

*Full Length Research Paper*

# Can we bring the natural environment into the art classroom? Can natural sound foster creativity?

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**This paper explores the relationship between the natural world and its potential benefits to the art classroom environment. In particular, it considers the following research question: Can natural sound foster creativity? The study investigates the role of natural sound on creative ability in girls' intermediate schools (12 to 15 years) in Jeddah, Saudi Arabia. It reviews the benefit of incorporating the natural environment in the art classroom to stimulate student's creative performance on art tasks. Research from the area of environmental psychology suggests that humans will benefit both physically and psychologically from spending time in nature and the outside environment. This paper encourages the attention of art educators to consider bringing the outdoor natural environment and in particular, natural sounds inside the art classroom. The contribution to new knowledge in this study will be in the development of advice for all participants working within and related to the field of education and in particular art education, to promote the use of natural sound in the classroom as a learning aid and a means of fostering creativity.**

**Key words:** Saudi Arabia, art classroom, natural environment, natural sound.

## INTRODUCTION

Nature and the environment play a crucial role in our health and well-being. Research into this area is of paramount importance, as nature appears to have a restorative function for our mind and body. A variety of environmentalists have claimed that humans gain psychological and physical health benefits from spending time in the natural world. Numerous studies and methods reveal that exposure to nature decreases negative states and behaviours such as aggression, anxiety, depression and illness. Conversely, the natural world increases positive behaviours such as health, emotions and cognitive capacity. Mayer et al. (2009) looked at the research question: why is nature beneficial? They conducted three studies and in all three they found that exposure to nature increased the participant's positive emotions, capacity for attention and their ability to reflect on life's problems. There are a number of reasons why nature is beneficial and these will be discussed throughout this paper.

Researchers have realized the untapped power of natural sound for a number of years. Birdsong has seen

to be of benefit in hospitals to calm children during stressful procedures such as injections or surgery, reducing stress levels and providing health benefits, according to those behind a new project at the Alder Hey Hospital in Liverpool, England. However, is it possible to use natural sound and birdsong in education? Can we improve the creative output of a student by using natural sound in the classroom as a means of stimulating the brain? It is clear that children show tangible physical benefits from spending time in the fresh air outdoors. Would this idea of bringing nature and the outside world into the classroom foster creativity?

This research encourages the attention of art educators to consider bringing outdoor natural sounds inside the art classroom. The author is art teacher, who has worked with different schools at the intermediate level and has observed that students differ in their perception toward their art classroom environment. Experience has shown her that there are special requirements that distinguish the art classroom from the general classroom and these include: size, ventilation, sound, lighting, layout and

display. This paper proposes active research into one of these factors: natural sound. It is hoped that these subsequent findings may prompt more research into other classroom factors. The following section will discuss the education system in Saudi Arabia, as this is where the research was conducted.

## EDUCATION SYSTEM IN SAUDI ARABIA

The education system in Saudi Arabia has undergone a number of changes in recent years. The Ministry of Education (MoE) in Saudi Arabia (KSA) is making a special effort to improve education in the Kingdom including art education. Today, the education system has become comprehensive; it welcomes everyone to gain an education from pre-school to university.

Girls are separated from boys in the school buildings. In addition, the pupils, teachers and administrative staff are female in girls' schools and all male in boys' schools (Al-Hariri, 1987).

The school year at all three levels consists of two semesters, which are usually fifteen weeks long. Classes per week vary from 28 to 35 according to the level. The length of each class is 45 min with a five-minute break between two consecutive classes. There are two main breaks during the school day: the first is 40 min long and follows the third lesson, while the second coincides with the midday prayers and lasts fifteen minutes (Alghamdi and Abduljawad, 2002).

Nowadays, the Saudi Arabian public educational system consists of more than 25 modern governmental and private universities, more than 33,000 schools, and a large number of colleges and other educational and training institutions in different regions of the country. Students receive free education, schoolbooks and health services. Over 25% of the annual state budget is allocated to education, including professional training (MoE, 2006, 2009).

