth need a good and stable foundation of education. The Youth should be given the best methods of education in order to make them competent individuals. Proper education would increase the Youth's chances for golden opportunities in the future and eventually a successful life.

If the environment of the Youth, in their academic and social setting, would set a positive mood that would elicit any form of behavior that would lead to learning, then the probability of attaining good academic performance would be close at hand. This environment would be ideal for every student, inside or outside the classroom setting. This environment may create positive results for all students, academically and socially. The researcher would like to create that particular environment, fabricating an educational atmosphere that would be a catalyst to learning. The researcher would create an environment that would be ideal for educational institutions and will enhance social learning behavior of

every student. The researcher believes that the element needed in establishing that ideal environment for learning is music.

This study aims to discover the effect of Mozart's music on the Social Learning Behavior of high school students. The study will focus on establishing an ideal environment that would use Mozart's music to elicit any form of behavior leading to
learning. This study also aims to improve academic performance of high school students.

The schematic diagram in figure 1 was done to guide the reader of this study, using the Input-Process-Output Model (IPO).

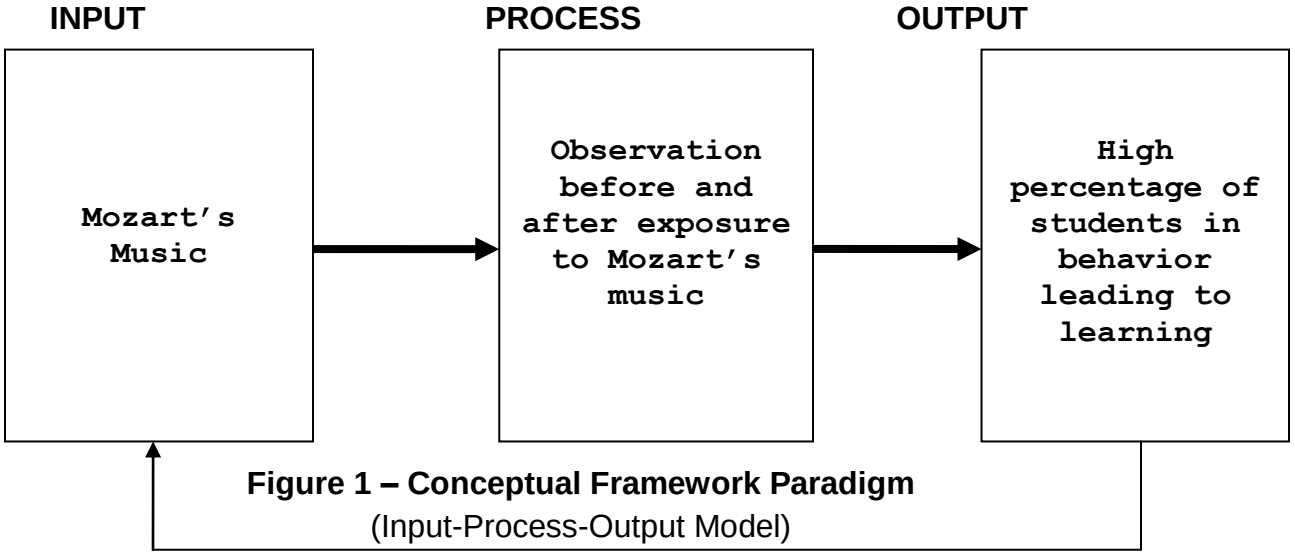


Figure 1 – Conceptual Framework Paradigm
(Input-Process-Output Model)

Mozart's music will serve as the stimuli in this study. High School students will be exposed to Mozart's music in the Academic and Social setting. The process used is observation, the researcher will observe the students in both Academic and Social setting before the exposure to Mozart's music in order to determine the current culture and existing dynamics of High School students. After identifying the dynamics of High School students, the researcher will again

observe the students in the Academic and Social setting while exposed to Mozart's music. The researcher will focus on the effect of Mozart's music on the Social Learning Behavior of students. Any form of behavior leading to learning or social interaction in both Academic and Social settings of students are documented.

