

# The Theory of Investigative Study and the Development of People

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## Abstract

Based on explaining investigative learning, this paper analyzed the characteristics of investigative learning and efficient methods to develop investigative learning, further to state the effects of investigative learning to train the abilities of university students especially the creative ability and the promotion effect to the mutual development between teachers and students.

**Keywords:** investigative study, college students, teachers, development

## 1. Background of the Problem

Under the great background of knowledgeable economics and information era, high schools are attempting the Competence Education based on students' exploration ability and creativity. Based on the theory of students' development priority, one of the important focuses is to change students' study method, which from the old mechanical memories and understanding developed with the old educational environment and pure teaching accepting, to help students building a study method of active knowledge exploration and focus on problems solving. And then, it could benefit students from life study and overall development. Investigative study is a brand new study method born from the theory of competence education and creative education. It is a major method to improve graduates' abilities, especially creativity.

## 2. Research-Oriented Learning and Its Characteristics

### 2.1 The Connotation of Investigative Study

Investigative study, it is to point to the students under the guidance of teachers, from nature, society and life choices and determine project are studied, and the initiative to acquire knowledge in the process of research and application of knowledge, the learning activities to solve the problem.

The key of investigative study is "research-oriented" with the core of changing a learning style of students. It aims to make students change the original learning style that students accept knowledge passively. In other words, it lays particular stress on mechanical memory; superficial understanding and simple application. Students must learn to explore actively and pay attention to solving practical problems and learn to know about knowledge formation and development in person. It must change examination-oriented school education and stress on cultivating students' creative spirit, practical ability and lifelong learning ability.

### 2.2 The Characteristics of Research Learning

#### 2.2.1 Openness

Contents of investigative study come from learning life and social life, based on studying and solving relevant problems, social problems or other problems concerned by students or relating to knowledge. It involves in a wide range. It may involve in a subject or multidisciplinary comprehension and intersection or it lay particular stress on a practical method or lays particular stress on theoretical study. Under the same theme, confirmation of research perspective, positioning of research target, selection of entry point, design of research process, application of research methods and means, and result expression, etc., may be different, due to diverse individual interest, experience and research activities. It is flexible and provides the broad space for learners and guiders to develop personality, specialty and ability, forming an opening learning process. Openness is presented in openness of teaching contents, openness of teaching space, openness of learning method and thinking mode,

openness of channel for information collection and openness of teacher-student relationship.

### 2.2.2 Exploration

In investigative study, the learning topic and content is decided autonomously by students under teachers' instruction. The learning way, which is not remembering or understanding knowledge passively but forming problems with insight, raising and solving them actively, is an autonomous learning process to help students explore the conclusion. This problem can be elicited by showing a case, introducing some background or creating a situation, or directly put forward by teachers, or indirectly guiding the students to find and then solve with their own conclusions.

### 2.2.3 Practicality

Investigative study emphasizes the relations between theory and society, and science and life reality, by paying special attention to environmental issues, the close impact of modern technology on contemporary life and social development. Moreover, it guides students to keep an eye on real life and participate in social practice activities.

## 3. Effective Ways to Carry Out Investigative Study

### 3.1 Clear the Purpose of Investigative Study

Research-based learning is the conscious learning that enables students to solve problems in real life situations through personal experience, lets students to identify research topics from learning life and social life under the guidance of teachers, enables students to study in the form of individuals or groups in order to take the initiative to acquire knowledge and apply knowledge so as to solve problems. Research-based learning is an open, exploratory and cooperative learning activity. The focus of research-based learning is learning rather than research and its core is to promote middle school students to learn through cognitive and psychological processes that are similar to research in order to gradually form a kind of psychological tendency of questioning, exploring and seeking knowledge so as to stimulate the positive desire of exploration and innovation in daily study and life. Therefore, the purpose of research-based learning is to help middle school students learn grasp more basic knowledge and skills better and faster, promote them to combine perceptual knowledge and rational knowledge, practical knowledge and book knowledge, as well as knowledge of various disciplines and skills so as to establish the structure of knowledge and skills that reflect the personality characteristics and the future development. Meanwhile, it can improve students' direct interest in learning and their objects, guide them to learn and master the correct values in the process of analysis, comparison and judgment, construct their own intrinsic value standard, guide them to form the independent learning ability and social communication ability in order to lay a good and solid foundation for the development of innovation and entrepreneurial ability. In the process of carrying out the research-based learning, it is necessary to pay attention to whether the students are actively thinking and exploring, whether they can really participate in the experience, and the students cannot get involved or acquire knowledge superficially.

### 3.2 Attach Importance to Improving The Quality Of Teachers

#### 3.2.1 Renew the Ideas; Improve the Understanding of Research-Based Learning

The implementation of research-based learning needs to have a correct concept of basic education, which aims to meet the needs of the future development of students. The correct concept of basic education is to respect and recognize the potential of each student and the self-nature of students is that each student "wants to develop and is able to develop", so it needs to respect and acknowledge that "the difference between students is natural and reasonable". Basic education is the preparation for each student to become a national talent at all levels, and it is to "cultivate seedlings" instead of "choosing the fruit". Therefore, the purpose of subject teaching is to help every student to study effectively and make it possible to develop according to one's own abilities as much as possible. Teaching is a series of behaviors that affect the learners by means of learning, which should be regarded as a process of interpersonal interaction.

