

## A Study on the Construction of Education Systematic Project Based on the Individual Growth Cycle

LIAO Yujing<sup>[a],\*</sup>; TAN Zhouqin<sup>[b.]</sup>

<sup>[a]</sup>College of Agronomy and Biotechnology, Southwest University, Chongqing, China.

<sup>[b]</sup>School of Political Science and Public Management, Southwest University, Chongqing, China.

\*Corresponding author.

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### Abstract

With the rapid development of “China’s economy and society, education is playing an increasingly important role in the individual growth process, and an education system which is systematically planned and scientifically designed plays an important role to promote the healthy development of individuals. Meanwhile, previous studies about education system mainly focus on the analysis of a particular group or a particular phase of the entire education system, and there is a lack of systematic research as a whole. This paper puts forward a view of happy learning and growth for individuals from the perspective of education systematic project, systems biology, and psychology. Taking the individual growth cycle as classification standard, this article proposes the main emphasis and difficulties of education work in each stage, combined with the psychological characteristics of various stages.

**Key words:** Educational systematic project; Systems biology; Happy learning; Target training; Personality molding

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### INTRODUCTION

As we all know, education is a systematic project, and its implementation process is influenced by the power

of family, school, and society. So the scientific design and successful implementation of education system can hardly realize without the joint participation of the family, school, and society. As the advocate of “education systematic project” in China, the famous scientist, professor Xuesen Qian brought forward that systematic project means “to design and implement a system from the knowledge of the whole system, so that we can achieve our desired results” (Qian, 1982). From the perspective of the disciplinary attributes of education systematic project, “it is an emerging discipline which takes educational science as the based theory to analyze and research a variety of matters in the field of education with the modern systematic principles and methods (Liu, 2012, pp.104-105).” so, it is an cross discipline of educational science and system science. From the perspective of practical application, some scholar raised that “if we organize and manage the educational activities with the principles, methods and techniques of system science, then it can be called education systematic project” (Bao, 2003, pp.20-24).

The existing researches on education systematic project mainly focus on the discussion of the interactive relationship between education and the larger education system it belongs to, but lack of studies and exploration of how to develop the targeted education practice. From the perspective of systems biology, this paper believes that the individual growth process is a diverse and dynamic system, and the education system is presented in different stages, so the author analyzes the main emphasis and difficulties of education work in each stage of the individual growth process, with the purpose of to promote the growth and success of individuals.

From the perspective of systems biology, the main focus of each individual growing stage is variant too, but we should be happy learning-based on the whole, and cultivate different habits and characters according to the special features of each stage. This essay argues that

the individual growth process should be divided into the following six stages, early childhood education (aged 0 to 3), kindergarten education (aged 3 to 6), primary school, junior high school, high school, and college education, and then let us analyze and explain the education focus and difficulty of each stages one by one.

## 1. EARLY CHILDHOOD EDUCATION: PARENTING PERIOD

Early childhood education refers to the education activities aims to carry out especially for young children who are around 0-3 years old. And the main focus of this period is to conduct young children simulation-orientated parenting, and start with teaching children how to live a life at the same. Education for young children is the first phase of the whole personal education system. It will not only make young children develop good behaviors, but also help other education phases carry out successfully.

Young children education, of which, especially the early parenting is very important in the whole education system. Referring to the world education, only Japan offers mothers three years maternity leaves to support children's early parenting, which is a benefit policy issued by the Japanese government (Xinhua Net, 2013, April 21). And there is also the law related to "mustn't leave children below 12 years old alone and out of foster care" in many American states (Qiaobao Net, 2014, January 20). Now a large number of Chinese young children's early education are inter-generational education between grandparents and grandchildren, particularly in the low cultural background group. This is not completely bad, but it causes many problems for the future education. The inter-generational education easily results in grandparents lavishing too much love for children and parents losing chances to parent children, which do great harm to the establishment of intimate parenthood. The reason Japanese government provides all the mothers three years maternity leave to complete the early education before entering kindergarten is that Japanese education research institute finds that no baby-sister cares more about children's future than mother and mother's parenting is far more useful for children's growing up than any baby-sister's. "The core of progress is happiness" (Liu, 2012, pp.104-105). Young children's happy feelings and love with parents will promote children in their whole life. So this period is the best time to tell the children how to live with simulation behaviors.

