

Innovative Teaching with Use of an Art Work

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Abstract. This study presents the use of an art work in the teaching of a course entitled "Environment and Agriculture" in the last grade of a Vocational Lyceum. More specifically, the painting of Dutch artist Jan van Goyen entitled "A windmill by a river" was used as a teaching tool in an innovative approach of teaching the topic of wind energy as a renewable natural resource. The purpose of this approach was to enhance students' critical judgment concerning renewable sources of energy, such as wind energy, fostering at the same time transformative learning, as students become aware and critical of their own initial assumptions and develop new perspectives. Taking into consideration and applying David Perkin's theory about using art works in teaching, students were able to strengthen their creative thinking, getting to know the various aspects of wind energy through emotional observation and thorough study of an art work.

Keywords: Teaching; Use of art; Observation; Critical judgement

Introduction

Several academics and scholars, such as Gardner, Eisner, Perkins, and Kokkos, have occasionally expressed the view that education through the employment of artwork contributes to the learning process, and it also helps students develop a variety of skills, including critical thinking, cognitive development, creativity, discovery of new knowledge and expression of emotions (Gardner, 1990; Perkins, 1994; Eisner, 2002; Kokkos, 2011; Phillips & Fragoulis, 2012). Therefore, artworks can prove to be a precious treasure that can be utilised appropriately in educational practices, serving a wide range of objectives (Barnes, 2015).

In recent years, the use of visual arts in education has also been extended to the teaching of environmental sciences. According to research in the international

bibliography, this practice can result in impressive learning outcomes (Inwood & Taylor, 2012; Rosenthal, 2003; Neperud, 1997). For instance, a painting depicting a natural landscape can function as a stimulus for introducing an interesting teaching approach to an environmental education course. More specifically, a painting portraying a river or a lake can serve as the starting point for teaching water resource management.

Use of art in education

Over the past few years, both formal and non-formal educational approaches have been developing based on the use of art for educational purposes. Education through the use of art involves the introduction of artworks in the teaching process – the ones related to the subject of teaching in the context of processing a learning objective. Through the processing of these artworks, the meaning they carry gets revealed, and then it can be used as a pre-text for undertaking a deeper approach towards the subjects under consideration (Barnes, 2015; Kokkos, 2011; Efland, 2002).

In Greece, the first systematic efforts to train the teachers of formal education, regarding the use of art in education, were implemented during the school year 2011-2012, as part of the implementation of the “Major Edification Program” project. The Hellenic Open University has also made a substantial contribution to this field, since the Academic year 2012-2013, in the framework of the Postgraduate Programs “Studies in Education and Adult Education”. Similar initiatives have been assumed by the Adult Education Scientific Association for the edification of teachers and adult educators in the utilization of works of art in the teaching practice.

Models of approaching works of art in the educational process

Artwork approach models provide a theoretical and methodological framework, according to which the student, gradually approaching a work of art, enters areas of deeper understanding by activating his critical and reflective spirit (Kokkos, 2011). Four models are described in the relevant literature. Those are the models of Feldman, Broudy, Anderson and Perkins. According to Feldman (1967), the approach of an artwork is realized through four interrelated phases: description, analysis, interpretation and evaluation. The Broudy (1972) model, which is related to that of Feldman, emphasizes the field of activating the aesthetic observations of an artwork (e.g., searching for shapes, volumes, ways to connect them), as well as the identification of the expressiveness that the artwork radiates.

Anderson’s (1993) model includes the following reflective processes: initial reaction, description, interpretation, evaluation. It presents several similarities to the Feldman model, but differs from that in the first phase, which in this model is described as the initial reaction. Within the context of this model, and particularly during the first phase, the student proceeds to formulate an instinctive reaction to the observed artwork. In the aforementioned models, the analysis of an artwork is based on the identification and observation of a subject that is gradually approached, starting from its instantly perceived features and,

finally, unveiling its “inner-deeper” characteristics, that is, the deeper meaning of the work.

The Perkin’s artwork analysis model

According to Perkins, the approach of works of art is done in such a way so that the observer is able to distinguish: a) the key actions that trigger the reflective spirit, b) the possible questions that can cause the reflective effect, c) the teaching approaches one needs to implement in order to provoke reflection. These three elements form a comprehensive methodology for the reflective observation of works of art.

