

How to Influence Students' Risk-Taking Behaviour in Order to Enhance their Creative and Critical Thinking Processes

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Abstract: This study explores the relationship between the art classroom environment and students' creative and critical thinking in girls' intermediate schools (students aged 12–15 years old) in Jeddah, Saudi Arabia. It addresses the following research question: By manipulating the art classroom environment, is it possible to positively influence students' risk-taking behaviour in order to enhance their creative and critical thinking processes? In this paper, I will focus on one part of my research: how art classroom wall displays can affect students' risk-taking behaviour and enhance their creative and critical thinking.

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1. Introduction

Art education plays an important role in forming an individual's personality. **Alhilah (2002)** and **Shawqi (2007)** state that together with other subjects, art helps an individual build character and develop a complete personality. In art, children, adolescents and adults can find an outlet for their emotions, a means of expressing hopes, wishes and ideas, and of forming their future personalities (**Alhilah, 2002; Shawqi, 2007**). Art education aims to explore an individual's creative abilities and provide an atmosphere conducive to the learning, allowing learners to relax, set aside their worries and practise their activities freely (**Jody, 1997; Alhilah, 2002**).

The independent variable in this study is the wall display, while the dependent variables are risk taking, creative thinking and critical thinking. The link between the dependent variables is 'ideas': creative thinking is about the expansion of ideas, critical thinking is about the evaluation of ideas, and risk taking is about testing and practising ideas and having the courage to share and defend ones ideas in the face of potential criticism.

Before describing the systemic context of the supposed influences of the wall displays, I will first define some key terms.

Learning environment: here this includes any element of the art classroom environment that may affect student behaviour. **Hiemstra (1991:8)** 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'.

Risk-taking behaviour: this may be defined as taking a chance or doing something although the

outcome may be uncertain (**Neihart, 1999**). This research considers positive risk-taking behaviour as students having the confidence to try new things during art sessions, which will enhance creative and critical thinking.

Creative thinking: Creativity can be defined in many ways, but the one most suited to this research is 'the ability to think about something in novel and unusual ways and come up with unique solutions to problems' (**Santrock, 2004**).

Critical thinking: this is 'the intellectually disciplined process of actively and skilfully conceptualising, applying, analysing, synthesising, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action' (**Scriven & Paul, 2007**).

A carefully planned physical environment provides students with additional opportunities to explore and experiment, and can support them in managing their own behaviour (**McLeod et al., 2003**). As part of the physical surroundings, decoration plays a significant role in ensuring a comfortable classroom environment (**Sommer and Olsen, 1980**). In order to create a positive learning environment, the area should be softened through small enhancements, like cushioned chairs, book cabinets, adjustable lighting, colourful carpets, live plants, pictures and a bulletin board; these elements can make the room more appealing to students, and increase the level of student satisfaction and interaction in the classroom (**Sommer and Olsen, 1980**).

Learning is a sensory experience, therefore the visual displays in a classroom are powerful learning tools (**McLeod et al., 2003**). Human eyes 'contain nearly 70 per cent of the body's sensory receptors and

send millions of signals every second along the optic nerves to the visual processing centres of the brain' (Wolfe, 2001). It is therefore not surprising that students remember visually presented information longer than they remember that which is presented verbally (Wolfe, 2001). McLeod *et al.* (2003) state as important elements of a visual display the various ways of presenting and updating information, and its relation to the subject curriculum.

The display of students' work can improve the classroom atmosphere as it motivates student and encourages them to take pride in their work; it is important to display a representative range of students' work and not only the highest achievers (Muijs & Reynolds, 2005). A balance of stimulation and organisation in the art classroom environment is required for students to work well, and a brightly coloured classroom with abundant stimuli, including the artwork of artists and students, serves to broaden the students' minds. An aesthetically pleasing workspace will encourage students to take pride in their personal work area, whereas an overcrowded art classroom may negatively influence students' thinking and limit the development of their ideas (Ruscoe, 2008).

2. Material and Methods

To explore alterations in art classrooms that might encourage risk-taking behaviour among students and help in the development of their creative and critical thinking processes, I investigated a number of girls' intermediate Manuscript schools in Saudi Arabia using a qualitative and quantitative approach to explore the environment and identify relevant factors. The study sample was selected from both state and private schools in the city of Jeddah, one of the largest educational areas in Saudi Arabia in terms of the numbers of students and schools (Ministry of Education, 2010), where state school classes have thirty students and private school classes have fifteen. To better determine the influence exerted by each manipulation, the selected students were of the same academic level, and were completing the same tasks.

