

The Meaning and Practice of Life Education-Based on the Case of the Teaching in Higher Algebra

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Abstract

The relationship between life and education is inherent and noumenon. Life is a cornerstone of education which comes from life. Life education which has a rich content is a multi-dimensional and multi-level huge system and its fundamental objective is to promote the growth and development of life. Life education has been interpreted from several angles at different levels such as education, psychology, ethics, sociology and so on. Higher Algebra is an important professional course and basic course which has many concepts, abstract content, rigorous logic, unique theoretical system and rich philosophical thought. It is important for us to research that how to integrate the theory of life education into the teaching process of Higher Algebra and how to show the humanistic care. It is worthy of guiding students to understand life, find life, realize and create the meaning of life and obtaining the insights and sublimation of life.

Keywords: Life education; Higher Algebra; Humanistic care

1. The meaning of life education

People are forced to pay attention to the life, its value and education with the development of the society, the excessive tool rationality and so on, the ecological environment worsens gradually, the neglect of life and education. The idea of life education has been developed rapidly since from sixty years of the last century. Although it started late in China, it also aroused great attention of the government and scholars who have deeply discussed the connotation, the essence and practice mode of life education. The relationship between life and education is inherent and noumenal. Life is the origin and cornerstone of education. Education comes from life and its purpose is to improve the quality of life. It also is a part of life and existence form. Life grows with the education. The pursuit of life education is to make education care life. The essence of life is in constant generation and construction. It is important for us to expand the value of life and highlight the meaning of life in the limited life which would be the inevitable purpose and choice of education and also is the value of education.

Chinese traditional philosophy is the philosophy which cares for the reality of life and highlight the recognise of the value of life and contains a wealth of life Education thought. Confucian advocates Human-orientation. Mohist advocates that people should sacrifice themselves for loyalty. Buddhist advocates purdue beings. Taoism promote your own rebirth. Confucianism emphasizes the status of persons and believe that man is the soul of all things on the earth and the heart of heaven and earth. Confucius said "the nature of things, humans are precious." The value of individual life is "Virtue", "moral", "moral", "rule of law". And we should affirm the transcendence of life in the human relations and the society. Song Neo proposes that "preserving the natural" and "human desire" and emphasizes the spiritual life. But it despises the value and meaning of individual life and takes practicing with ethics and morality as survival core. Taoism respected the value of individual life and believe that life is the most noble presence.

The goal of life education is to promote the growth and development of life and its meaning is colorful. Life education is a huge system which is multi-dimensional and multi-level. It has been interpreted by pedagogy, psychology, environmental ethics and sociology from their respective levels. They emphasis on death, psychological, life and career development as well as the moral, religious, ethical orientation etc. Professor Xiao Chuan thinks that life education has three levels: first, it is regarded as the pursuit of the value of education and we should respect the nature of uniqueness of life. It is a necessary condition for us to concern and respect the needs of students.

Second, the education which is for the freedom and happiness of the subject focuses on the process and emphasizes that we should use life to care, nourish and make life brilliant. In short, the content of life education is complex and covers widely. From the view of microscopic, people stresses life education, life world is the foundation of human life, living, organization and society. Education should return to life and enhance the experience and emotion of people. It also must establish the interaction relationships between teachers and students and construct a warm world of education and life. People in practice on the basis of Freud's theory of instinct believe that people has is the instinct of life and death and the meaning of life education is making the educated cherish life through the positive experience. And there also thoughts which elaborate the life education from the eastern and western philosophy and the system of modern cultural. They believe that the life consciousness of Chinese Philosophy introspects self survival way, value and significance and integrate all life, emotional and rational into one. The western emphasis on individual life after the Renaissance and advocates that man is a rational animal but neglects human uniqueness, diversity and other non rational side.