## 2. KINDERGARTEN EDUCATION: LIVING BEHAVIORS DEVELOPMENT PERIOD

Kindergarten education is the key point to make personal mind and body stable. Many important talents and personalities develop in this period, which is also directly

related to the primary education. Based on biological rhythmicity principle, kindergarten education( for 3-6years old) should focus on developing children's group living behaviors with conditioned response, basic association principle and happy personality.

Now most countries rule that young children go to kindergarten when they are 3 years old, where they play with partners and establish the good simple relation. So that they can realize the difference between happiness alone and together. In kindergarten they can be social and most children will love kindergarten after they are used to be social. In addition, group living in kindergarten makes children get used to be quiet or active and also influents the good study and living behaviors in the future.

During kindergarten education, children would have frictions. It is very important for teachers to lead children to resolve the frictions in a proper way, because children mainly focus on simulation and they can't tell good from bad. The quality level of teachers in kindergarten also impacts children, as children develop good living behaviors in this period and the way teachers resolve the frictions also have a direct effect on children's behaviors. If teachers don't solve the problem timely, children would start to solve it in their own way, which is even not so proper. For example, Child A is hit by child B; A tells his teacher; the teacher only criticizes B lightly, then B may hit A again as he doesn't get a strict punishment. A who is hit again finds that teacher cannot solve this problem, so he tells B's parents; but B's parents may forget A's complaint because of careless since the teacher never mentions this problem too. Finally A is very angry because he finds both his teacher and B's parents don't care this problem, A wants to hit B. Compared his power with B, A decides to revenge B when B is defenseless during the noon break. Then A hits B when B just falls asleep. After that, A becomes the bad child, all the classmates fitness this article "A hits B". Teacher criticizes A severely and asks him to say apology to B. A doesn't want to apologize, then A's parents are invited to school and apologize for A. A's parents ask why A hits B and get the true story, finally they tell the truth to A's teacher and B's parents. They also let A know that hitting B is not a right way to solve problem and ask him to forgive teacher, as no people is perfect and teacher will also make mistakes. Children gradually learn how to solve this kind of problem through this experience.

During this period, children would learn how to play with other children with the same age, learn to live a regular daily life and begin or finish class under timetable. They would also find the interesting field under teacher's leading and focus on it for several hours by themselves. One world, parents must observe carefully and lead them properly. The parents should not obey children's willing and ask them to learn something that they are not interested, or the loss out weights the gain.

### 3. PRIMARY SCHOOL EDUCATION: DEVELOPING STUDY HABITS PERIOD

When children gradually having a clear sense of independent thinking, they begin to get into the primary school education period. Primary school education is the first period of compulsory education playing the basic and core role in the entire education system. This period includes two different stages: grade 1-3, grade 4 to graduation, and the period from grade 4 to graduation is the most important stage for children to develop study habits and abilities of basic learning. Here is the two stages main explanation one by one.

#### 3.1 The First Stage: Grade 1-3

Grade 1 to 3 is the best time to develop learning habits for children, the focusing aspects of this stage are as followed:

(1) Strengthening the feeling of rhythmic in kindergarten, which can help children to study quietly in the classes. Most of children are able to develop habits of listening to teachers quietly in six months. However, active children spend six months to a year completing the conversion; while the key factor that affects the efficiency of conversion is whether the successful conversion of children's attention can be achieved or not.

(2) Developing the proper methods of learning and memorizing. During this stage, although children will learn new words and phrases gradually, it is not required for children to understand every word, what they have to do is to recognize 100% of the words and phrases correctly, say 90% of them accurately, and write 80% of the words accurately. We have to make sure that, except for certain terms, notional verbs for example, they have to understand the contact between Apple and material object, understand the meaning of listening, speaking, reading, writing, flying, running, jumping and so on. All mentioned above require the ability to remember accurately, the key is successful conversion between short-term memory and long-term memory. Delightful deliberate practice is the best way to carry out the conversion, in which the sense of happiness may last the whole lifetime. Teachers and parents should try the best to induce positive reinforcement rather than increase the difficulty of memory everyday, which easily leads to negative reinforcement and reduce the learning efficiency at the same time.