Perkins’ model is considered more comprehensive in comparison to other models that have been proposed from time to time, as it can apply to the approach of various artworks, requiring only minimal modifications (Kokkos, 2011; Phillips & Fragoulis, 2012). As part of the artwork observation process suggested by Perkins, the observer adopts a documented view at the observation. Thus, students are not confined only to value judgments, such as “I like it” or “I dislike it” but, by observing specific elements of the artwork, they methodically develop an argument that strengthens their opinion on the art work (Kokkos, 2011). In addition, thoughtful looking at art appears to have an instrumental value as it provides an excellent setting for the development of better thinking (Perkins, 1994).

Perkins argues that, through this process, students are not only able to enrich their aesthetic experience, but also, at the same time, cultivate a critical-reflective approach towards the events taking place within and outside the educational framework (Perkins, 1994). Perkins' model consists of four phases that are correlated and can be summarized as:

- a) giving looking time,
- b) making looking broad and adventurous,
- c) making looking clear and deep and
- d) making looking organized.

More specifically, in the first phase students are given time to observe carefully an artwork, at first without attempting to understand or evaluate it. Next, during the second phase, students try to approach the artwork bearing in mind the question “what is that the artist would like us to observe” (Phillips & Fragoulis, 2012). Proceeding to the third phase, analytical and deeper observation takes place, as students in collaboration with their teacher attempt to answer to several questions which arose during previous observation, as well as to interpret meanings and draw conclusions. Finally, during the fourth phase, students holistically approach the art work by taking advantage the observational experience of previous stages.

Teaching Scenario

The main and general purpose of this educational approach was to develop students' critical thinking and reflection on issues related to the use of alternative, environmentally friendly types of energy, as well as to transform their initial assumptions regarding their importance. With regard to the expected learning outcomes deriving from the use of this specific educational practice, the students, after processing the artwork, had to be able to:

- express awareness on issues related to the exploitation of mild and environmentally friendly forms of energy,
- develop a holistic approach to individual environmental issues, particularly regarding the use of wind energy,
- demonstrate critical thinking on environmental issues,
- apply the stages of the Perkins' model to the artwork approach,
- adopt a positive attitude towards the creative exploitation of important works of art for the purpose of approaching environmental issues.

The painting "A windmill by a river", by the Dutch painter Jan Van Goyen, was created in 1642 and is currently kept at the National Gallery of London. This depicts a landscape of the Dutch province, with a gray and hazy sky covering $\frac{3}{4}$ of the painting, while in the lower right side of the composition, emerges a windmill at the river's edge (Beck, 1977). The windmills, a "trademark" of the Dutch countryside, were largely used for pumping and supplying water from rivers and lakes, as well as for the grinding of grains, at the time the artwork was created (Beck, 1977). Since the days of Van Goyen and up to the present day, wind energy, generated by the exploitation of the winds, constitutes a mild and environmentally friendly form of energy, as it does not burden the natural resources.

Within this context, and in the teaching of the "Renewable Natural Resources" thematic sector of the course "Environment and Agriculture", the use of this particular artwork as a teaching tool was attempted for the development of critical thinking. Perkins' artwork observation model, as described in the relevant literature, (Perkins, 1994; Kokkos, 2011) was used as a teaching tool. This particular teaching approach was implemented over the course of 3 teaching hours, including 2 intermediate breaks.

More specifically, the phases used were as follows:

- Phase 1: Time for observation,
- Phase 2: Open and adventurous observation,
- Phase 3: Analytical and deeper observation,
- Phase 4: Overview of the process.

More specifically, in the first phase, students were given the necessary time to observe the artwork and express their initial spontaneous estimates. This way, the teacher invited students to observe the artwork, focusing on the colors, the

figures, the landscape, and the windmill. Afterwards, following the expression of the initial spontaneous remarks regarding the artwork, the educator used the collaborative method and invited the students to split into groups and write in captions what they noticed during their initial contact with the work of art. Then, using the brainstorming technique, the students were asked to capture and write down concepts, ideas and views, regarding their first visual contact with the artwork.

Moreover, through the use of visual intelligence, the teacher invited the students to make use of the previous knowledge they might have on this artwork, in order to stimulate their perceptiveness, while outlining the natural landscape depicted in the painting. Subsequently, the students were asked to distance themselves from the artwork for a little while, averting their gaze off it for a short period of time. After a while, returning to the observation of the painting, the teacher posed a question regarding the position of the windmill in the depicted landscape, and the students, divided into working groups, were invited to circle the interesting features of the artwork and formulate further questions regarding the painting.

Moving on to second phase, that of open and adventurous observation, the teacher attempted to stimulate the students' attention, asking them why is the sky illustrated cloudy and full of winds, as well as why is the windmill positioned next to the river. The teacher went on with the pursuit of the spirit, the symbols, and the meanings, exploring whether the view of this specific artwork stimulates some feelings to the students and whether there are certain messages behind the artwork's symbolisms.