A systematic approach to monitoring the rules, processes, and procedures that are rigorously programmed is not suitable for research learning. Under the guidance of the new teaching concept, the teaching process should have the following characteristics:

- 1) Stimulate students' strong learning needs and interests, bring the students intellectual challenges;
- 2) Allow students to gain a positive and profound experience;
- 3) Plan learning areas and provide appropriate learning resources;
- 4) Give the feedback of research-based learning

### 5) Promote retention and migration

Teachers should update the old ideas and old concepts which are not suitable for the research-based learning and establish a new concept of modern education. It is very important to believe in students and fully understand the potential of students, because their abilities to obtain information channels and solve problems sometimes are stronger than teachers. Moreover, teachers should be good at grasping the students' physical and psychological characteristics and personality differences in order to create conditions for the healthy growth and good development of students. The purpose of carrying out research-based learning is to build an open learning environment for students, provide multi-channel access to knowledge, and integrate the acquired knowledge into practice so as to cultivate innovative spirit and practical ability.

#### 3.2.2 Changing Classroom Teaching Mode

The implementation of research-based learning must be transformed from the model of “knowledge-based”, “result verification” to inquiry-based teaching. For a long time, our teaching goal is to pay attention to how much knowledge the students have mastered and ignore the students' experience in the process of inquiry. However, this experience is essential to improve the ability and quality of students. Therefore, in order to carry out the research-based learning, teachers should create a variety of educational situations in the classroom teaching, guide students to ask questions, make the learning process become a process of exploring and solving problems, let the students get rich experience, guide students to collect and use learning resources, help students to design appropriate learning activities, choose different learning methods based on different learning contents, such as inquiry, imitation, make the learning of students become diverse and personalized, create a positive atmosphere for students to learn and help students to evaluate the learning process and results. Therefore, our classroom teaching should be based on student participation to give students space to think, explore and experience as much as possible.

#### 3.2.3 Teachers Need to Be Research-Based

Educational research is a special field of scientific research, which is the necessary way to improve the teaching level of teachers. Only research-based teachers can become creative teachers to carry out creative education, so teachers should have the habit of questioning, exploring and seeking in the teaching process, they should improve the way of guidance, encourage students to ask questions and express different opinions, tolerate students' mistakes, encourage students' curiosity and novelty and correctly treat students with lower scores. In terms of the teaching style, teachers should encourage students to think independently, respect students' personality so as to create a creative class. With regard to teaching design, on one hand, it requires that the use of teaching content, teaching activities; teaching methods and their combination, and teaching methods are creative. On the other hand, it can stimulate students' interest in learning and help students to study actively. In short, teachers should constantly improve the level of professional knowledge and comprehensive ability, actively carry out teaching research, and grasp the essentials and skills of teaching design in the process of organizing research study. Only in this way can they effectively guide the students to carry out the research-based learning.

#### 3.3 Carry out Research-Based Learning in Multi Forms and Multi Channels

On the basis of the specific connotation of research-based learning, we believe that the research-based learning should not be a research topic. Subject research is a form or an aspect of the research-based learning, but not all, so it is extremely narrow-minded to mix the two into one, which will cause the separation of research-based learning and practical discipline. Ignoring the application of subject knowledge will inevitably violate the purpose and significance of the research-based learning, resulting in the lack of effective teaching activities. Therefore, the organization of research-based learning should be carried out in various forms, including:

- 1) The solution of the problems, exploration of methods, the expansion of knowledge, the discovery of law and so on in the teaching contents;
- 2) Improvement and research of experimental operation method and learning method;
- 3) Exploratory research on the problems of society, production, living environment, experience and so on, which fit with the middle school students' knowledge ability;
- 4) Design and production of scientific and technological model;
- 5) Planning, design and organization of collective activities.

Thus, it can be seen that the development of research-based learning should be comprehensive, multi angle and three-dimensional based on the cultivation of students' innovative spirit and practical ability. The following points should be done as far as possible:

- 1) Infiltrate the research-based learning into the subject teaching, emphasizing the practicality and application;
- 2) Get involved the cultivation of learning methods, the consolidation of basic knowledge and the training of abilities and skills, highlighting comprehensiveness and research nature;
- 3) Fully tap the resources, including community resources and school resources, highlighting the sociality and openness;
- 4) Take full account of the students' personality differences, teach different students in accordance with their aptitude, highlighting the autonomy and goal generation

Strive to create a learning environment, carry out the process of students' personal experience, reflecting the uniqueness and innovation.