METHODOLOGY

This chapter presents the Research Design, the Participants of the Study, Instrumentation, Data-Gathering Procedures and the Statistical Treatment of Data.

In this study, the researcher would like to discover additional methods or programs that would help maximize the time the Youth spend inside the school setting by discovering ways to establish a conducive environment that would elicit any form of behavior leading to learning. In line with this, the researcher would like to enhance social learning behavior of the Youth, with the use of Mozart's music, to ensure proper attitude and motivation and eventually improve academic performance.

Research Design

The study will use the Descriptive – Survey Method because it deals with the current dynamics of high school students before the exposure to Mozart's music in Systems Plus College Foundation. The conditions, trends and culture of the students will be collected by the researcher in the academic and social setting. Since the study will involve observation over a period of time, specifically five (5) days before the exposure to Mozart's music and (20) twenty days while exposed to Mozart's music, the appropriate method that will be used is the longitudinal design or time series design under the Descriptive – Survey Method during the exposure to Mozart's music in both academic and social settings.

The study requires a qualitative method that observes and documents the behavior of high school students in the academic and social environment. This method also gathers information in the study of creating an environment conducive for learning, with the use of Mozart's music.

Participants of the Study

Participants of the study are high school students enrolled in Systems Plus College Foundation, Angeles City from ages 13 to 16 years old. Random Sampling is the method of choosing the participants since the researcher will observe both academic and social setting. The social setting of high school students is the common place of gathering in their recess, lunch break and free time. The participants will be in and out of these particular places. On the other hand, in their academic setting, the researcher will observe the behavior of second (2^{nd}) year students in the classroom setting during their Personality Development period. Random Sampling is also used to determine which class will be involved in the study for a period of twenty (20) days. The class consists of forty (40) students and was chosen randomly before the start of the study.

Instrumentation

A Research Data Form is used for documenting all data observed before and after the exposure of high school students to Mozart's music. The data consists of the current dynamics of high school students before exposure to Mozart's music and, specifically Social Learning Behavior, all details of behavior leading to learning during the exposure to Mozart's music. (See Appendix A)

A DVD Player with two (2) speakers will be used to play a CD of Mozart's music. The songs from the album of Mozart which will be used in this study are:

1. Symphony No.40 in G Minor K.550 (Molto Allegro)
2. Overture 'Le Nozze Di Figarro'
3. 12 Variations on 'Ah, Vous Dirai-je, Maman' K.265

4. Horn Concerto No.1 in D Major K.412 (Allegro)
5. Flute Concerto No.2 in D Major K.314 (Rondeu, Allegretto)
6. Litaniae De Beata Maria Virgine in B Flat Major K.109 (Sancta Maria)
7. Violin Concerto No.1 in D Major K.218
8. Piano Concerto No.21 in C Major K.467 'Elvira Madigan'
9. String Quartet in B Flat Major K.458 'Hunt' (Allegro Assai)
10. Violin Concerto No.5 in A Major K.219 'Il Turco' (Allegro Aperto)
11. Piano Concerto No.23 in A Major K.448 (Presto)

Board Games, Reading Materials and Puzzles are also used in this study during the observation while exposed to Mozart's music. The following materials were used: five (5) Chess Boards, five (5) Rubix Cubes, five (5) Crossword Puzzles and fifteen (15) Science Journals.

A Journal is used for the compilation of all data from day one (1) to day twenty (20). The data comes from the log book used in the compilation of the actual Research Data Form used during exposure to Mozart's music. Data collected from observation, before the exposure to Mozart's music, for a period of five (5) days is also compiled in this journal.

Data-Gathering Procedures

The Data-Gathering Procedure used in the study is Observation, specifically Disguised Observation. This observational technique is most appropriate for the study because in this case, the revelation of student's natural behavior while exposed to Mozart's music is vital information. This is very important data that could determine the effect of Mozart's music on the Social Learning Behavior of high school students. The researcher needs to blend in the crowd and be one with them in order to achieve this objective. On the other hand, 'emotional distance' must be present between the observer and the participants to ensure that there is no bias in gathering information and will maintain

objectivity. This technique allows the researcher to better understand and interpret the observed data since the researcher is within the participants of the study.