Education in KSA is starting a new phase orientated towards a better quality of education that ensures the thorough preparation of all the public education students (both male and female); a preparation that helps them deal positively with the modern age and the economic as well as global changes. This, it is argued, can be achieved through the acquisition and use of 21<sup>st</sup> century activities and practices whilst keeping unchanged the values and the ethics of the Saudi community.

The Saudi Arabian national education policy states that the aim of education is the correct understanding of Islam and the inculcation and dissemination of the Islamic creed; the imbuing of the student with Islamic values, doctrines and ideals; and the imparting of various types of knowledge and skills. Saudi Arabian education also aims to further the social, economic and cultural development of society, and to prepare the individual to be a useful participant in the building of society

(Al-Hariri, 1987).

Fathal lists the goals of art education in Saudi Arabia. These include supporting children's emotional, social, physical and intellectual growth alongside their use of their senses, perception, creativity and developing self-expression. It was also seen as important to instil in pupils a respect and love of work, teaching them a knowledge of different tools, materials and equipment and learning specific art terminology. A healthy work-life balance must be taught as it is fundamental to enjoy free time, which benefits the individual and ultimately society (Fathal, 1990).

## Classroom environment

The classroom environment is a crucial factor in achieving these aims and it is extremely important that the concept of learning environment is defined. Hiemstra (1991) defines the learning environment as 'all of the physical surroundings, psychological or emotional conditions, and social or cultural influences affecting the growth and development of [a person] engaged in an educational enterprise'. The physical environment of the school consists mainly of the buildings and other architectural features. The aspects that teachers can rearrange within this framework are items such as furniture and decor. Loughlin and Suina found that the students' interaction with environmental factors could contribute positively or negatively to their learning experience. Each aspect has its own essential influence on their behaviour, and its own active and responsive characteristics and functions (Loughlin and Suina, 1982). The classroom environment can be a powerful teaching tool; it can influence the behaviour of teachers and their students. The awareness of the relationship between physical surroundings and behaviour is important for planning, organising, and adjusting a learning environment. Environmental concepts enable teachers to predict behaviour in certain settings (Loughlin, 1977).

There is a long history between human and natural environment and the contents are extremely interesting. Kellert and Wilson coined the term 'biophilia'. The Biophilia hypothesis suggests that people have a biological need to affiliate with and feel connected to the larger natural community. People will experience psychological benefits if they feel this belonging to the wider community and this will produce healthy and well-adapted individuals. Wilson further described this term as being an innate part of human nature developed over years of evolution (Kellert and Wilson, 1995).

In the health sector, it has been found that gardens can improve health outcomes and enable an increased level of patient/consumer satisfaction with the health care on offer. It is also cost-effective to run. This relationship with nature has the powerful ability to decrease stress (Ulrich, 1999). Nature has also assisted in the recovery from

illness (Mitrione, 2008).

The issue of background sound in the classroom is a factor that the classroom teacher has control over and one, which incorporates trying to bring the natural environment inside the school building. Previous research into learning environments states that background music can be useful in creating a positive learning environment that assists students' task persistence and productivity (Savage and Savage, 2009). Different types of music affect brain wave patterns, resulting in a speeding up or slowing down of brain activity. Some teachers find that playing music such as *Handel's Water Music Suite* calms the students, while other type of music such as *marches* have an opposite, energising effect (Wolfe, 2001). The problem with music is that not everybody enjoys the same type. Students have differing musical preferences, therefore it is important for the teacher to use the appropriate type of music (Savage and Savage, 2009). However, Hilton et al. (2004) found that, at best, music enabled only minor positive benefits on creative and critical thinking tasks, and only when individuals listened to their preferred music played at a low volume. The creative process starts with a concept; this requires a completely open mind and the ability to think laterally. For some people, exercise and fresh air will help the process. For others, inspiration might come while drinking a glass of fresh juice and listening to the gentle strains of classical music. Inspiration can come from a variety of sources. Taste, smell, sounds and vision can all play a part in concept development (Gibbs, 2005).