The primary research comprised of two main stages. The first stage involved the examination of the art classroom environment by observing students, teachers and student-teacher interaction in the classroom, as well as interviewing the art teachers and some students. A Likert-type questionnaire was then distributed to all students. I observed and analysed the effects of existing art classroom layouts on student practices and explored ways in which the art classroom environment might affect students' risk-taking behaviour and thereby the development of creative and critical thinking.

In the second stage I identified the important variable factors, including the wall displays, in the art classroom environment, and the observations and questionnaires were repeated after implementing changes in the wall displays. Initially the art classrooms in the sample tended to be either relatively bare, with very few or no creative wall displays, or cluttered and disorganised, presenting both new and old student artwork. To try and effect a positive change in the learning environment, attractive wall displays of current student artwork were created in all cases.

Using the data collected from the pre- and post-implementation questionnaires, two sets of aggregate scores were recorded. Statistical analysis was then conducted using the Statistical Package for the Social Sciences (SPSS) software. The data were subjected to a non-parametric Wilcoxon signed ranks statistical test with a significance level of five percent and a critical region of ± 1.96 for a two-tailed test. The technique of behaviour mapping was also applied to the classroom observations before and after the changes were implemented. Marks achieved by the students before and after change implementation conditions were subjected to a paired samples *t*-test for comparison and this enabled evaluation of the influence of the changes on the marks. The washout period the pre- and post-implementation datasets was three weeks.

3. Results and Discussion

Questionnaire

A Likert-type questionnaire related to wall displays was distributed to the students before and after the changes were implemented. The students were asked to rate their level of agreement with three questions, whereby their attitude towards the art classroom was determined:

1. I prefer to take art sessions in our art classroom.
2. The work display in our classroom inspires me to be more creative.
3. Generally, I find the art classroom supportive of trying new things in art tasks.

Table 1 presents students' responses to the three questions before and after implementation of the wall display changes. Their responses are also illustrated in Figures 1–3.

Table 2 presents the output of the ranks data for each question. Table 3 shows the test statistics based on negative ranks. The Z-values for questions one, two and three were -2.041 , -4.269 and -2.850 , respectively, and their *P*-values were 0.041 , 0.000 and 0.004 . Thus, the difference in students' responses to the questions before and after changes were made to the wall displays was statistically significant.

The pre- and post-experiment aggregate scores of all the test questions were recorded, and the

Wilcoxon signed ranks statistical test was applied to them. The output ranks are presented in Table 4, and test statistics based on negative ranks are shown in Table 5. The Z-values and P-values (-5.426 and

0.000, respectively) prove that the responses obtained after the wall display changes were implemented test are significantly different from those compiled before the implementation.

Table 1: Responses Pre- and Post-Implementation

Students' Responses	Strongly Agree		Agree		Neither Agree nor Disagree		Disagree		Strongly Disagree		Total	
	Score	(%)	Score	(%)	Score	(%)	Score	(%)	Score	(%)	Score	(%)
Q1 (Pre)	53	70.7	12	16.0	5	6.7	2	2.7	3	4.0	75	100
Q1 (Post)	55	73.3	14	18.7	3	4.0	2	2.7	1	1.3	75	100
Q2 (Pre)	19	25.3	9	12	11	14.7	10	13.3	26	34.7	75	100
Q2 (Post)	34	45.3	17	22.7	8	10.7	6	8	10	13.3	75	100
Q3 (Pre)	32	42.7	16	21.3	12	16.0	10	13.3	5	6.7	75	100
Q3 (Post)	37	49.3	19	25.3	10	13.3	6	8.0	3	4.0	75	100

Table 2: Comparative Descriptive Ranks Output Data for Each Test Question

		n	Mean Rank	Sum of Ranks
Q1 (Pre) – Q1 (Post)	Negative ranks	0	0.00	0.00
	Positive ranks	5	3.00	15.00
	Ties	70		
	Total	75		
Q2 (Pre) – Q2 (Post)	Negative ranks	0	0.00	0.00
	Positive ranks	23	12.00	276.00
	Ties	52		
	Total	75		
Q3 (Pre) – Q3 (Post)	Negative ranks	0	0.00	0.00
	Positive ranks	10	5.50	55.00
	Ties	65		
	Total	75		

