

**Development and Evaluation of Cooperative Education  
Programs in the Developmental Stage  
~Our New Evaluating Approach for a Challenging Higher Education~  
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**Abstract** — We developed "*co-op practice (work integrated learning)*" in 2005. In this practicum, teams made up of a mix of graduates and undergraduates are given projects developed by various companies. The teams have to solve the problem in six months and its long-term programs. The practicum enables the graduates to take a leadership role in project management and contributes to their area of specialization.

At this year's conference, we will present our new evaluation approach about the development of participating students in "*co-op practice*" which we have administered for 4 years.

In January 2008, we conducted a *three-way evaluation* of fifty-eight students who had completed the entire co-op practice course: (1) self-review evaluation by students, (2) mutual evaluation in student teams, and (3) objective evaluation by an academic advisor.

Interesting observations were made on the difference of the evaluation patterns between the students and their leader. The "*virtuous cycle team*" shows the highest scores in the three evaluation indicators in the leadership category while understanding of challenges and discovery of issues are also highly evaluated. The "*virtuous cycle team*" member's evaluation showed that their leader exhibited excellent leadership qualities in "Management", "Unification" and "Consideration" for their team. On the contrary the "*vicious cycle team*" members said that they did

not observe similar kinds of leadership behavior stating that the leader only developed his own capability (i.e. application of academic knowledge).

**Key Words** : *co-op practice, work integrated learning, three- way evaluation, virtuous cycle team, vicious cycle team.*

### **I . Cooperative education at Ritsumeikan University (RU)**

We developed "co-op practice (work integrated learning) "in 2005. In this practicum, teams made up of a mix of graduates and undergraduates are given projects developed by various companies. The teams have to solve the problem in six month and its long-term programs. Physically the students do not actually go to the company. Students only contact the company when necessary. As a result the work effort on the part of the company is significantly reduced. The practicum enables the graduates to take a leadership role in project management and contributes to their area of specialization.

In 2007 eight prominent companies in Kyoto, Shiga, and Kobe, *namely*, Kyocera, the Hotel Nikko Princess Kyotok, Kyoto Shimbun, Kyoto Chuo Credit Association, Heiwado Supermarket, Shiga Bank, and ISHIDA and Kobe Shimbun. This brings the total number of companies to eight and the number of teams to twelve. There are four main features to the practicum in "co-op practice"

1) *Internship based on Work Integrated Learning.* Internships should equip students with the practical skills necessary to resolve issues and problems in the workplace, thus developing their sense of social responsibility and enabling them to become more capable individuals by strengthening their self-reliance and motivation to improve. In contrast with internships that place emphasis on experience, the purpose of the practicum is to (a) validate students' area of study and to improve their applied skills, and (b) to improve their self-directed studying skills and motivation for learning.

2) *Project-Based Learning with Mixed Teams of both Graduate and Undergraduate Students.* To achieve the above mentioned purpose, each team consists of one

graduate and four undergraduate students who are drawn from different faculties. The graduate student (a) examines the project from the perspective of their area of specialization and (b) guides and instructs the undergraduates, and in so doing, broadens their own leadership skills. The undergraduates are expected to interact with their fellow project members and learn other methods and approaches from different faculties and improve their social skill through discussion with undergraduates from other fields of study.

3) *The Teacher's Role as a Pacemaker*. In this practicum of work-integrated learning, we offers weekly on-campus workshops for each team, however there is little tangible faculty input at these meetings. This is to help encourage the students to develop their own motivation for learning. Project based learning is a method based on problem identification and issue solving, and the practicum in work-integrated learning can be considered to be an exercise in PBL. However, most of the times these programs are actually regular curricula course in which an instructor from the faculty provides full support in solving a specific problem in a specialized field of study. Thus, strictly speaking, these programs are not really internships because there is little of autonomous study activities and work.

4) *Assessment of Educational Effects of Cooperative Education Programs*. The university's internship programs should be part of an academic curriculum that promotes students growth, development, and learning. Through their work experience, internship programs should provide students with an awareness of the societal value of their education as well as the social demands placed on their education. It is crucial for us to evaluate effects of "co-op practice programs" The university evaluation criterion requires students to be from a specified discipline in their university. Taxonomy is widely used to specify an educational target. Taxonomy is divided into three areas "cognitive domain ", "affective domain ", and "psychomotor domain ".

We conducted a three-way evaluation of students who had completed the entire co-op practice course for half a year: self-review evaluation by students, mutual evaluation in student teams, and objective evaluation by an academic advisor.

