

# Review on “Outline Signal Teaching Method”

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**Abstract:** “Outline signal teaching method” was put forward by a Russian scholar Viktor Shatalov Fedorovich (Шаталов Виктор Федорович). It was produced during the times when we were overcoming the negative influence of progressive education, putting emphasis on knowledge education, and alerting the drawbacks of “impartation of knowledge” in the former Soviet Union. The “outline signal teaching method” is to grasp the essence of teaching from the aspect of symbol, information and cognition, and to pay more attention to the harmonious development of students’ cognition, emotion, and the will. It pays attention to the energy and efficiency of classroom teaching, to the teacher's leading position, and to the “cooperation” among the teachers and students. It has rich connotation and value, and it is worth reviewing and reflecting. In today's popular xMOOC instructional design, it also has certain guiding significance.

**Key words:** Curriculum, Instruction, Outline signal teaching method

## 1. Introduction to Outline Signal Teaching Method

In V. F. Shatalov’s opinion, there are “outline signals” everywhere in the world, and every signal will cause “close association reaction” in the cerebral cortex. In order to effectively promote “close association reaction”, knowledge should be arranged into outlines during the teaching, and then will be presented to students in the form of appropriate symbols. These symbols are exactly “outline signals”, including letters, words, numbers, graphs and any other various symbols and marks, which can stimulate human senses and then be conveyed to the brain cortex. The “outline signals” embody ideas, namely, outlining, conciseness, information concentration and thinking equivalence. And “outline signal teaching method” is the teaching method where “outline knowledge” is shown and passed to students in the form of “signals”.

The making of “outline signals” is the key to “outline signal method”. Firstly, “outline signals” should be made of basic concepts, principles, facts and framework of disciplinary knowledge. Secondly, “outline signals” should be combinations of vivid symbols, which can easily cause attention and motivation, as well as cognitive tools, which are helpful for understanding and memorizing. Thirdly, “outline signals” include not only static information but also dynamic information, which should reflect the relationship between these disciplinary knowledge’s basic elements as well as their development dynamics.

“Outline signals” usually consist of several signals, or a word or two, or a graph, sometimes contents of two or three classes, even six or seven units in the textbook. It can use different colors, such as red, green and other colors to mark out the degree of importance of knowledge. Also “outline signals” can generally be divided into the following categories, namely, linear type, homophonic type, number type, table type, diagram type and comprehensive type. (1) Linear type, main contents and logic clues of the textbook are shown through lines, arrows and characters as plain as print so as to help students understand the

structure of knowledge and get to the point. (2) Homophonic type, homophonic signals are employed to help students memorize some rather abstract and scattered knowledge, and to change abstract memory into imagery memory, making boring and dull memory process interesting, relaxing and natural, which also makes the memory hard to forget. (3) Number type, main contents of the textbook are generalized and outlined by means of numbers or formula to facilitate the understanding and memorizing process of students. (4) Table type, main contents of the textbook are classified and sorted out in the form of table to make them systematic and methodized so that students can more easily understand and memorize learned knowledge. (5) Diagram type, main contents of the textbook are displayed through vivid and intuitive diagrams, which are so impressive and easy for students to understand and memorize. (6) Comprehensive type, this type of outline signals are composed of the above two or more types of outline signals. Whatever the type of the outline signal is, outline signals should have characteristics of outlining, conciseness, information concentration and thought correspondence.

“Outline signal teaching method” isn’t a method to simply present “outline signals”, but an organic teaching method system, which is coordinated with “outline signals”. As a whole set of teaching methodology system, it contains all the way from classroom teaching, home work checking, questioning, review to consolidation and result evaluation. It is proceeded as follows: firstly, teachers should explain the textbook in detail and clearly point out the connection between the knowledge points; secondly, teachers are required to show “outline signal” graphs to conduct the second explanation, where key points are highlighted, difficult points are analyzed, and the connection between each part is pointed out and generalized; thirdly, small “outline signal” graphs are given out to every student, who then stick them on his or her handbook for digestion, and meanwhile large graphs used in classes will be put on classroom walls so that students can often review and consolidate in the spare time or work out the questions after classes; fourthly, students are asked to review after class according to the textbook and “outline signal” graphs; fifthly, students are requested to draw “outline signal” graphs of the last class from memory in their own exercise books during the next class; sixthly, students are demanded to answer questions in accordance with graphs in the class; lastly, students shall finish the exercises in the exercise sheets compiled by teachers, and then the test results will be registered in the result list every time and corresponding marks will be made in the exercise sheets and the textbook are checked by the counselor after the exercises.