The researcher acknowledges the current culture (behavior of students in both academic and social setting) that exists in Systems Plus College Foundation. First, the students were observed in both the academic (classroom) and social (outside the classroom) settings in order to determine the dynamics of the high school students, before the exposure to Mozart's music. The researcher used disguised observation for a period of five (5) days, one (1) hour everyday for both settings. All data is documented and stored for further reference in this study.

As we continue the research, the same two (2) settings were observed while exposed to Mozart's music, an academic setting, which will be inside the classroom during the Personality Development period, and the social setting, which will be outside the classroom, specifically the Food Court in the High School Department during lunch break. Both settings will be observed one (1) hour a day for twenty (20) days while exposed to Mozart's music.

In the academic setting, the researcher quietly observes the students in the back row of the classroom, during the Personality Development period of a second (2^{nd}) year class from 3:00pm to 4:00pm, pretending to read a book while carefully documenting the behavior of the students as
they are exposed to Mozart's music for one (1) hour. All of the mentioned board games, reading materials and puzzles are placed on a table in front of the room.

Types of behavior leading to learning:

- reading/reviewing/studying lessons
- reading science journals provided by the observer

- solving puzzles provided by the observer
- doing their assignments/homework/activities

In the social setting, the researcher quietly observes in the corner part, near the entrance of the Food Court, during lunch break of high school students 12:00nn to 1:00pm, pretending to read a book while carefully documenting the behavior of the students as they are exposed to Mozart's music for one (1) hour. All behavior leading to social interaction is observed carefully and recorded by the observer.

Types of behavior leading to social interaction:

- making new friends
- talking with peers
- telling jokes/stories to each other
- smiling/laughing with each other
- any form of communication with each other (verbal and visual)

Statistical Treatment of Data

All of the data gathered in the log book used for documenting during the observation are compiled into one (1) journal, the data is then arranged chronologically. The recorded data of the behavior of students are then analyzed if there is a significant change in behavior as the students are exposed to Mozart's music. Significant effects are represented by the changing frequency of any behavior that leads to learning while exposed to Mozart's music in comparison with the existing dynamics of the students before the exposure to Mozart's music.

The effect of Mozart's music on the Social Learning Behavior of high school students

After a five (5) day observation period and successfully documenting the current dynamics of high students in the academic and social settings before the exposure to Mozart's music, the researcher continues with a twenty (20) day observation period of the same participants in their respective environments while exposed to Mozart's music.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Specifically the study attempted to answer the following:

1. What is the dynamics of the high school students before the exposure to Mozart's music in terms of:
a. Academic
b. Social

2. What is the effect of Mozart's music on the Social Learning Behavior of high school students in terms of:
a. Learning
b. Social Interaction

3. What program can be recommended for youth development based from the result of the study.

Summary of Findings

Before the exposure to Mozart's music:

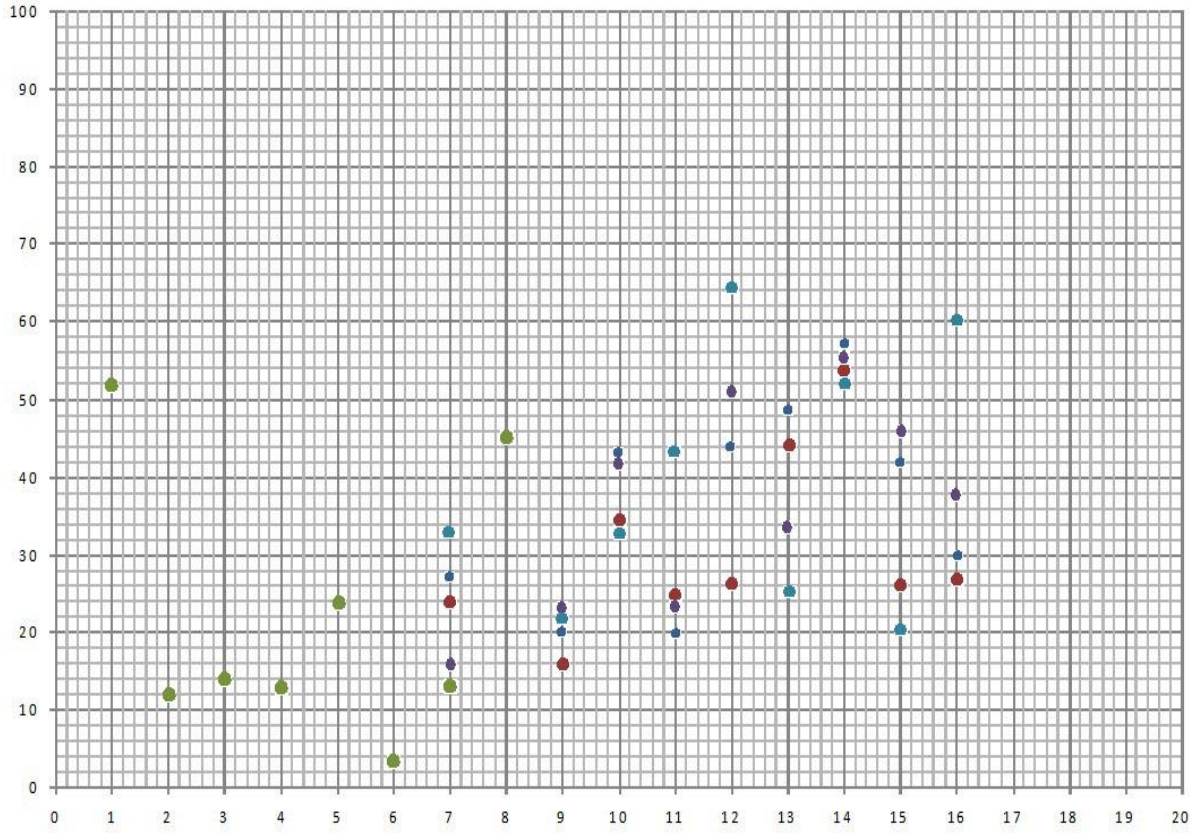
The dynamics of High School students in the Academic setting, during the five (5) day observation period, has shown to have a minimal number of students displaying behavior leading to learning. Presented are the averages of the observed behavior of High School students before the exposure to Mozart's music.

On the other hand, the dynamics of High School students in the Social setting, during the five (5) day observation period, many students have not shown behavior leading to social interaction. Presented are the averages of the observed behavior of High School students before the exposure to Mozart's music.

After the exposure to Mozart's music:

However, in the academic setting, during the exposure to Mozart's music for a period of twenty (20) days, there was an increase in percentages from Day 16 to Day 20. Every student was eliciting two (2) or more behaviors leading to learning. In comparison to Day 1 to Day 15, the last five (5) days, Day 16 to Day 20, showed very high percentages of students that showed behavior leading to learning. To further illustrate the high percentages of students that showed behavior leading to learning during the Day 16 to Day 20, the following data is presented representing the averages of the percentage of students that showed behavior leading to learning during this time frame.

Academic Setting



5 days without music

1st-5th day with music

6th-10th day with music

11th-15th day with music

16th-20th day with music

1 - sleeping/resting
2 - looking outside the window
3 - playing with fingers/ ID/ watch/accessories
4 - reading/reviewing/studying
5 - brushing hair/grooming
6 - looking at mirrors
7 - drawing/writing
8 – talking
9 - playing chess
10 - playing the rubix cube
11 - solving the crossword puzzle
12 - reading the journals
13 - teaching/ coaching/ suggesting the answers/ solutions/ options to players
14 - observing other students play/solve
15 - asking questions about the game/puzzle
16 - reviewing/studying their lesson