Table 3: Comparative Test Statistics Based on Negative Ranks for Each Test Question

	Q1 (Pre) – Q1 (Post)	Q2 (Pre) – Q2 (Post)	Q3 (Pre) – Q3 (Post)
Z	-2.041	-4.269	-2.850
Asymp. sig. (two-tailed)	0.041	0.000	0.004

Table 4: Comparative Ranks Output Data for All Test Questions

		n	Mean Rank	Sum of Ranks
Total (Pre) – Total (Post)	Negative ranks	0	0.00	0.00
	Positive Ranks	38	19.50	741.00
	Ties	187		
	Total	225		

Table 5: Test Statistics Based on Negative Ranks for All Questions

	Total Pre– Total Post
Z	-5.426
Asymp. sig. (two-tailed)	0.000

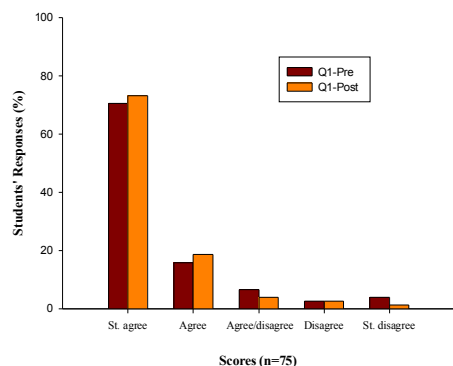


Figure 1: Students' Preferences for Using the Art Classroom Pre- and Post-Implementation of Changes (Question One)

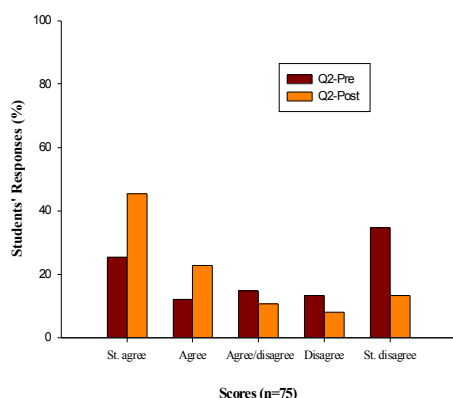


Figure 2: Students' Assessment of the Work Display in Their Art Classrooms Pre- and Post-Implementation of Changes (Question Two)

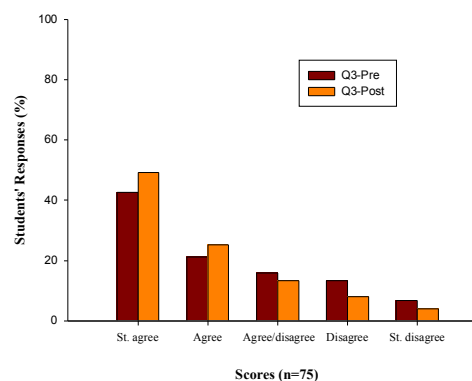


Figure 3: Students' Assessment of Whether Their Art Classrooms Encourage Them to Try New Things Pre- and Post-Implementation of Changes (Question Three)

Students' Marks

Comparison of marks obtained by the students before and after the changes were implemented showed that more students engaged in the assigned task after the changes were implemented. The levels of completed work before and after the changes were implemented were compared, and the results showed an improvement.

Table 6 summarises the marks obtained before and after the changes were implemented. Tables 7 and 8 show paired samples t-test descriptive output data and statistics respectively. The P-value was 0.000, indicating a very statistically significant difference in the marks before and after the implementation of changes.