Life generalization education is a kind of life education based on the characteristics and development laws of life and enlightens life consciousness and the spirit. It also can develop the potential of life and enhance the quality of life. It can make education become the activity which is full of life vitality and creates the wisdom of life. Mr. Huang Kejian proposed three value of the education of life generalization which are teaching knowledge, enlightening wisdom and enriching life. Life generalization is to respect and care human nature, create a warm, harmonious, and comfortable environment and then can promote the survival and development of human and advocate noble humanism spirit. It is full of human touch. Life generalization education is put forward based on the criticism and reflection of modernism and post modernism education and it can transcend the modern instrumental education and postmodern game education.

Life generalization teaching is an important carrier and part of life education which respects the unique and autonomy of life and concerns the wholeness and growth of life. It also emphasizes the cultivation, liberation and generation and pay attention to the development of students' personality, life experience and emotional communication. Teachers and students take the life development as a foundation and get emotion experience and the promotion of life value through paying attention to the living world. Education will become the process in which we can harvest knowledge, rich experience and reflect the value of life and the process is full of charm of personality and implicates life care and creative value. Life teaching is not rigid and fixed and the classroom should pay attention to the breath of life, awaken the self-consciousness, cultivate creative spirit of place, guide the students to actively participate in the creation and internalized knowledge, given the knowledge with the meaning of life, the experience of human scientific inquiry the hardships and happiness, understanding the spiritual value, obtain mental development and develop free and independent creative spirit. At the same time it must make the teachers and students feel the existence of active life. life is generated and developed continuously in the interaction.

2. The practice of life education

The traditional teaching of mathematics emphasizes on knowledge more than students' life development. Mathematics teaching as one of the social activities which can improve the quality of life should take the responsibility of enrich the meaning of students' life. Higher algebra as an important professional course and basic course in colleges and universities has a wide range of applications, numerous concepts, abstract content, rigorous logic, unique theory and rich philosophy thought. How to integrate the life education into the teaching process of imparting knowledge and logical thinking, reasoning, the ability of higher algebra operations in the concept and embody humanistic care and guide students to understand, discovery, and create the meaning of life is important. It is worthy of our in-depth study to make students have sympathy in life and obtain the sublimation of life.

(1) Life quality

Mathematics originates and applies life, then beyond life. It forms a kind of symbol, form and logic system. Its characterization often obscures the hard process of mathematical discovery and shows the elegant appearance. Mathematic education which is generalized has become a world trend of the education reform. British educator Whitehead said: "education only has a textbook that is about all aspects of life." Life is the source of mathematics and also is the home to return to. The two-way construction between mathematics and life can make students better understand and grasp mathematics. Returning to the living world is ideal the construction of mathematics teaching vision and one of the important manifestations of life education.

Higher algebra is highly abstracted. Teaching should be based on the student's cognitive characteristics, combine with the existing knowledge and life experience, use the popular language, the life of the metaphor, abstraction to concrete, and then make students see the widespread application of algebra, result happy life experience and stimulate interest in learning. Take teaching matrix concept for example, we can introduce joint income determinant model. In the process of teaching the concept of matrix, we introduce the Page Rank Google searching theory and make the students know the idea based on the matrix theory. Internet webpage links can be showed by the matrix. We can calculate webpage level that is the corresponding eigenvector matrices. When we introduce the concepts of linear related and unrelated, we can begin with estimating the number of linear equations. If the equation is a linear combination of the other equations, the equation is superfluous. Many abstract concepts in the living scene can naturally be understood and accepted.

An operational definition of linear space is $a \oplus b = a \cdot b$, $k \otimes a = a^k$, $\cdot k \in \mathbb{R}$, $a, b \in \mathbb{R}^+$. The students' thinking is hard to shift. This article repeatedly emphasizes we must despite the inherent rules in mind in teaching. Just reminding of the blank state in the primary school we make the students back to childhood like games which is fresh and happy. When we introduce the transmission of the representation of linear we can carry the moral education of students by means of "bad news travels" argument.