Each culture obviously has a different musical background and taste. Some Western music is not acceptable for some cultures and religions for instance in Saudi Arabian schools. Due to these differing preferences the area of natural sound has been explored. Natural sound such as bird song is universal and found throughout the world. If research has discovered that music has a positive impact on learning environment this could suggest that natural sound may be even more positive due to its originality. Research into natural sounds by Panuska and Panuska has shown that the sound of waterfalls, rivers and streams all show an improved mood, which enhances relationships amongst listeners (Panuszka and Panuszka, 2002). This study considers the research question whether natural sound can foster creativity. Therefore, it is fundamental to understand what creativity actually is. The following section focuses on definitions and aspects of creativity.

### Definitions and aspects of creativity

Creativity is fundamental to society and is one of the most complex human behaviours. Creativity consists of at least four inter-related elements. Firstly, the creative process; secondly, the creative product; thirdly, the

creative person, and finally, the creative situation (MacKinnon, 1970; Mooney, 1963).

Creativity has been viewed as an aspect of intelligence and an unconscious process. Vernon (1989) suggests the following general definition of creativity:

'Creativity means a person's capacity to produce new or original ideas, insights, restructurings, inventions, or artistic objects, which are accepted by experts as being of scientific, aesthetic, social or technological value. In addition to novelty as our major criterion, we must incorporate in our definition the acceptability or appropriateness of the creative product, even though this valuation may change with the passage of time' (Vernon, 1989).

Torrance's work is internationally recognised for contributions to understanding of testing creative capacities, especially with children in artistic activities like drawing (Cropley, 2000). Torrance made an important point that creativity is important to mental well-being saying that 'creativity is our most important weapon in coping with life's daily stresses, its emergencies and crises' (Torrance, 1995). This suggests that our creative capacities and expression may be part of how we experience both the physical and social environments that we work in.

Creative thinking requires imagination and may lead to many possible answers or ideas to a problem or opportunity. Creativity does not take place in a vacuum; it requires stimulus (Fisher, 2005). These stimuli will be external in terms of the local environment and experiences; and/or internal in terms of past experiences and intuition. For some people, exercise and fresh air will help the process. For others, inspiration might come while drinking a glass of fresh juice and listening to the gentle strains of classical music. Inspiration can come from a variety of sources. Taste, smell, sounds and vision can all play a part in concept development (Gibbs, 2005).

### METHODOLOGY

The methodology of this study involved using an intermediate girls' school in Saudi Arabia: a sample of 90 students. The classroom had the natural sounds of waves breaking and birdsong piped into the room at regular, pre-determined intervals. Results were a mixture of quantitative and qualitative techniques based on the pupils' performance on their art project task and whether the inclusion of the natural sounds was conducive to their creativity. Outcomes of the students' art projects were evaluated by comparing student's marks with previous project marks for each student group, to give a before and after comparison on project work. In order to avoid teacher's bias that is avoiding the teacher giving elevated marks to students, in relation to test conditions, the author only asked to see the student's work after receiving the teacher's marks (this was a blind test, that is the author did not inform the teacher beforehand that he would be requesting this).

Only the painting work was under assessment, involving the

**Table 1.** Students' art marks (pre- and post-test).

Mark (tables)	7	8	9	10	11	12	Mean students' marks
	Frequency						
Pre-test	3	8	14	20	27	18	10.27
Post-test	1	2	5	17	32	33	10.96

**Table 2.** Paired samples t-test descriptive output data statistics.

Parameters	Mean	N	Std. deviation	Std. error mean
Pair 1 PRE	10.2667	90	1.36407	0.14379
POST	10.9556	90	1.08007	0.1138

**Table 3.** Paired samples t-test statistics.

Parameters	Paired differences				t	df	Sig. (2-tailed)	
	Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
				Lower				Upper
Pair 1 PRE - POST	-0.6889	0.53305	0.05619	-0.8005	-0.5772	-12.260	89	0.00

following:

1. Colour: choice of colour and the use of primary, secondary and tertiary.
2. Value: lightness or darkness of an item within a work of art.
3. Texture: how a surface might feel. For example, a painting of a table might convey that the table is soft, rough.
4. Application: accuracy of artwork painting.
5. Finishing of the artwork: originality of ideas such as adding elements to the artwork to give a more interesting appearance.