V. F. Shatalov also put forward several principles which must be followed in “outline signal teaching method”. Principles include integrity of acquisition of theoretical knowledge, repetitive training on knowledge learning, coordinative development of reproductive thinking and creative thinking, the combination of external control and self-control in learning activities, and so on.

Clearly, “outline signal method” is a complete teaching methodological system, which has clear ideas and thoughts as well as definite teaching goals, and both reasonable operating methods and steps and scientific principles to be followed. Especially, it is easy to be acquired by teachers, facilitates the teaching practice and greatly promotes teaching efficiency.

## **2. Values of Outline Signals**

As quoted from V. F. Shatalov, the main task of school education is, in any case, to

“impart knowledge”. To clarify, it’s imparting outline knowledge. In fact, “outline knowledge” is both abstract and concrete, since knowledge shall be outlined theoretically and materialized in reality. Also disciplinary basic knowledge and structure shall be paid attention to in teaching practice. From the perspective of V. F. Shatalov, children’s cognitive principles and laws are the basis of teaching activities, where children’s attention, memory, thought, imagination, creativity and other thinking qualities and properties shall be fully taken into consideration. In addition, teaching is the central activity of school education. He attaches much importance to the purposiveness of teaching activities and the value and significance of scientific and standardized teaching activities. In general, V. F. Shatalov stresses the scientific nature of “cognitive activities”, rationality of “knowledge imparting” and effectiveness of “teaching process”.

V. F. Shatalov believes that the significance of “outline signal teaching method” mainly lies in “outline signals”, which can be reflected in the whole process of teaching and learning. Firstly, “outline signals” are the “scaffold” for understanding and mastering knowledge. As indicated in Ausubel’s “meaningful learning theory” and Vygotsky’s “zone of proximal development”, the prerequisite of understanding new knowledge is to establish meaning connections between new knowledge and old knowledge that is firmly mastered, and between existing concept in students’ brain and specific realities, and to build logic and causal connections between each part of knowledge. Undoubtedly, “outline signals” connect students’ existing knowledge and new knowledge to be learned, and become the supporting point and scaffold to master new knowledge. Secondly, “outline signals” are both knowledge storage and memory prompter. They make use of key words, numbers, symbols, pictures, colors and other elements to draw out teaching contents and important points by means of vivid graphs. Knowledge contents are sorted out and processed through such composition, which not only deepens the understanding and memorizing of acquired information, but also enriches knowledge structure. “Outline signals” are helpful for students because it help to get rid of cloaking details, and highlight teaching key points and difficult points so as to make them clear at a glance and come straight to the point. Knowledge stored in this way will also be more flexible and convenient to recall and utilize. Thirdly, “outline signals” are boosters of association thinking and imagination. And textbook contents are a generalized condensation, so when students are explaining them, outline signals are also elaborating them. The process of condensation and elaboration is full of association and divergent thoughts, which expands students’ imagination and develops their creative thinking and aesthetic understanding. The more intuitive and vivid “outline signals” are, the better they can stimulate divergent and creative thinking. Fourthly, “outline signals” are the trigger of attention and motivation. They magically combine thoughts and images with language, which has “aesthetic” values and great “charm” hidden inside to stimulate students’ curiosity and to cause and intensify their attention, which will strengthen their motivation and interest to continue studying. Through permanent attention and motivation formed by “aesthetic values”, some thought factors in students’ spiritual world, such as representation and logic, image and abstraction, concepts and principles, converge together and overlap with each other. Meanwhile, “brain storming” is caused under teachers’ instruction, and finally cognitive resonance and shock come into being. Fifthly, “outline signals” can become a tool to adjust students’ meta-cognitive strategy. They can give a feedback of students’ own cognitive structures in a clear, concise and

condensed way, can reflect students' understanding of concepts, principles and factual knowledge, and can display students' active thought activities, so that students can easily use "outline signals" to evaluate, rethink and adjust their own learning. Therefore, their ability of evaluation, rethinking and self-adjusting will be promoted as well.