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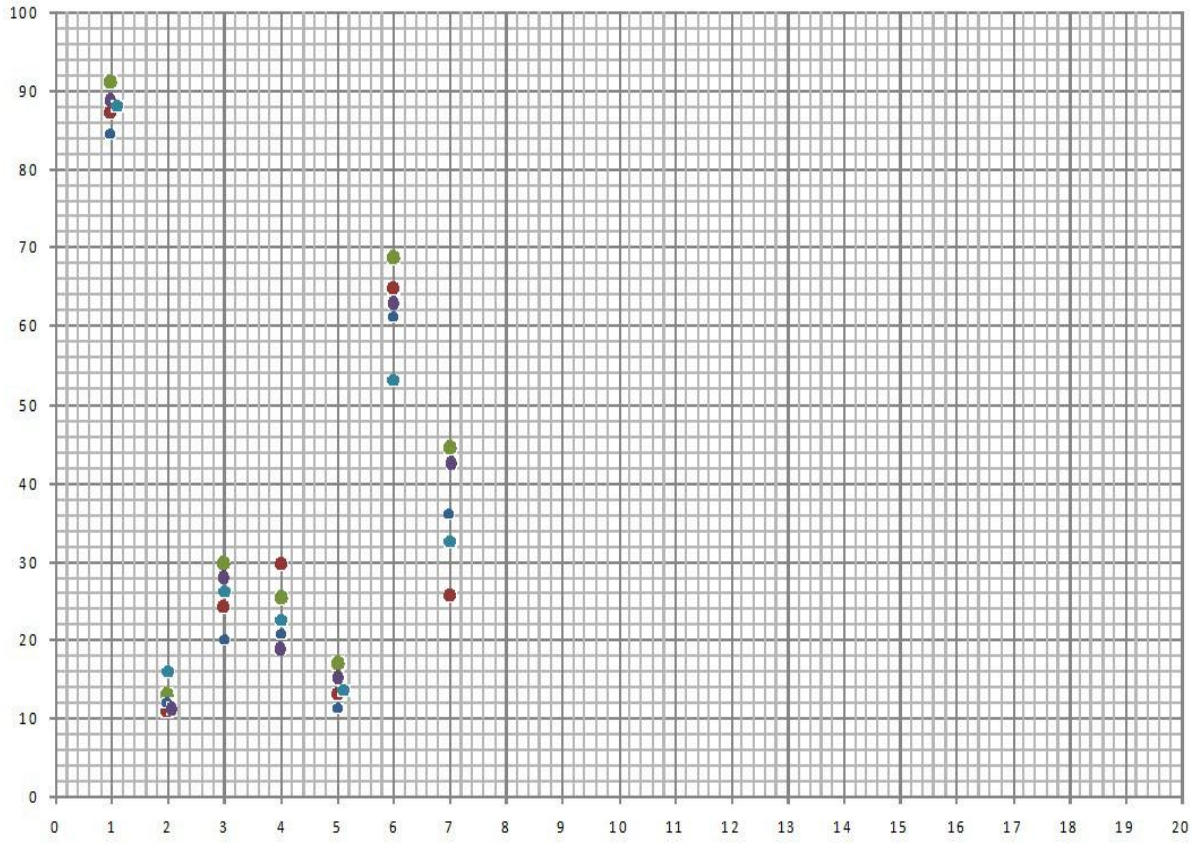
Social Setting



5 days without music

1st-5th day with music

6th-10th day with music

11th-15th day with music

16th-20th day with music

1 - eating/drinking/buying as a group
2 - reading/writing in a group
3 – playing with friends/running/chasing each other
4 – laughing/shouting in a group
5 - singing/chanting in a group
6 – using cellular phones, gadgets, MP3, PSP etc.

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The researcher conducted a Group Discussion/Interview on students in the academic setting focusing on the factors that made them move to the direction of behavior leading to learning. The Group Discussion/Interview revolved around the question: Is the behavior of students leading to learning due to Mozart's music or other factors?