(3) Developing the ability of analogy. To develop this ability, we should take use of biological imitate characteristics, so that children can learn easily, happily. It is a better way to teach in small classes (20 students of one class is appropriate), otherwise it is difficult for the teachers to take care of every student and mobilize enthusiasm of the student.

#### 3.2 The Second Stage: Grade 4 to Graduation

Grade 4 to graduation is the second stage of primary school education, during this stage teachers should

focus on fostering children's ability of reading comprehension, curiosity and inspection capability. Language teaching should focus on fostering children's reading comprehension, in order to improve children's learning ability and their interest in learning, and enrich their social experience. There are for two ways to help children increase their knowledge: one is widely going sightseeing or participating in community activities; the other is to open the mind by reading. Reading can open the minds of children, develop their imagination, but also let the children feel the charm of the natural science to cultivate valuable curiosity. Keeping children's natural curiosity is the driving force behind the children's future learning. Curiosity will lead the children to see and read, so basically attempts at this stage including sports, closer to nature are very important. However, it is inevitable that they will make mistakes during seeing and reading, for example, during math teaching, teachers have to comment the homework on every day, trying to make the children understand the causes of their mistakes and ways to avoid mistakes. When children make mistakes, teachers are not advised to take measures like severe criticism, but focus on fostering children's interest in learning, remember not to make the children fear to study, otherwise it will have negative impacts, or even affect their whole life.

Therefore, during the first stage of primary school education, we should focus on imitation education, objective education and happy education to establish conditions for reflective learning habits and develop the ability for students to convert short-term memory to long-term memory. Based on the principles of operant conditioning, the second stage should solidify learning habits, cultivate children's primary cognitive abilities of perception of the world, especially observation, imitation and reading skills.

### 4. JUNIOR HIGH SCHOOL EDUCATION: CULTIVATING THE LEARNING METHODS PERIOD

After the primary stage of learning and training, the children's learning habits and basic skills of study is developed initially, they begin to enter the junior high school education stage. This stage is not only one of the most important stages in the whole education system of individuals, but also the key period to establish a proper learning method, which functions like a connecting link between the preceding and the following.

#### 4.1 Learning Characteristics and Goals

Along with the increase of curriculum in the junior secondary school, the children gradually be aware of the breadth and diversity of world and begin to find their own interest: some like mathematical logic reasoning, some like weird physics, some like colorful chemical, some like

music, and some may like art. They really start to take the initiative to perceive the world of glamour and express the immature self, exploring the world that they have never hunting involved before. Therefore, the teaching activities of this stage should focus on positive reinforcement and avoid by all means by adopting negative reinforcement. Because once formed a negative reinforcement, children would be prone to emerge from psychological inversion.

Junior high school and primary school stage differ in that it not only requires students to know the concept, but also understand the concept in some degree. For example, pupils only need to know the word of “resistance” instead of understanding its meaning; while junior high school students are required to understand the meaning of “resistance”. And resistance is the physical properties of the material itself that it will be there whether the power-resistance exists or not, and we can adjust the resistance by modifying the length of the resistor, besides the difference of the conductivity of different materials also due to the difference of resistance.

## 4.2 The Specific Learning Requirements

### 4.2.1 Cultivating the Self-Correcting Capabilities

Students will inevitably make mistakes in the learning process, we should guide them to be brave in facing the mistakes, analyzing the causes of errors, and learning to introspect. The self-correcting ability of DNA makes error rate of cell replication process of each generation dropped from one thousandth to a hundred thousandth, so we human-beings should try to learn from the creatures themselves gradually.

### 4.2.2 Cultivating the Transformational Thinking

The key factor affects the achievement of the goals in junior high school is whether they can form a correct understanding and accurate memory or not, and whether they can learn efficiently, happily, and full of interest. Taking the mathematics learning as an example, students are required to transfer the text describes to the mathematical symbols and then finish the operation step by step.

When it comes to straight time, you need to reflect the linear analytic formula of a straight line is “ $y=kx+b$ ”. When asked to solve the coordinate of the crossover point of a parabola and a straight line whose gradient is 1, and the symmetry axis of the parabola is 2, the coordinate of its vertex is (2, -2), it is pointing up and the quadratic coefficient is 1. Students need to convert it to mathematical thinking that we need to solve the coordinate of the crossover point of parabola  $AX^2+BX+C=0$  and the line  $y=x$ ; and  $A=1$ ,  $2=-B/2A$ , so  $B$  is equal to -4; since  $(4AC-B^2)/4A=-2$ , so  $C$  is equal to 2. So the root of simultaneous equation between “ $X^2-4x+2=y$ ” and “ $y=x$ ” is the coordinate of the crossover point. While cultivating the transformation of thinking methods, the exploratory teaching method will help to deepen the students’ accurate understanding, help them learn to think, ask questions, and then solve the problem.