Emphasizing on life education has a positive significance. However, mathematical culture is pluralistic. The view that Mathematics comes from life is one-sided. Trying to introduce application to close the relationship between mathematical and life has limitations. Abstract is the character of mathematics. It is beyond the life that it can develop. Whether some mathematical theorems could find application or not is a mystery now even the future. From the view of nature, life education embodies the empiricism and position and has the limitation. The practice of Dewey's "education is life" is criticized remarkably. So in mathematics teaching, we can learn from life but cannot be too dependent on the life.

(2) *Harmony*

Human life is the harmonious unification between natural life and value life. In the value life, we must pursue the harmonious unification among truth, goodness, and beauty. We also must realize the harmonious unification between ration and non ration, the same to acknowledge and emotion. In life education, compared to the student life at its best show, teachers' life is neglected to some extent. The teachers and students are equal individual life. Life education is the common growth and harmonious development of teachers and students of life. The perspective of teachers should be turned to life, interaction, and the creation. And they must reveal the teaching essence from the angle of life growth. Mathematics teaching is humanized activities in which teachers and students experience each other's feelings and values. It is a process of understanding, dialogue and life common progress. The teacher dedicates themselves in order to create happiness and also are the enjoyers of happy. The class condenses the high sense of mission and responsibility of teachers. In the ordinary and busy life, it reflects the value of life and life satisfaction. The students enjoy the happiness of study in the full of vitality in the teaching. The teachers and students blend each other's happiness, generate a new me. And the flower of life is lasting bloom in the harmonious activity.

The content of Higher algebra is abstract and it is difficult to understand and master. In teaching we should be conscious to emphasize the subject status of students and give students more opportunities to use brains and hands. For example, we can use heuristics to guide students to explore the conclusion. The advantages of heuristic is to improve intellectual potential and turn the external motivation to intrinsic motivation and obtain the ability to refine. It also can embody the harmony and unity between the teachers and students, the teaching and learning.

In the teaching of the concept of linear space, the teachers can use the algebraic structure of the vector space to guide students to think matrix and polynomial sets whether have a similar structure and then find identify common by analogy. To enlighten the students, whether or not they can find the similar algebraic structure in the previous knowledge? Guiding the students to find out the function space, linear equations solution space can make that the concept of linear space is not given by the teachers but is explored by the students themselves. When we talk about turning two form into standard form, we can inspire students to contact the owning two times and the curve of square in high school. Rotation transform middle in high school is an orthogonal matrix. Students will take the initiative to the new knowledge of orthogonal transformation, the potential significance of orthogonal matrix, rotation transform old knowledge and cognitive structure.

Connection, transformation of the old knowledge, so that the new knowledge gained practical significance, through a blend of old and new, the students understand the abstract concept of orthogonal transformation, orthogonal matrix, also have a more profound understanding of the rotation transformation. Many problems in higher algebra can be seen as the middle school mathematics abstract or promotion, many elementary problem is a special case of higher algebra, in harmonious conversion of abstract and concrete to improve the students' thinking ability.

(3) Creativity

Creativity is the essential attribute of man and the fundamental difference between human and animal. The task of education is to develop the potential and teach people to create the value of life. Bergson said: "for the life of consciousness, to exist is to change, to change is to mature, to mature is to constantly self creation." Creation is the core and soul of the life. Life education is the process of creating the value of life by teachers and students. The teachers recreate book knowledge to "life knowledge". under the guidance of teachers, The students independently take activities, control and internalization, commonly construct and create life knowledge. Life teaching is not dead and also not have the so-called fixed teaching mode. The life of the mathematics classroom is full of life and potential sites and pay attention to student life. It also play the main role of students and students can gain experience in the creation of deep mathematics.