Another important activity of the second phase was the alteration of the observation scale, where the teacher focused on the sky, the positioning of the windmill, as well as the river, and asked of the students to circle and study a specific area in the artwork, effectively inviting them to identify the central theme in relation to the regional one. At this point, the space-time placement of the artwork was carried out, as the teacher provided the historical details of the painting, which was created by Van Goyen in 1642 and illustrates a typical landscape of the Dutch countryside during that time, where windmills were used for pumping and supplying water from rivers and lakes as well as for grain milling.

Entering the third phase of the analytical observation, the teacher posed the question "What message does the creator of the artwork wish to convey, by placing the windmill in this particular landscape?". At the same time, the students, working in workgroups, were invited to respond to key concerns, for example: "Why is the cloudy and windy sky prevailing in $\frac{3}{4}$ of the painting? How is the windmill near the river connected with the rest of the landscape? How is the wind energy, generated by the windmill, being utilized?". Moreover, through the use of active and participatory techniques, such as discussion and brainstorming, the teacher, in the context of focused intellectual change activity, asked from the students to isolate parts of the artwork or modify them

accordingly. At this point, questions, such as the following, arose: “If the windmill was absent from the landscape, would that alter the structure of the painting?” and “Were the sky not cloudy and full of winds, would the message of the artwork be altered?”.

Delving deeper into the third phase of the analytical observation, the teacher invited the students to cover some elements of the artwork, using their hands, such as the windmill or the river. Then the teacher asked them to observe what exactly would happen, in terms of the artwork’s quality, if these elements were, in fact, absent. This way, the students were led to the discovery of the significance of a specific object while, simultaneously, answering the following questions: “Is the presence of the windmill near the river important?” and “How is the windmill connected to the use of wind energy and the pumping of water from the adjacent river?”.

Subsequently, the teacher, making use of additional sources (e.g., internet, encyclopedias, or related books), invited the students to compare this particular painting to other artworks by the same artist, created during the same time period and utilizing a similar subject, and encouraged them to identify the similarities and the differences between them and reflect on why these similarities and differences exist. Upon completion of the 3rd Phase, arises the critical question: “How can environmentally friendly forms of energy, such as wind energy, be exploited?”.

The fourth and final phase of the Perkins artwork observation model concerned the review of the whole process. More specifically, the teacher invited the students to split into workgroups of 4-5 people and answer the question: “What is the link between the artwork and the critical question?”. At first, the students were asked to record the thoughts they had before approaching the visual artwork in question, and then to write down the thoughts they have now, after the process of approaching the artwork.

Table 1: The art work used as a teaching tool.

Painting title	A windmill by a river shown in figure 1 below
Artist	Jan van Goyen (1596 - 1656)
Characteristics	29,4cm X 36,3 cm
Year created	1642
Web	http://www.nationalgallery.org.uk/paintings/jan-van-goyen-a-windmill-by-a-river
Museum	National Gallery, London



Figure 1: A windmill by a river

Conclusion

The evaluation process carried out after the implementation of the method revealed that, through the systematic observation of the work of art, the students: a) acquired knowledge and expressed awareness regarding issues related to the exploitation of mild forms of energy, b) developed a contemplative attitude towards environmental issues, c) acknowledged the possibilities offered by the utilization of works of art to the approach of environmental issues, d) became familiar with the methodology of approaching artwork as a tool for developing critical thinking, e) adopted a positive attitude towards the creative exploitation of important works of art in the approach of environmental education issues, and, f) developed their creative thinking and broadened their perception by using their imagination and ingenuity.

In conclusion, through the use of an artwork, activation of the students was attempted, in order to actively engage them in the learning process and the examination of data and parameters of a subject. Jan Van Goyen's painting, "A windmill by a river", has been a useful teaching tool, utilized in the context of an effective and innovative approach to the environmental issue of renewable natural resources and, more specifically, wind energy. This process has, on the one hand, intrigued the interest of the students, who participated with warmth and excitement, and, on the other hand, made the teaching approach of these specific cognitive objects more experiential, interactive and lively for the teacher. As far as practical implications are concerned, the case study presented in this article can offer interesting insights for teachers, educators and researchers interfering with use of art works in education. The teaching approach suggested in this article could be adopted by educators who wish to teach individual modules of environmental education in an experiential and innovative way. In

this direction, the present study enriches the relevant literature and at the same time, provides ideas for the use of art works in the teaching of environmental sciences.

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