

Existentialist Perspectives to Science Teaching and Teacher Education in the Competency-based Curriculum

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Abstract: In this commentary, I examined the implications of Existentialism for science teaching and teacher education. Existentialist thoughts and premises can be used to explore the human element in an educational system. Before emphasizing the pragmatic and technical aspects of teaching, we need to rethink why we teach and recognize our learners as unique beings in a continual process of becoming. By incorporating the existential perspective into curriculums and pedagogies of science education, we can help learners to make their existences and experiences meaningful. This paper consists of three parts. In the first part, I drew on relevant aspects of Existentialism and its implications on the views of the learner. In the second part, I examined the competency-based curriculum in light of Existentialism. Existentialism aims, in part, to develop an educated person who possesses a clear sense of personal identity, a critical attitude, and the inclination to be a life-long learner, and so on. These characteristics are consistent with the implications developed from the competency-based curriculum. In the third part, I explored pedagogical activities consistent with existentialist thinking the ultimate goal of which is to create authentic individuals who can take responsibility for being humans. In the conclusion, I discussed how existentialist ways of thinking and teaching call for the science teacher's reflective practices, where the teacher needs to integrate personal and professional knowledge as the situation demands.

Keywords: Existentialism, existentialist pedagogy, competency-based science curriculum, authentic individuals, reflective practices

Introduction

Educational implications of Existentialism can provide useful implications for the 21st century teaching and learning environment. Globalized 21st century schools are meeting some problems of dehumanization, standardization, lack of personal quality in education, and advancement of science and information technology where learners have access to information at their fingertips and the memory of facts won't be that important (Hong et al., 2010). Regarding the goal of science education, for the 21st science education, it's going to be important that the capability of people to solve the kinds of problems they're

engaged in, rather than remembering and manipulating facts (KICE, 2011), which is compatible with the existentialist perspectives on education. The existentialist supports the holistic development of learners as skillful and critical agents. Existentialist perspectives can be an effective response to the challenges presented by contemporary forces for school change. The existential framework provides some insights for curriculums and pedagogies where the learner as an existing individual can make her experiences and existence meaningful rather than passively claim to be a victim of circumstance. That is, some core premises of Existentialism may be used as reflective opportunities in an inquiry into the meaning and purpose of today's science education (Hufford, 2010).

Jean-Paul Sartre (1905-1980) was the leading existentialist philosopher of the 20th century (Wang, 2008) and, in this paper, I grounded on Sartre's idea that each individual face subjectivity and freedom and take up the heavy task of becoming, which provides some implications for teachers on how they could treat their learners to be independent and aware beings

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(Hufford, 2010). In a sense, the idea of Existentialism can provide rich implications for developing competent science learners and becoming authentic persons. Since the idea of Existentialism on the roles of the learner in the 21st century schools reminds the teacher and student relationship in a competency-based curriculum, I searched previous literatures and articles that contain such key words as Existentialism, learning, and competency-based curriculum. Through the analyses of those literatures and recent trends in a competency-based curriculum, the existentialist perspectives connect easily with the competency-based curriculum in terms of how science teachers may nurture and treat learners to become individuals with independent and critical thinking. The emphasis upon the existing individual allows the existentialist framework to be applicable for addressing specific educational issues involving the learner, such as curriculum, pedagogical activities and the role of the teacher, which shall be considered in the following section.

In the first section, therefore, I shall begin by outlining major ideas of Existentialism in light of the views of the learner. These concepts have a significant bearing on the theoretical basis of the roles of the learner in the 21st century schools. Based on existentialist perspectives on the learner, I will review the competency-based science curriculum, and suggest the image of future science teachers by examining the interrelationship between the teacher and the learner.

Existentialist Perspectives on the Learner

Most existentialists share concepts such as the virtue of acting in freedom, of taking responsibility for decisions, and of becoming an authentic self. Existentialism considers the individual as culturally embedded, holistic, a meaning-maker, able to create self-identity and has authenticity to some degree. Major issues of Existentialism in terms of its views on the learner are as follows:

First, the major aim and objective of education is to

help an individual realize the best that she is capable of. That is, according to Existentialism, the ultimate goal of education is to create authentic individuals who can take responsibility for being humans (Morris, 1990). One of the central propositions of Existentialism is that existence precedes essence, which means that existence is prior to essence and therefore man is fundamentally free to create his essences (Webster, 2002). One cannot escape this responsibility of self-creating by transcending one's own being (Hufford, 2010). Existentialists emphasize maintaining perfect, powerful, self-conscious, responsible and intelligent life whereby people pursue creative identity. Within this existentialist view, the purpose of education is "to help the realization of the best potentials in the learner's life" (Buber, 1998, p. 132). That is, according to the existentialist view, learners should commit themselves to their "fundamental project which is the achievement of their full human reality" (Greene, 1967, p. 19). One of the most important aims in education is to make a human being who can live and make decisions about what he will do and be, through knowing oneself, social relationship, and so on (Wang, 2008).