The observations and marks provided data relating to the learning environment before and after the change to the environment was made.

A comparison of students' marks achieved before and after test condition was subjected to a Paired Samples t-test which enabled the evaluation of the influences of the implemented change on students' marks before and after change.

## RESULTS

The marking of art projects was scored out of twelve marks. There were 90 subjects involved in this study. All students obtained marks of between seven and twelve out of a possible twelve marks. Table 1 revealed that the mean of marks obtained before and after playing the natural sound was 10.27 and 10.96 respectively, which indicated an increase of 0.69 in the mean students' obtained marks. Table 2 and 3 summarised the outcome of Paired Samples t-test using version 11.5, SPSS Inc., Chicago, Illinois, USA software which revealed that the P-value ( $P = 0.000$ ). This reveals that there is a high

statistically significant difference in the comparison of students' marks achieved before and after test condition.

## DISCUSSION

The influences of the tests on students' marks were examined through a comparison of marks obtained by comparing the changes before and after the use of natural sound. The condition manipulations increased the number of students engaged on task and delivering work and this exceeded teachers' expectations in a number of ways and the author presented two; firstly, the instruction was to paint a painting in a specific way but some students improved on the painting by taking risks, becoming more creative by using additional techniques and colours; and secondly, the levels of completed work before and after applying natural sound were compared and shown to be improved.

The results concur with Gibbs (2005) regarding the idea that for some people inspiration can come from a variety of sources. Taste, smell, sounds and vision can all play a part in concept development and in this study natural sound was found to be a catalyst to creativity.

As found in this study the students became more creative as they took more risks. This supports Starko (2005)'s research, which suggested that creative thinking might also be described as the willingness to take risks. In addition when natural sound was played in the classroom it affected students and made them more open to using

new colours or techniques. This study provides additional evidence for Fisher (2005) who indicated that creativity does not take place in a vacuum; it requires stimulus. Creative thinking requires imagination and may lead to many possible answers or ideas to a problem or opportunity.

Environmental psychology proposes that humans will benefit both physically and psychologically from spending time in nature and the outside environment. Unfortunately, there are many reasons that prevent art teachers in Saudi Arabia taking students' outdoors to experience nature. These factors include the Saudi Arabia weather and the architecture of the schools. In relation to weather, Saudi Arabia endures extreme weather conditions. The weather in Saudi Arabia may reach over 50°C during summer and in some cities during winter, it goes below 0°C. These conditions may affect the likelihood of students working outside. In relation to architecture, schools are separated by gender and the design of girls' school cannot include any outside views. Some of the schools in KSA have no green space inside the school.

This study has shown that natural sound can boost pupils' creativity and raise their marks within the art classroom setting. Attention restoration theory provides additional evidence to suggest that nature and its components can restore our attention facilities. During the day a human's capacity to direct attention reduces with use and over time. If attention diminishes people may make mistakes and suffer from a low mood. Research by a number of environmentalists have revealed that attention can be restored by simply providing a view of nature from indoors or hearing a natural sound. This paper proposes that natural restorative power such as the sound of birdsong or the sea must be tapped into not only in the educational sector but also in all areas of society.

## Conclusion

There can be a variety of nature experiences in the classroom where nature can be used as an aid to learning and creativity. Louv suggests people should challenge and spur on environmental agencies to take this issue seriously and act now (Louv, 2008). We need to encourage future generations to nurture and develop this love of nature and not miss the benefits that this type of deep relationship provides. Each individual needs to ask what he or she can do. As an art teacher and a member of the community background natural sound such as bird song or the sound of water could be easily added to my classroom learning environment. This would give the sense of the natural world inside the actual classroom and facilitate the development, creativity and productivity of young pupils.

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