Table 6: Students' Art Marks (Pre- and Post-Implementation of Changes)

Marks	7	8	9	10	11	12	Mean Students' Marks
	Frequency						
Pre-Implementation	2	6	6	22	14	25	10.53
Post-Implementation	1	1	8	14	19	32	10.93

Table 7: Paired Samples t-test Descriptive Output Data Statistics for

		Mean	n	Std. Deviation	Std. Error Mean
Pair 1	Pre	10.5333	75	1.37873	0.15920
	Post	10.9333	75	1.17787	0.13601

Table 8: Paired Samples t-test Statistics

		Paired Differences			
		Mean	Std. Deviation	Std. Error of Mean	95% Confidence Interval Difference
					Lower
Pair 1	Pre – Post	-0.4000	0.49320	0.05695	-0.5135

Pre- and post-implementation observations

Across the sample of art classrooms I initially found a variety of problems. Some of the art classrooms and schools appeared bare, with very few or no displayed materials, and students' work kept in lockers, placed at the side of the room or sometimes returned to them after evaluation; the lack of recognition and reward led to an unmotivated group. The first classroom, which was shared between the intermediate and secondary school students, was relatively bare; the secondary students' artwork, which was naturally of a higher standard, tended to dominate the displays, with very few pieces of work related to the lower grade. While this could have encouraged some students to take risks and try new things, others were visibly disheartened and expressed their disappointment not to be represented in the displays; these negative emotions served as a barrier to their creative ability. In the second classroom the display was limited to written information, in very small print. The third classroom was a disorganised combination of both old and new student artwork, where some displays overlapped each other and older work was gathering dust; as a result students tended to reproduce previous work rather than pushing their own creative boundaries. I noticed that overcrowded displays either overload students with information, or make them feel that their work not valued. Furthermore, when the displays are not regularly changed, students become desensitised to them.

Each display has a different function and influence on both students and the teacher. The display of information and materials related to the art subject can save time during lessons by reducing the number of questions related to basic information, allowing the teacher to concentrate on more important points. Information can be presented and updated in various ways; for example, one school provided extra information related to the curriculum, including topics and tool use, for example. The students from this school were more confident, as they had a clear understanding of the topics to be covered and had few questions about basic information.

After the re-organisation and addition of different types of wall displays to the classrooms, I gathered data on students impressions of the changes; positive comments included 'I like my classroom more' and a reference to 'our beautiful class'. I interpret their positive attitude to the change to be a result of displaying their creations and provoking pride in their work. When respect was shown towards the students' artwork, there was a noticeable increase in their positive risk-taking behaviour and creativity. A regularly changing display of students' boosted confidence, offered inspiration and motivated them to take risks in order to achieve more in future tasks.

Through the display, the teacher was able to encourage students to develop critical and creative thinking, which agrees with findings of Muijs and Reynolds (2001). Bruner (1977) concurs that lack of confidence may make students unwilling to take risks. Students' artwork gives the classroom its identity, and conveys a message to students that the room is a space for trying new things.

Re-designing the disorganised display in one classroom led to a demonstrably more effective environment, helping students to do their work, stimulating them to be more accurate, feeding their imagination, and generating new ideas which are required for creative and critical thinking. These findings were in agreement with LaGreca (1980), Fisher (2005) and Ruscoe (2008).

In the post-implementation stage the art classroom became a colourful and fun learning environment. I found that variety in the substance and format of the materials displayed in the art classroom was very important, as it could then appeal to a range of tastes, to attract and visually stimulate as many students as possible. This finding regarding the influence of different methods of display in the classroom is in agreement with the findings of previous studies (Sommer & Olsen, 1980; Loughlin & Suina, 1982; O'Hare, 1998; Wheeler, 2000; McLeod et al., 2003; Ruscoe, 2008).

This research found that displaying artwork on walls and bulletin boards resulted in a softer classroom environment for students and increased the students' satisfaction level with their art classroom. These findings are in agreement with those of Sommer and Olsen (1980), Muijs and Reynolds (2005) and Ruscoe (2008).

Changes made in the art classrooms also increased students' interaction with their environment, and the rich and attractive environment developed their ability to discuss and analyse. In addition, the well-decorated classroom also enhanced teacher performance. This finding is in agreement with Wollin and Montagne (1981).

4. Conclusion

To ensure equal student participation the teacher should take care to display a range of students' artwork representing all abilities. Variation is important, and while some displays relate to unchanging, basic information, for example colour wheels or how to use materials, a teacher can make efforts to engage his or her class by redesigning or rearranging the display to give the same information in a different manner. Art classroom displays should not only be for information, instructions material, they should also include students' artwork. In conclusion, display materials should encourage

students and challenge them to take risks and be more creative and critical thinkers. The proper setup of an art classroom display is important for stimulating students by encouraging imagination, exploration, analysis, information gathering and new experiences, all of which can enhance their risk-taking ability and develop their critical and creative thinking skills.

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