## **II. Three-way Evaluation in the Co-op Practice**

In January 2008, we conducted a three-way evaluation of fifty-eight students who had completed the entire co-op practice course: (1) self-review evaluation by students, (2) mutual evaluation in student teams, and (3) objective evaluation by an academic advisor. We set twelve common evaluation indicators that apply to all the three evaluation processes: enhancement of basic academic performance (evaluation indicator 1, hereunder only numbers will be shown), acquisition of knowledge (2), application of academic knowledge (3), contribution to results (4), involvement in team activities (5), collection and practical use of information (6), understanding challenges (7), discovery of issues (8), solving issues (9), developing observation skills (10), broadening perspective (11), and achieving self-sufficiency (12). Among these 12 indicators, (1) through (3) are categorized in the application of academic knowledge, (4) to (6) in the team activities, (7) to (9) in the ability to discover and solve issues, and (10) to (12) in values. In the concept of the taxonomy of educational objectives, (1) through (9) belong to the cognitive and psychomotor domains and (10) to (12) belong to the affective domain.

As a clue to analyze the active status of team activities, we added the leadership category that consists of three evaluation indicators: team operation (13), team management (14), and attention to members (15). We used these fifteen evaluation indicators for this study.

## **III. Factors that Help Create Teams Involved in Virtuous or Vicious Cycle According to Leader Evaluation (Hypothesis)**

For the co-op practice in 2007, five teams were formed at the Kinugasa Campus in Kyoto city and seven at the Biwako Kusatsu Campus (BKC) in Kusatsu city, located in southern Shiga. Among the teams, two of them at BKC (hereunder referred to as A and B) both had leaders that were first year master's students in science and engineering. These two leaders belong to the same laboratory. They both are engineer-minded students with outstanding academic performance, and are honest and diligent in nature. The teams also had much in common in terms of

undergraduate members. Both teams consisted of students from various academic fields. They were very similar in that both had a combination of scholastic and active students. However, there was contrast exhibited in the learning activities of the two teams. Team A was disorganized throughout the course of the co-op practice, and the learning activities were interrupted for a short time. On the other hand, we could see sound teamwork and conformity in Team B from the beginning. Contrary to Team A, Team B was vigorously involved in the learning activities throughout the course, and the company staff that it cooperated with evaluated the team highly for its presentation of the result report.

Regarding the reasons why those two teams took such contrasting processes in spite of the common features drew interesting results taken from the reciprocal evaluation of leaders in the teams. The analysis below is given considering Team A as a team with a vicious cycle and Team B as that with a virtuous cycle.

Figure 1 compares the evaluation of leaders by members (undergraduate students) between Team A and B. The virtuous cycle team is characterized by the form that expands towards the upper left and the lower right. The vicious cycle team has the form that shrinks towards the center and slightly expands to the upper right. We examined the figure based on the evaluation indicators. The virtuous cycle team shows the highest scores in the three evaluation indicators in the leadership category (13 to 15) while understanding of challenges (7) and discovery of issues (8) are also highly evaluated.

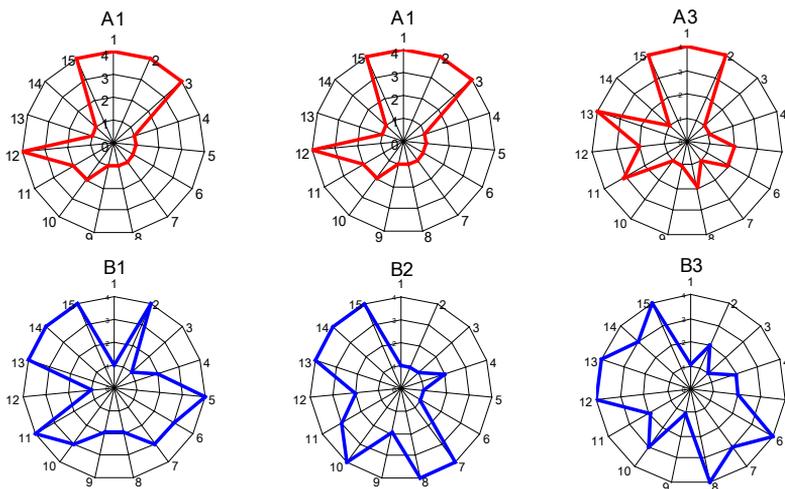
#### **IV. Conclusion**

In total, we can say that the kinds of behavior that the leader provided to support the virtuous cycle team, based on members' evaluation, are (1) to promote understanding on issues at the beginning stage of the team, (2) to provide leadership during the course of the co-op practice, and (3) to drive team activities in a broad sense such as acquiring knowledge and collecting information. In the vicious cycle team, on the other hand, members considered that they did not see these kinds of leader behavior whereas they also negatively evaluated that only the

leader developed his own capability (application of academic knowledge).

These results indicated that a certain degree of support by an academic advisor was required so that the operation of teams became smooth and so that leaders could gain the trust of members at an early stage. It was also realized that motivating members was an essential factor in team operation.

Future challenges would entail further improvement and development of the method and effective measurement/evaluation of the co-op education, which would also lead to the clarification of the role of the internship in society.



**Figure 1: Evaluation of Leaders by Members (undergraduate students) between Team A (vicious cycle) and Team B (virtuous cycle)**

## V. References

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