### **3. Reflection and Evaluation on Outline Signal Teaching Method**

There is no doubt that "outline signal method" is related to the educational trend of structuralism in light of their times and natures. In the 1960s, structuralism had a wide impact on education field, while "outline signal teaching method" came into being in that era when structuralism was popular. It was in the 1950s that Gibson focused on the relationship between structuralism and education in his *structuralism and Education*. Clearly, the achievements in the 1950s and 1960s, such as Tyler's curriculum development principles, Schwab's "Practice 4", and Bloom's taxonomy of teaching objectives, were obtained under the influence of structuralism. Affected by Piaget, Bruner began to specialize in the research of cognitive structure and discipline of curriculum structure, and launched a huge and far-reaching structuralism curriculum reform movement in the 1960s. Bruner argued that whatever discipline we taught, we must make students understand the basic structure of the discipline. So-called basic structure of the discipline means basic principles, basic axioms and universal themes. Obviously, "outline signal method" firstly reflects the fact that these educational thoughts of structuralism are deeply engraved with the features of that era, which makes it the object of criticism in postmodern thoughts. However, "outline signal teaching method" have its value and contribution.

#### **(1) Understanding of Teaching Essential Issues**

"Outline signal teaching method" clarifies the relationship between knowledge, information and knowledge representation, and reveals the deep essence of teaching activities.

"Outline signals" uncover the fact that generally recognized knowledge isn't knowledge but information carrier and knowledge representation. For example, books aren't knowledge, and maps aren't knowledge either but marks and symbols of knowledge. When these representations, marks and symbols stimulate learners' senses, they will become information, which will be changed into knowledge after the subject's interpretation, understanding and recording. And thus knowledge isn't objective existence but individual existence.

"Outline signal teaching method" indicates that we can only operate these representations, marks and symbols rather than knowledge or information in teaching activities. Teaching is an activity of information passing, while learning is an activity of knowledge construction. Therefore, teaching is essentially an activity of symbol displaying and symbol understanding.

"Outline signal method" positions teaching as the display and passing of "outline signals". It scientifically distinguishes the relations between information, symbols and knowledge in the teaching process, and actually explains teaching issues from the bottom of human consciousness activity. Basically speaking, teaching is collision and fusion of cognition, resonance and shock of emotions as well as dialogue and communication between thoughts.

"Outline signal teaching method" shows that imaginary thought is more important than

abstract thought in human thinking activities. Therefore, “outline signal teaching method” employs rich graphs, images, colors, symbols, and lines to make abstract information vivid and tacit knowledge external, which actually emphasizes visualization of knowledge and greatly improves cognitive effects and learning efficiency.

In accordance with the principle that cognition is the structuring of information, “outline signal teaching method” emphasizes the structuralism of knowledge, the transferring law of knowledge, and the assimilation and mediation between external information structure and schema structure in human brains in teaching activities.

If so, teaching methods that have been criticized, such as “knowledge indoctrinating teaching”, “cramming teaching” and “injection teaching”, need to be reviewed, because knowledge is not a material, and can’t be passed on. Knowledge is individual and constructed by individuals.

## **(2) Practical Probe into Teaching**

Here practical concepts are used to clarify and explain students’ subjective participation in teaching activities. We have arrived at the consensus that activities and practice are ways and methods for humans to know the objective world, and source of knowing the outside world. Only through creativity and practice can humans grasp the essence of things and the inherent law of the things’ development. It can be seen that practice is very important for cognitive activities.