The discussion was very interesting, many students have cited out that Mozart's music at first made them sleepy and relaxed. Others said that the music made them imagine about the past and all the mistakes they made, it also made them think about happy memories and the time they spend with family and friends. Some female students said that Mozart's music made them imagine that they were in a fairy tale, in castles and celebrations, dancing as a princess. As they were more and more exposed to Mozart's music, they felt energized by the sudden change of tones and melodies, the sudden transitions in the volume of the music, the distinct and dynamic sound of the violin and the overall impact of the orchestra as it suddenly comes out from the background to emphasize the song. Some students stated that they have heard this type of music on classic cartoons like Tom and Jerry, Tweety and Silvester, etc. After continuous exposure to Mozart's music, they did not feel sleepy anymore, they wanted to do something. Other students have cited that they were carried away with the music, the tempo makes you want to stand up and conduct the orchestra, the music made them wave their hands, nod their head and tap their feet to Mozart's music. The music made them sway and follow the highs and lows of the pitch and tempo, it also made them feel like they were walking on clouds, flying and floating in the air.

The students cited that while they were listening to Mozart's music, they discovered that they could read and study at the same time, the music did not

distract them while they were reading or studying. Some students have cited that when they were reviewing or studying their lessons in the past, they were bored and spent little time reviewing or studying. But other students stated that Mozart's music made them enjoy reading and studying because they were not bored. Some students claim that Mozart's music made them feel they could do new things, it inspired them to try to learn how to play chess, to answer the crossword puzzle and to solve the rubix cube. They cited that when they watch students playing chess, answering the crossword puzzle and solving the rubix cube, the music inspired them to play, answer and solve too. One particular student said that, somehow, while listening to Mozart's music and watching other students play, answer and solve, it looked easy and enjoying. While students play, answer and solve the materials, Mozart's music made them nod their heads, wave their hands and tap their feet to the highs and lows of the music. This scenario projected a positive image on other students who were watching them, it made learning to play chess, answering the crossword puzzle and solving the rubix cube easy and delightful, many students also agreed. That is why this particular student tried to learn to play chess, tried to answer the crossword puzzle and tried to solve the rubix cube. To summarize the Group Discussion/Interview, Mozart's music, at first, made them listen and relax, then, with continuous exposure, made them energized and inspired to do things, it also made reviewing/ reading/ studying enjoyable, it established a setting or scenario that learning is easy and delightful, it created an environment conducive to learning.

After the Group Discussion/Interview with the students, analyzing all the data they have added to this study, it established another level of understanding the effect of Mozart's music. All of the given information came from the perspectives of High School students who were involved in the study.

In evaluating the gathered information, Mozart's music may have a positive effect on the students. All of them were very excited to share their feelings and sentiments about Mozart's music, each student had something to say about their experience during the exposure to Mozart's music. Every student was enthusiastic about their opinions on Mozart's music and how it affected them during the study. Somehow, Mozart's music made a lasting impression on these students, considering the fact that these students have their own contemporary favorites in music. This information gave more depth in understanding the appeal of Mozart's music on individuals and hopefully a better understanding on the Mozart Effect Phenomenon.

Based on the Group Discussion/Interview on the students who were exposed to Mozart's music for a period of twenty (20) days, it is appropriate to infer that because Mozart's music created an environment conducive for learning in the academic setting and therefore it may lead to high academic performance of students. Since continuous exposure to Mozart's music in the academic setting conditioned students to elicit high percentages in behavior leading to learning, eventually Mozart's music may lead to high academic performance of students.

In the social setting, during the exposure to Mozart's music for a period of twenty (20) days, there was no difference in the percentages of students that showed behavior leading to social interaction. From the start of the observation period (Day 1), students have already shown high percentages of social

interaction and there was no significant increase or decrease in the percentages in every specific behavior.

Students in this setting, did not show any interest in Mozart's music. They tend to do their own thing, talking to friends, laughing and smiling, shouting and screaming, playing with their gadgets and cell phones, and almost everyone is eating and having their lunch or snacks. Students did not mind the music that was playing in the background during their lunch break.

Conclusions

Based on the findings of the study, the following conclusions were drawn:

1. The dynamics of the high school students before the exposure to Mozart's music in terms of the academic setting have low percentages of students showing behavior leading to learning.

2. The dynamics of the high school students before the exposure to Mozart's music in terms of the social setting have high percentages of students showing behavior leading to social interaction.