Second, education should develop each learner's uniqueness by catering to individual differences (Gershberg, 2008) since every individual is unique. Contrary to the existing educational perspectives, the existentialist belief in education is consistent with a humanist and liberating praxis that enables learners to become subjects of the educational process (Gershberg, 2008). Through understanding of the learner as a unique, self-defining being in a continual process of becoming, the teacher with an existentialist orientation will seek authentic learning opportunities, which may seem counterproductive to the "teach-to-the-standardized-test" expectations that permeate education today (Choe et al., 2008). The ultimate aim of education is to make man conscious of his destination, and to give understanding of his 'being' (Webster, 2002). In sum, instead of objectifying learners, teachers need to recognize learners as individual human beings by allowing learners to take responsibility of self-making

(Feldman, 2007). According to existentialist perspectives, teachers need to provide a space for learners to be free to create themselves and to find personal meanings in science learning rather than accepting knowledge imposed on them (Kwak, 2012).

Third, according to Existentialism, students' subjective knowledge is more important than objective knowledge. The philosophy of Existentialism stresses human being's meaning making where she constructs a meaning on her universe rather than is taught what the world is about (Webster, 2002; Wang, 2008). This existential framework does not support the view that understanding on the part of the individual can be developed by imposing information from the outside (Choe et al., 2008). Through meaning making and subjective knowledge, people constitute their existences (Hufford, 2010). After all, in this view, educational development of the individual is understood to involve the freedom to choose these meanings to be one's own, which is consistent with a competency-based curriculum movement in science education (KICE, 2011). It is important, however, to remember that even within a competency-based science curriculum the science teacher's authoritative intervention is required when the teacher introduces scientific perspectives and social language of science including (Mortimer and Scott, 2003; Kim et al., 2011). In other words, the science teacher should facilitate or scaffold learners to explore their own ideas, interpret experimental results from their own views, and make connections between their own explanations and scientific knowledge, where student-generated themes and interests motivate the classroom learning goals and methods (Crawford et al., 2010).

In summary, according to Existentialism the objective of education is to enable every individual to develop his unique qualities, to harness his potentialities and cultivate his individualities (Hufford, 2010). Since existentialists see human life as unique and recognize a learner as a full person rather than an incomplete adult. The existentialists, therefore, want to give full freedom to the learner (Webster, 2002), which may be seen as consistent with the goals and methods of a

competency-based science curriculum. In a competency-based science curriculum, teachers are to make it possible for learners to become authentic human beings with freedom, decision-making, and responsibility (KICE, 2011).

Existentialism and the Competency-based Science Curriculum

Individuals need a wide range of competencies in order to face the complex challenges of today's world and to manage a successful life and a well-functioning society (OECD, 2005). Key competency is a concept that incorporates an individual's ability to lead not only a professional and social life, but also a humane and meaningful life. Key competencies (hereafter KCs) are the basic abilities required for learners to be effective in work and life, and KCs are receiving greater attention being referred to as the key word in educational reform and innovation of curriculum in a new era. The rise of KCs is based on the understanding that learners should be able to utilize the information and knowledge gained in schools in the real world, rather than focusing on the delivery of the knowledge itself. Defining KCs will help identify overarching goals for education systems and lifelong learning (KICE, 2011). A competency-based science curriculum intends to develop learners' KCs such as creativity, communication skills, problem solving skills, ICT skills, cooperation with others, and so on, by connecting KCs with science contents (Kwak, 2012).

As a science educator, I find KCs required for the learner reminiscent of Existentialism, the idea that we construct who we are as the result of physical and cognitive experiences. One of the articulated aims of Existentialism is to develop the educated person that are characterized as having a clear sense of personal identity, becoming more authentic, having a critical attitude, being a life-long learner, and so on (Gershberg, 2008). These characteristics accords well with the implications developed from the competency-based curriculum. By developing KCs as well as personal

identity, the learner are required to clarify to oneself how one relates, believes, acts and therefore exists (KICE, 2011). Compared with the content-based curriculum, the features of the competency-based curriculum consistent with Existentialism are as follows:

First, in the competency-based curriculum, primary emphasis is always on the learner, not on the learning program or content knowledge. That is, competency-based curriculum is, in a sense, consistent with Existentialism. A competency-based curriculum emphasizes the idea of “using” rather than “covering” curriculum content (KICE, 2011). According to the existentialist, learners should create her own meanings out of the curriculum by appropriating subjects since “school subjects are only tools for the realization of subjectivity” (Morris, 1990, p. 123). According to existentialists, self-knowledge precedes universal knowledge (Gershberg, 2008), and they don’t believe in formal curriculum consisting of a body of subject matters (Young, 2010; KICE, 2011).