### 4.2.3 Cultivating the Values and Basic Personalities

In addition to reach the learning objective, the more important task of this period is to cultivate children’s values and basic personalities. Students need to establish the correct values and outlook towards life, and learn to differentiate what should do and what should not do gradually during the curriculum learning process or the interpersonal communications with classmates, teachers and parents. During this period, effective communication between parents and children cannot only help to improve the parent-child relationship, but also help to form a sound personality. However, influenced by Chinese traditional culture, the communication between parents and children is not plenary. So the parents should communicate with children equally, respect and understand the inner growth of the child, to help them learn to express themselves appropriately and be self-confident step by step.

### 4.2.4 Developing Amateur Hobbies

At present, the junior high school education in China lack of individualized education, most of the junior high school students are engrossed in basic arithmetic operations while being lack of individual characters, so it is very important to guide them into a virtuous cycle. In recent years, Chinese TV programs have begun a transition, some knowledge contest programs like “Stand to the End”, “Super Brain” are becoming more and more popular, which makes children gradually feel the charm of knowledge, and provides a good platform for high school students to show themselves.

### 4.2.5 Realizing Happy Studying

Since the development and progress of society has its own specific historical laws, and the biology also has its own law of development, how to establish a benign learning mechanism while making children feel happy and pleasure is one of the main challenges facing the teacher nowadays. The happy feeling during studying the process comes from the ability of control, which concludes the ability to control oneself and the capability to control the carious things happen around. For most junior high school students, they will inevitably meet kinds of difficulties and ups and downs across the study, and they may even feel down. Therefore, introspective examination can help to raise children’s self-control ability, and the ample communication and opinions exchange with students, teachers and parents cannot help to train children’s ability to control the situations around, but also help them to establish a good self-confidence which will be helpful for students to happy studying experience, overcome academic difficulties. What’s more the process to overcome difficulties is also the process to gather more energy, and the process to get greater happiness through delaying gratification. So in this process teachers and parents should try their best to induce children to overcome learning difficulties correctly, improve the control ability and develop self-confidence.

In summary, it will take a long time for children to grow up, and it shall not be too eager to success in academic learning nor mental growth and personality development. Based on the principle of positive reinforcement, we should help students to master effective method of study, cultivate their hobbies in the junior high school stage. Cultivating the children's understanding ability and healthy personality is undoubtedly the main emphasis of this stage.

## **5. HIGH SCHOOL EDUCATION: CULTIVATING BASIC LOGICAL REASONING AND SELF-DISCIPLINE LEARNING ABILITY**

High school is a period in which personal learning will emerge an explosive growth. Students are required to complete their curriculum tasks and start thinking about their position and development direction in the future.

### **5.1 The Traits and Goals of High School Learning**

The traits and goals of high school learning are to strengthen learning methods mastered initially in junior high school, and gradually learn to induce and deductive reasoning, learn to extrapolate and rational create. In addition, the high school students need to have an accurate understanding of concepts, and learn to digest the knowledge on the basis of mastering it to make message feedback totally unimpeded.

### **5.2 The Learning Process**

The stage of high school learning contains four different stages: knowing, understanding, comprehending and mastering. Among them, the "knowin" means that get to know the happening of a certain information through the auditory, but don't understand the cause and effect of the information; "understandin" is to figure out the information through auditory and visual, but don't understand the core of it; and "comprehending" means understanding not only the basis of the information, but also the core principles through the auditory, visual, and access, and classify the information in brain at the same time. Last but not least, "mastering" refers to cultivating the ability of using information accurately, the ability of logical reasoning and self-discipline learning gradually.