On the premise of such understanding, “outline signal teaching method” emphasizes practical teachings and students’ active participation and activities as well. Unlike our common understanding, “outline signal teaching method” stresses practice of thought and psychological activities rather than practice and operating activities in reality. It attaches importance to simulative similar operations, symbolic interest operations and languages’ abstract operations. Humans have higher neutrality, signal operation ability, abstract reasoning ability, and the ability to obtain indirect experiences, and they don’t have to participate in the real situation and practice of all things or learn everything by doing.

“Outline signal teaching method” emphasizes systematic and structural knowledge, realizes the internalization of the abstract external knowledge through graphic signal operations, and focuses on promoting the development of students’ rational thought. However, “outline signal teaching method” also stresses the value of aesthetic pleasure and improving rational development in an aesthetic way. It is not only knowledge storage but also a booster of imagination and association and a trigger of attention and motivation. “Outline signals” magically combine thoughts and image with language, which has hidden aesthetic values and great charm, so as to stimulate students’ curiosity, cause and intensify attention, and enhance their motivation and interest for further studying. Long-term attention and motivation formed by aesthetics bring forth thought qualities in students’ spiritual world, such as representation and logic, image and abstraction, concept and principle, and so on, converging together and overlapping with each other, which causes brain storm, produces emotional resonance and cognitive shock, and realizes the harmonious development of cognition, emotion and the will.

According to “outline signal teaching method”, teaching activities are activities in the consciousness and psychological level, which are both rich and active. If so, is the view that traditional teaching method that we often criticize does not attach great importance to

students' initiative and put students in a passive position reasonable? Is stressing behavioral "collaboration", "dialogue", and "interaction" scientific? Certainly, behavioral performances reflect psychological activities. But will it be enough to explain and illustrate psychological and consciousness activities? From which level should the practicality of teaching activities be grasped? Is consciousness level or behavioral level?

### **(3) Understanding of Learner-centered Education**

Learner-centered education has gradually become people's consensus. Teaching should be centered on students, and conducted for all students and for everything of students. Then, how should we understand and realize learner-centered education?

"Outline signal teaching method" fully respects students' personality, creativity, initiative and self-regulation, and regards students as the subject of teaching activities. It creates conditions in different steps and sides of teaching methods to make students become the subject of learning and development. When it comes to classroom teaching, homework after class, spare time, students' cognitive development and emotional nurture, students are put in the subjective position and all teaching activities are carried out centering on the theme of students' development. The teacher-student relationship is bound by knowledge impartation and knowledge learning, and teachers care about each phase of students' growth and development, so as to establish a harmonious teacher-student relationship where students respect teachers and teachers care for students. In one word, "outline signal teaching method" is implemented centering on students.

The practice of "outline signal teaching method" has proven that "learner-centered education" is the issue concerning idea and method. And teachers' authority and control, dignity and status are just issues of social rules and ethics, and share no direct relation to "learner-centered education". As "outline signal teaching method" sees teaching issues as conscious issues, learner-centered issues can be more regarded as issues concerning ideas. "Learner-centered education" is that teachers care about each phase of students' growth and development, and they responsibly cultivate student, and care for students. It's not equal status and rights between teachers and students, respects students' subjective position then amount to letting go.

Evidently, "outline signal method" differs greatly from today's popular constructive and postmodernism teaching ideas and methods. In short, the constructive and postmodern educational theories mainly start with the inter-subjectivity value, choose hermeneutics and reception aesthetics as teaching theoretical basis, emphasize "living world", regard individual's "direct experience accumulation" as the main goal, understand and grasp teaching process from the perspective of "text", stresses teachers' role as "facilitators" and "collaborators", and more importantly, often denies traditional classroom teaching methods or the significance and value of teaching method of lecture. "Outline signal method" hereto reveals that teaching is a purposive activity and that purposefulness is the defining characteristic of teaching; while teaching isn't natural "living world" and its important indicator is effectiveness. From students' cognitive perspective, knowledge is always constructed rather than injected, and learning is a higher psychological function activity. In deliver type teaching, teachers don't deliver knowledge but present symbols and help students construct knowledge. Teaching is the main route to facilitate students' harmonious

development of cognition, emotion and the will. As for cooperative relationship between teachers and students, teachers should have the authority to manage students and shouldn't let teaching activities drift.

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