Second, the competency-based curriculum recognizes the ‘individual differences’ and recommend diverse curricula suiting the needs, abilities and aptitudes of the students (Morris, 1990), which is consistent with the existentialist thoughts. Since the existentialists believe in the individual’s freedom, they do not advocate any rigid curriculum. In addition, the curriculum, according to Existentialism, should not primarily satisfy the immediate needs but also ultimate needs. That is, the school curriculum should have students be ready for their future life (Choe et al., 2008; Kwak, 2012).

Third, existentialists contend that the curriculum should be chosen and owned by the learner. In the existential approach to education, the curriculum can be examined if it’s providing positive engagements with learners (Hong et al., 2010). Truth, according to Existentialism, refers to how the individual relates rather than what he or she cognitively knows (Morris, 1990). Contrast to the traditional content-based curriculum where learners tend to be encouraged to accept knowledge rather than to make their own, the

competency-based curriculum moves learners from a spectatorship accepting prescribed content to a level of participation in making their own knowledge (Morris, 1990). However, this does not necessarily make the competency-based existentialist curriculum ‘content-less’, which leads to the next argument (Kwak, 2012).

Teachers with existentialist orientation speak of their desires to inspire their learners, to help them gain confidence, and to empower them to think for themselves (KICE, 2011). The teachers acknowledged the need to recognize learners as individuals by modifying their instruction to meet different learning styles and to connect subject matter to the world of the learners (Hong et al., 2010). Teachers are encouraged to help “seek out ways of self-expression, and to find personal meaning in the subject matter” (Hufford, 2010, p. 169) rather than covering the subject matters prescribed in the curriculum. In sum, the main goal of education based on Existentialism is to help the learner self-realize through self-awareness; therefore, the content of education should be a means to the learner’s realization of subjectivity (Gershberg, 2008; KICE, 2011), which is consistent with pedagogical activities supported by the competency-based curriculum.

Existentialism and Pedagogical Activities

Under this accountability era, teachers prefer the security to be found in conformity to rules, regulations, pedagogical recipes, and administrative directives. Instead of adhering to the call for predetermined, predictable, prescriptive outcomes as classroom expectations, we need a science teacher who recognizes the importance of being an intellectual midwife to an individual learner’s unique self (Choe et al., 2008). This existentialist move may seem counterproductive to the ‘teach-to-the-standardized-test’ expectations that permeate Korean education today. It is, however, the responsibility of the science teacher to relate to the learner not as an object (product, consumer, customer, test-taker), but as a

subject with unique potentials, motivations, and values (KICE, 2011). In this context, we can draw some insights from the existentialist perspectives in light of how science teachers meet the goal of science education by supporting learners' holistic development and developing learners' KCs (Kwak, 2012). The implications upon the teacher's roles and pedagogical activities that emerge from the existentialist paradigm as well as competency-based curriculum are as follows:

First, pedagogical activities consistent with the existentialist perspectives should enable learners to be authentic individuals (Hufford, 2010) who can take responsibility for being humans. The existentialist core concepts of freedom, decision making, and responsibility should play significant parts in the educational process, which reminds of Freire's writings. Each of these existential core concepts is a continual reminder to the teacher that "true education incarnates the permanent search of people together with others for their becoming fully human in the world in which they exist" (Freire, 1996, recited in Hufford, 2010, p. 171). This Freirean understanding of education, which is closely aligned with the existentialist's thought, runs counter to bureaucratic efforts to create a standardized, conforming, facts absorbing, test-prepared learner (Hufford, 2010). To objectify the learner by making her simply an "object" of the teacher's goals and methods is to negate the learner's freedom, and the learner's authentic becoming. In the existentialist education paradigm, teachers are encouraged to help learners find a sense of inner-directedness, to help them seek out ways of self-expression, and to find personal meaning in the subject matter and in the educational environment (Thompson and Pascal, 2011).

Second, the science classroom learning experience consistent with the existentialist perspectives should value collaborative learning where learners together with others search for their becoming fully human through intersubjective communication. Learners need to have educational experiences whereby they build a community by establishing interrelationship with

others (Hong et al., 2010). Through intersubjective collaborative learning activities, learners realize that they have profound effects on others' "becomings" and take on the responsibility for others (Webster, 2003). In addition, the classroom learning experiences and instructional methods consistent with the existentialist thinking include brain storming, inductive learning, and learning by discovery and problem solving, where learners could engage in a constant process of "becoming" by participating in conscious decision making processes (Hufford, 2010). After all, teachers consider that the opportunities of learners' learning continuously arise from the relationship with the Others (Gershberg, 2008).

