Comprehensive Learning Interactive and Group Activities as New Ways of Learning

Toshio Okamoto

The Graduate School of Information Systems, University of Electronics and Communications
okamoto@ai.is.uec.ac.jp

1. Responsible Assignment study as group project for Learning

At first, it is basic to memorize/understand technical knowledge/concept related to Information Technology and acquire fundamental skills of IT, but still more basic and important objective is to foster children/s/students’ active study attitude with which they cope with assignment study with interest and curiosity to solve as group project.

The main purpose of “Assignment study” is to make students think actively the given assignment-appropriate assignment related to subjects crossing various fields and daily events-through long period. They set, seek and solve a problem, which draws their curiosity and interest, with information techniques so that they naturally increase their problem solving ability and creativity, and eventually master the thinking of information science and problem solving methods. As this responsible assignment study aims at the students active thinking, it is desirable to go through the following steps.

(1) Finding and setting a problem.
(2) Giving the problem a good thinking(awareness/consciousness).
(3) Drawing a strategy/tactic to solve the problem.
(4) Formalization (modeling).
(5) Corresponding the problem with an actual event.
(6) Processing and handling.
(7) Analysis, testing and verification.
(8) Judgement
(9) Summarizing and report/presentation.

Going through each step actively, students are expected to increase their study activity in which they cope with a problem and do a final report with their own responsibility. Also, it is expected that through these activities they put on the information science viewpoint, thinking, research ability and skills based on information science.

Presentation is no less important as it shows the level of skill with which students summarize what they have been doing with their assignment study. Presentation can be graded by the contents, manner/form, attitudes of the presentation, etc.

In this assignment study, it is required to increase such skills and attitudes of students as follows. The presentation which shows the result of the assignment study appropriately is included naturally.

- the skill to analyze the problem and to build a system to achieve the goal.
- the skill to build/implement a system appropriate to a given specification.
- the skill and attitude to evaluate one’s own system or others’ objectively.
- the skill to describe what should be reported with correctness.
- the attitude to probe the problem and to manage to solve it.

It is highly required to build such information science research skills based upon the above points of view. As stated above, there are various opinions from various standpoints about how IT-education should be and what should be basic views. However, we live in a society where we have more chance than ever in our history to face varieties of technology due to the information technology growing so much in our everyday life. Also, the advancement of IT-education is a worldwide trend so much that we should acknowledge the utmost importance of this trend to give the future generation
the power to survive in this information society internationally. And to do our best to make it is an important stepping stone.

2. Comprehensive Study

Varieties of knowledge will be taking a form of multimedia in a highly technological, network society. And this knowledge can be obtained through so-called VOD(Video On Demand). Moreover, wide varieties of educational applications and teaching systems will be provided. The problem, however, is that we need ability to grasp the essence of that knowledge. Also this knowledge should not be enclosed just in a human understanding of the existent world. An ability to create a new knowledge out of that understanding is sought now. The knowledge in a closed text book will be transferred to this real world. It is important to form a live knowledge. To make science and technology attractive to the youth needs a synthesizing pipe, that is, a systematic resource to totally canalize scientific minded to that new knowledge.

This view is reflected in the revolution of educational curriculum in countries like Britain, the United States, Canada, Australia, New Zealand, etc. In this Post-Modern age, our new learning viewpoint is as follows.

(1) Group modeling and collaboration for social activities.
(2) Exploration-minded experimental learning.
(3) Learning (urged) by asking, explaining and teaching to make a new insight.
(4) Interactive diagnosis and open learning model.

These points had better be integrated in IT-education. Also, it is assumed that there are well-structured world (the world inside a text book) and ill-structured world (the world outside a text book). The important thing here is learning outside a text book, that is learning without any assumption, and learning (modal logic of thinking) with no guarantee of linearity (ever changing with time and environmental element) in a self-fixed assumption. A curriculum which synthesizes knowledge to do scientific cogitation and knowledge to explore the unknown is needed. The place and resource to grow and teach this kind of knowledge is a crucial point for us. “How”, “Why”, and “What”, the soliloquy, the self pursuing, and the self explaining learning give an opportunity to present scientific cogitation. It is significant to create such a new, comprehensive and information science subject on the threshold of the twenty first century.

To summarize the thinking view for the comprehensive subject;

(1) topic oriented structure: contents are synthesized according to topics. Many topics are organized systematically, and make comprehensive contents as new learning ways.
(2) scenario oriented structure: making scenario-like contents, and offering well balanced unit subjects.
(3) minimum essentials: extracting minimum, essential unit subjects as “informatics for all” and making comprehensive subject together with other common subjects.
(4) comprehensive subject based on existential subjects: integrated subject, making comprehensive section taking units as thought necessary from other subjects such as math, science and so on.

These are views to make comprehensive subject. Therefore, it is hard to say what is best. Information technology, however, is a familiar matter so that it should be something attractive to children' students’ mind. It should not be something which sounds fictitious.

Fig.1 shows the Knowledge Mining oriented Learning Model as New Ways of Learning.