3. The learning behavior of high school students in the academic setting increased, after the exposure to Mozart's music. Percentages of students that showed behavior leading to learning tend to increase from Day 16 to Day 20. Mozart's music may have an effect on the social

learning behavior of high students after continuous exposure in the academic setting.

4. Mozart's music may create an environment that is conducive for learning in the academic setting. Students showed an increase in their participation on learning activities such as playing chess, solving crossword puzzles, solving the rubix cubes, reviewing and reading journals.

5. Mozart's music may create a proper mood among the students that establishes proper attitude and motivation for learning in the academic setting. Students, while exposed to Mozart's music for a period of time, tend to be more energetic, curious and interested in the puzzles, board games and journals that were present.

6. Mozart's music at first, surprisingly, made high school students hum, sing, sway their heads with the music, whistle, and conduct just like leading the orchestra while indulged in the learning activities, puzzles and board games present.

7. However, in the social setting, the percentages of students that showed behavior leading to social interaction, had no change while exposed to Mozart's music for a period of time.

8. Mozart's music did not have an effect on the social interaction of high school students during the lunch break. Students were not affected by Mozart's music and did not mind the music playing.

9. Mozart's music may have an effect on the social learning behavior of high school students in the academic setting, or in terms of learning. On the other hand, Mozart's music has no effect on the social learning behavior of high students in the social setting, or in terms of social interaction.
10. Mozart's music may create an environment conducive for learning. It can establish the proper mood and atmosphere that is suitable for educating high school students. It may create the proper motivation of high school students in the academic setting. Mozart's music may eventually improve academic performance of high school students.

11. The result of this study will benefit administrators, teachers and guidance counselors in implementing additional programs that may supplement learning in the academic setting of high school students. They will also be guided on supplementary programs that will enhance social learning of high school students and eventually improve academic performance.

Recommendations

The effect of Mozart's music on the Social Learning Behavior of high school students was identified by the researcher.

On the basis of the findings the following youth development programs for the High School Department are recommended.

1. "Morning Mozart Effect Program". Exposure of High School students in all year levels in Systems Plus College Foundation to Mozart's music before the first period in the morning. The first period teachers should expose students in their respective sections to Mozart's music for ten (10) minutes every morning before the start of their lesson. Playing music through the Computer in every classroom, 7:30am to 7:40am is the ideal time for listening to Mozart's music. Continuous exposure to Mozart's music will create and ideal environment conducive for learning. This program will be supervised by the Office of the High School Counselor.

2. "Afternoon Mozart Effect Program". Exposure of High School students in all year levels in Systems Plus College Foundation to Mozart's music before the first period in the afternoon. The first period teachers should expose students in their respective sections to Mozart's music for ten (10) minutes every afternoon before the start of their lesson. Playing music through the Computer in every classroom, 1:00am to 1:10am is the ideal time for listening to Mozart's music. Continuous exposure to Mozart's music will create and ideal environment conducive for learning. This program will be supervised by the Office of the High School Counselor.

3. Installation of a sound system in the High School Library and will play Mozart's music during the whole day. Since Mozart's music can create an ideal environment that is conducive for learning, the High School Library should use Mozart's music to set the mood of students who come in. The music should be soft but clear inside the High School Library.

4. **"**Mozart Effect Review Program". The High School Counselor will implement a Review Program to all High Students who are struggling with

their academic performance. The parents of these students will be invited for an orientation about the program that will be implemented. The program will be as follows: their son/daughter will have a schedule for review at school (15 minutes) and at home (1 hour). The morning break will serve as their review at school. These students will report to the High School Counselor's Office during this time and will study their recent lessons/lectures while listening to Mozart's music. Then after school, when they come home, their parents' will supervise their reviews or assignments for an hour while listening to Mozart's music.

5. There should be a study to research if there is an improvement in the academic performance of High School students with the use of implemented Youth Development Programs guided by Mozart's effect on their social learning behavior. Follow up research studies could confirm if Mozart's music has positive effects on the Social Learning Behavior of High School students and may create an environment conducive for learning. In line with this, Mozart's music may eventually improve academic performance.

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