#### **4. Research Learning and College Students' Ability Training**

##### *4.1 Promoting Students' Subject Conscious and Autonomous Learning Ability*

One of the important targets of investigative study is to promote students' subject conscious and autonomous learning ability. High level education is not only the final target of a person's education, but also an important phase of life education. Life study and life education, which is achieved by approving of autonomous study, will be an important lifestyle for people. Autonomous study is self-motivated and self-chose study under the guidance of teachers, including self-distinguishes, self-choice, self-build up and self-control. Through the investigative study, college students choose their assignments, design programs, obtain research information by various ways, analysis and group experimental data and organize self-valuation. Every process of the whole study is finished by the students, and the autonomous initiative of students is fully brought into play. Therefore, it changes the situation of their passive study by rote. As a result, the investigative study, provides college students time and spaces for self-learning and chances for self-learning practices, and greatly enhances self-learning instinct, and therefore builds up the habit of self-learning and improves the ability.

##### *4.2 Developing Students' Questionable Instinct and Creativity*

Investigative study, is an open learning activity based on exploration. It focuses on developing students' creative mind and practice ability. During the study, students choose their interested questions, and freely express themselves based on their abilities, levels and ways. Teachers are no longer the teaching authorities, but the equal participators and cooperators with students in study. They respect the views and ideas of each student, encourage students to observe, try, explore and therefore form a study atmosphere of active participation and expression. It provides students a context condition of creating, continually stimulates their creative inspiration, and makes them quick-witted and unique. The creative thinking and creative potential is fully developed in the free and happy environment of researching and solving problems. It also steps from a creative mind and an active instinct of question, exploration, and knowledge seeking, and gains the ability of problems solving by knowledge in creative ways. Investigative study, is indeed the new carrier of forming and developing of collage students' creative learning and thinking.

##### *4.3 Training Collage Students' Good Cooperation Character and Communication Ability*

Similar with scientist researching organization, investigative study, is based on organization of team working. For the same study goal, team members shall understand, respect, trust, frequently communicate, help and support each other. They need to learn accepting other opinions, express their own opinions, and share researching information, originalities and results. Students shall build up an intimate relationship with harmonious and friend. Furthermore, study with group cooperation applies to every aspect of social relationships, such as communication and cooperation between groups, teachers, parents and public figures, and also use these kind social networking abilities to achieve success independently. According to the view of the characteristics of collage students' ability structures and the investigative study, as well as the effect of investigative study, to build up collage students' abilities, investigative study is the major way to develop collage students' abilities, especially creative abilities. In another words, the core goal of investigative study, in collages is to develop collage students' creative abilities.

##### *4.4 Stimulating the Overall Personality Developments*

Investigative study encourages students to make their own choices and active explorations, and put students' needs, motivations and interests at the core position. Thus, it makes spaces for their overall personality developments. Similar with scientific study organization, it lunches investigative study, with team working under the method and conditions of scientific likeness study that mostly applied by scientific researchers. Working through projects teams' active exploration, mute endeavor and gained results, students would gain the active

emotion of participation and exploration, and then develop the fact-based scientific attitude of regarding previous researchers' results, as well as volitional characters of problems solving and active exploration. It will sublimate the value of their self-affirmation and the pursuit of continuous development and self-improvement. Besides, working through the research of social-related projects, students deeply understand the value of science and nature, society and human development. They will take more care of the progress of country and society; concern the harmonious development between human and nature; improve the sense of mission and duty; and form a positive life attitude. Overall, investigative study, can not only change each student's study method, but also, with the change, stimulate the overall development of each student, and permeate a strong humanistic spirit

## 5. Research Learning Promotes the Development of Teachers and Students

In investigative study, learning contents of student are out of the range of classroom teaching, textbooks and teaching references. Teachers may not depend on textbooks and outline and also lose authority and monopoly for learning contents. Such a phenomenon will result in changing the student-teacher relationship. Teachers and students stand on the same starting line, the boundary between teachers and students tends to fade, teaching and learning change frequently, and teachers have no previous superiority complex. There is the equal relationship between teachers and students. In this way, such changes will make teachers really realize their insufficiency in knowledge ability and this challenges them from ideology, knowledge structure, knowledge level, manner of working and teaching method. Meanwhile, this is a god-given opportunity to further study and improve themselves. This is the necessary personality and quality of contemporary teachers. On the other hand, learning enthusiasm of students are fully mobilized by challenging problems, make unremitting endeavor for looking for optimal problem-solving and make progress in knowledge, ability, method and personality traits. This can promote comprehensive development of students.

## 6. Summary

Nowadays, the scientific knowledge is increasing sharply and the staling rate of knowledge is also increasingly higher. The current refresh cycle of knowledge is about one year, even shorter. No students can learn the whole knowledge necessary in his future professional career. Now the key for university students during their academic years is not only to grasp some key points of knowledge, but also to make selection, judgment and application to the learned knowledge, and learn to independently search for knowledge and make creation on this basis. In addition, it also focuses on the process of learning and independent ability of thinking, especially for training the creative ability of students. In the view of both characteristics of investigative learning and leaning process different from traditional learning, it is a good learning method to adequately play the role of potential for students. And it is also a learning method in information age which proposes and explores investigative learning of students and has a fundamental significance to the national reform of higher education and mutual development between teachers and students in colleges and universities.

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