Third, learners should have choices in their science learning including learning materials. Rather than following 'technical rationality' (Schön, 1987), teachers need to allow learners' choice and responsibility in reconstructing a classroom-level science curriculum (Kwak, 2012), which is consistent with existentialist thought. In other words, learners should be actors in their own learning. A competency-based curriculum necessitates some key shifts in teaching and learning practice including an increasing use of learner-centered practices to source contexts that are authentic for learners (Hong et al., 2010). For the existentially oriented teacher, "generative themes are the heart of methods" where "generative themes" are what learners bring into the classroom learning environment including ideas, thoughts, interests, expectations, experiences, values, and questions (Hufford, 2010, p. 169). Sourcing learning contexts and themes that have personal relevance to learners, learners can become actors in their own learning (Choe et al., 2008). Likewise, KCs in a competency-based curriculum are intended to be developed in contexts that are challenging, have personal relevance to learners, and require them to actively engage with problems (KICE, 2011). After all, science teachers should infuse learners' lived realities and concrete experiences into an ongoing classroom dialogue (Hufford, 2010).

Including giving opportunities for learner choice, the competency-based curriculum emphasizes the learner's

taking responsibility for her own decisions, actions, learning and what she is becoming (Kwak, 2012), which reminds of the existentialist view on educational purposes. In short, in the existential view on education, the focus is on the 'man' as genuine or authentic self with freedom (Morris, 1990). The purpose of education is defined by more than the market-driven motivation to prepare learners to compete and win in the global economy (KICE, 2011). The school system, according to the existentialist, exists to prepare learners to be existentially authentic human beings who grow in their understanding of who they are becoming (Hufford, 2010).

Conclusion

An existential approach to science teaching provides teachers with a way to understand what it means for teachers to be responsible. We need to accept the responsibility for who we are as science teachers, and the responsibility for helping our learners to learn to act responsibly in the world (KICE, 2011). In a sense, reflective practices suggested by Schön (1987) somewhat resonate with existentialist thoughts (Thompson and Pascal, 2011). Changing our science teaching practices requires us to change who we are as science teachers by adopting existentialist ways of thinking, which requires the science teacher's reflective practices (Kwak, 2012). For concluding remarks, I will suggest ways of science teachers' reflective practices that are consistent with existentialist perspectives to science teaching.

First, science teachers with the existentialist orientation acknowledge their learners as individual human beings rather than as objectified 'them' (Greene, 1967). The teacher needs to understand learners in holistic terms and to participate in a subject-with-subject dialogue with learners (Mortimer and Scott, 2003). The goal of science education is to burst the asymmetrical relationship, to allow each learner to regain her innate ability for true dialogue, and to support each individual in the process of becoming (KICE, 2011). This means that the teacher

needs to change the asymmetrical relationship to meet the changing awareness of the learner and the role of teacher (Mortimer and Scott, 2003). In addition, to be professional, teachers should approve the dialogical subject-subject relationship with their learners, where teachers as well as learners get to know what and why they learn (KICE, 2011).

Second, science teachers have the responsibility to construct educational situations that help learners to become aware of who they are, and who they have the potential to become (Koob, 2008). The role of the science teacher in the existentialist education is to "awake the learner to her awareness of choice, freedom, and responsibility in her own selfhood" (Morris, 1990, p. 137). The teacher's role is very important because the teacher is the creator of such as educational situation in which the learner can establish contact with herself and achieve self-realization. After all, the role of the teacher in the existentialist perspectives characterized as a caring pedagogy, where the teacher is oriented towards a celebration of her creative potential within the spaces that the curriculum provides (Kwak, 2012).

Third, in a competency-based curriculum, compatible with Existentialism, science teachers themselves should have free personalities, engaged in such relations with learners so that learners get the idea that they also have free personalities (Gershberg, 2008). Instead of expecting learners to imitate what the teacher cherishes, the teacher should help learners to be 'original' and 'authentic' (Hufford, 2010). To do so, the teacher needs to be authentic whereby she can show her "weakness and vulnerability" and should be able to ask "a question for which she has not yet discovered an answer" (Koob, 2007, p. 18).

Contemporary conditions of uncertainty and crisis in school education resulted in a critical assessment of whats and hows of school practices (Choe et al., 2008). The existentialist educational quest recognizes teachers as well as learners as beings in the process of becoming (Feldman, 2007). The science teacher, therefore, should regard the learner as a unique, self-defining being in a continual process of becoming,

and help the learner understand the power of her choices, take responsibility for decisions, and becoming an authentic self (Webster, 2002). After all, science teachers should be conscious of their approach to everything. They need to consider what they are putting in their science classrooms and why through reflective practices (Kwak, 2012). In addition, they should be thoughtful about providing opportunities for learners to interact with the world around (Mortimer and Scott, 2003).

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Manuscript received: July 8, 2013

Revised manuscript received: August 9, 2013

Manuscript accepted: September 11, 2013