The discovery of mathematical truth often first go through image, intuition, inspiration and other non logical thinking to find problems. In the teaching of higher algebra, we must pay attention to the cultivation of non logical thinking ability and turn deductive knowledge into original creative activities. Creative thinking is the core of mathematics life education in life. Such as learning concept of Euclid space, we can review the three-dimensional vectors: length, angle and distance and inspire students to analogy that whether there is similar metric relations in n-dimensional linear space? After the common research and exploration of both teachers and students, we can introduce the inner product into a linear space and use inner product naturally to extend the metric properties of the three-dimensional to the n-dimensional space and then get the Euclidean space. In the teaching teachers do not give results to some problems and guide the students to think independently and discussed group. the teachers and students communicate mutually and find problems together. Then they put forward and solve the problems. The teacher is no longer a disseminator of knowledge, but the participants of the life activities. They integrate the thought and method into the knowledge acquisition process in and give the students more opportunities to understand and appreciate mathematics profoundly. The teachers also make students feel the experience of success and the pleasure of learning. For the theory : $f(x)$, $g(x)$ are polynomial. $p(x)$ is irreducible polynomial. $p(x)$ can aliquot $f(x)g(x)$. So we can deduce that $p(x)$ can aliquot $f(x)$ or $g(x)$.

In teaching, we should guide students to further study such as the background, significance and function of theory and analysis the way of proving, whether the conditions can be weakened and conclusions can be strengthened? The inverse theorem is established? Through Inquiry jointly between teachers and students, we can know that the inverse theorem is also true. If $p(x)$ can aliquot $f(x)g(x)$, we can deduce that $p(x)$ can aliquot $f(x)$ or $g(x)$. In it, $p(x)$ is the known polynomial and $f(x)$, $g(x)$ are the random polynomial. So we can know that $p(x)$ is Irreducible polynomial.

We can know that the conditions in the original theorem are necessary and sufficient. Considering the randomness of $f(x)$, $g(x)$, If inverse theorem is proved difficultly, we should inspire students to try to use the reduction to absurdity. Through the study of this theorem, we can enhance the students to understand the theorem, stimulate curiosity and cultivate the thinking ability of mathematics.

Teaching which present dynamically is generated by the teacher-student interaction. It is open and pluralistic dialogue and exchange. Many students who have different knowledge, experience and inspiration will inevitably lead teaching show the richness and variability. WE cannot be limited to the default. But we should accommodate the student's personality and creative thinking wisdom, encourage them to beyond the preset target and combine the invisible things with the visible things.

3. Summary

China's education reform has been carried out for many years and emerged many thoughts and methods and set up more than ten kinds of teaching modes such as following the mode, 271 teaching mode. Joyce and Weir in a book named "teaching mode" think that: "teaching mode is a kind of paradigm or plan which can make a course assignment, selection of materials and prompt teachers activities. I believe that teaching mode is not a plan that highlights interoperability and dilute the color of theory. Teaching model can be considered as structures and procedures about teaching activities based on some kind of education theory and grasp the relationship between the teaching elements and functions, also show a certain order and operability. From the historical perspective, a lot of teaching modes which were popular before both are quiet and even wiped out. There is absolutely no opposing to the research methodology .But some teaching modes emphasis on micro too much and even provide specific details of time and number. Seemingly it is dynamic. But in fact it is still. In essence, it has evolved into a fixed procedures and methods and it is difficult to reflect the colorful teaching which influence and even stifle the diversity, diversity and complexity of teaching. It is a rigid metaphysical thinking, and ultimately it inevitable goes toward death.

Tao Xingzhi's life education theory is evergreen. Micro no fixed pattern is one of the important reasons. Liu Tiefang pointed out: "the world of education is a world in which a fact and value are penetrated mutually and get along swimmingly with each other and they are closely related. In the world there are natural, social, breeding history, life, ethics, morality, aesthetic, emotional, attitude and so extensive and complex packing interleaving. We can only understand, explain them as they were. Then we can enrich our understanding and recognizing on education. But it may never be the same as underatanding'1+1=2' so clearly and precisely." Today, we are facing the transformation of culture and teaching culture also appears the conflicts and blending phenomenon. Different cultures have their own advantages and disadvantages, and cannot become the "thriving" in Contemporary teaching culture system. We must only use the wisdom of "harmony" to integrate and take on this responsibility.

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