Chapter 10

Conceptual Framework for Non–Algorithmic Education in STEAM Education: Toward Metacognitive Strategies

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ABSTRACT

This chapter is based on a theoretical study of reflexivity, as a non-algorithmic method for Science, Technology, Engineering, Art, and Mathematic (STEAM Education). It explores the key shift in artistic education, embracing the role of scientific and artistic knowledge, knowledge development as an inner experience, importance of art for spiritual intelligence, as well as the philosophical and psychological dimensions of metacognition (as thinking about thinking). The focus in this chapter is related on understanding the complexity of reflexivity and the impact of metacognition within development of the artistic competence. Finally, the methodological research provides a conceptual framework that is important for learning design of non-algorithmic education.

INTRODUCTION

STEAM Education refers to the areas of science, technology, engineering, art and mathematics. STEAM education is a successful strategy for life. Individuals must be creative and have critical thinking skills. Competence development through art and artistic education is the way of non-algorithmic education, which includes, also, intuition and thinking. One the most important methods is reflexivity. In this process, the personality accumulates that experience which cannot be learned in contact with other phenomena/things. Acquiring knowledge through art becomes an inner experience through sensory-affective coverage, spiritual meditation over what has been received and fixed in memory, judgment from the intellect in relation with the scale of own spiritual values. Discovering and living interiority are two defining moments in the process of acquiring knowledge through art. Contemplating the artistic reality, we are

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Conceptual Framework for Non-Algorithmic Education in STEAM Education

insuring our access to our own being. In the process of acquiring knowledge through art, the inner living may gain amplitude and complexity; it is being continuously and lifelong constituted and elaborated. The personality’s inner value being can be built during the communication between man and art. It is the conclusion of the way of being of the Person in the context of life situations.

The artistic reflexivity is the inner artistic experience. In this chapter it is purposed to analyze artistic reflexivity and to determine its impact in the processuality of the educational-artistic act. The necessity of reflexivity in the process of art education has at base the supposition that the study of works of art can be extended beyond the aesthetic education framework. Through art can be formed and developed not only the artistic aptitudes. The potential artwork hides is inexhaustible possibility in the formation and development of personality, through reflexivity, which the artistic can get to know himself, to discover values, and to form their worldview and others.

This chapter is composed of five sections. The first section outlines the values of the elements of the process of artistic knowledge, the essence of the feelings in the act of the artistic knowledge and the necessity to gain experience for the development of the personality. The second section characterizes the artistic knowledge as a spiritual activity, and the work of art as a spiritual product. The conditions in which knowledge becomes inner experience through art are identified by reference to conscience. The third section, using the theory of multiple intelligences, establishes the value of the spiritual intelligence as well as its benefits in the development of the student’s personality. The philosophical and psychological dimensions of the concept of reflexivity are analyzed in the fourth section. Finally, the last section conducts a study of the concept of artistic reflexivity in the context of the educational-artistic process.

KEY SHIFTS IN ARTISTIC EDUCATION

Scientific and Artistic Knowledge

In the practice of thinking which scientific and artistic knowledge are in harmony. The art is less exact than science. Nevertheless, the “art, like philosophy, may be superior to science referring the generalizing level of its truths. Insufficiently articulated, the artistic knowledge proves sometimes that it is more comprehensive than the scientific knowledge” (Vrabie, 1994, p. 24). A reference contribution in this sense is the ascertainment that one of the main ideas of the S. Freud’s theory was expressed synthetically in two verses of one of the Shakespeare’s sonnets. Governing totally the force of knowledge and expression of the artistic image, Shakespeare determined precisely the moment when the mind crystalizes, and described the formation methods and its content (Shakespeare, 2012, p.22). The art anticipates the science and the conceptual discourse offers more clearness and accuracy when it rediscovered the truths grasped in the artistic image. In plus, there are significant differences between scientific and artistic education (Table 1).

The process of artistic knowledge supposes, in the first instance, the reception of the piece of art. For example, the music evokes in us strong feelings; it invites and prepossesses us to meditation and to the direct catching of the meaning. Listening to music becomes a genuine act of knowledge, when the music is distinguished as being released of its emotional and intellectual impact. Therefore, the principal means of investigation must be the analytical audition, which requests the meditative thinking involvement, related to the data of feelings and experiences accumulated by the receptor in the artistic act. The value of an artistic creation can be known only by intelligence; “The more intense the knowl-
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