### **5.3 The Future Planning and Positioning**

Many high school students don't have a clear idea or plan about their future, however, accepting a college education is almost the common choice for both children and parents. For the children who has determined to go to college, parents and schools should gradually help them comprehend informations like the professional settings in the college. It will be even better if parents or schools can arrange students to experience different areas and life styles, if not we can encourage and induce children to live as they wish, and this maybe the best guide to let them

understand the difference between the majors. For the children who doesn't want to accept college education, parents should direct them properly, for example, some parents in countryside will ask the child to do farm work together with them during the holidays, and the kids would be encouraged to think more and make a final decision through undergoing the struggle of life.

Nowadays, students' heavy schoolwork has been the biggest problem of high school education in China, which makes them don't have spare time and energy to reflect on their future. As a result, the high school students have a quiet satisfaction about their major during the university. Therefore, high school education should not arrange too much heavy schoolwork to make students lose interest in studying. They should be given more time to think about the future and make plans. As showed in many survives, it is obvious that students from primary school to high school are tired of studying, which needs the whole society pay attention to and be concerned about it. Learning should be a joyful process, if not, the way of studying should have been abandoned on some level.

In conclusion, cultivating children's logical reasoning ability, promoting the formation of self-discipline learning habits and healthy personality is more important than academic scores in high school education. Therefore, we should cultivate the students' logical reasoning ability, promoting self-discipline learning habits, and cultivate healthy personality through positive reinforcement approach in this period.

## **6. COLLEGE EDUCATION: THE PERIOD TO RAISE STUDENTS' SELF-REGULATED LEARNING ABILITY**

To some people, college education is not only the last period of time for them to receive systematically-education at school, but also the turning point and springboard to begin their occupation career. However, at present there are number of misconceptions of college education in China, which is increasingly becoming the resistance of the students' growth.

### **6.1 Problems in College Education**

The Students are not suited to the learning and management method in university, just like a fish out of water. The curriculum in university is much less than high school, so most of the time in college the students should make their own arrangements, in order to make them to be active thinkers, and to achieve self-learning transformation thorough reflecting the learning content and conducting their own research. The freshmen, newly entering the university, may have adaptation difficulties to the loose management method at the university. Maybe this is mainly because that the curriculum and schoolwork in high school is too heavy, and the students gradually

become accustomed to “cramming” method of teaching, they will lose the interest of self-learning little by little too, which makes many college freshmen be unsatisfied with their learning situation, and even be unsuited to the college life.

Some students’ information collecting ability is poor, and their self-positioning is inappropriate. China’s current undergraduate education adopts a two pronged approach of both professional education and quality education, which require the students to search and find the messages they want in the ocean of knowledge. Since some freshmen are not fully equipped with the ability to capture useful informations, facing the massive amounts of information, they may feel overwhelmed, and often be trapped in invalid information. What’s more, the college students’ self-contradictory demands are often inconsistent with the requirements of society, which make many students feel disappointed to university education, they will even lose goals and morale, and waste away their days of life and youth. As such, the college students begin to differentiate: those who loves their professions and scientific research will prepare for the postgraduate entrance examination; those who don’t love the professional study are eager to end of their studies as soon as possible, so that they can develop their career in workplace. Despite they choose different paths and ways, all of them want to satisfy their own needs from the community and to achieve the unity of self needs and social demands.

## 6.2 Educational Priorities in College Education

With the rapid development of economy and society, the knowledge-based and learning-oriented society raises a higher requirement to individual learning ability. Though scientific and efficient learning, we can improve our survival skills, and the ability to identify the authenticity at the same time. Faced with the learning needs of the new era, the family, school and society should join together to change the unsuitable phenomenon in our study and life, such as someone is too eager for quick success and instant benefit. We should also insist on the principle of putting people first to form a good learning atmosphere around the whole society, to build a learning-oriented society, so that more space can be given to individuals’ for growth and development. Thus, the college education should focus on cultivating students’ self-learning ability and creativity, and the training of learning ability, creativity and healthy personality is the core value of the university.

## CONCLUSION

In summary, the educational system project theory requires us to examine and plan educational activities under a systematic and overall viewpoint, which should be in accordance with the laws of both educational science and system science. The smooth implementation of the education project requires us to set special teaching objectives and tasks of each stage according to the characteristics of different stages of individual for growth. Besides, the success of an educational system project needs the common participation and efforts of the family, school and society, which can play the largest role to help individual growth and development. What’s more, happy learning, interest and creativity training are the core value of the whole educational system project.

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