

Problem Solving Strategies in Action in the Curriculum Development for Basic Academic Skills  
 An ICT Enhanced Course for Better Communication

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*Abstract*—This paper is to share our experience of designing a new course to meet the new needs of the current society. The first is on the curriculum development for communication for the higher education. The mission of the higher education is to provide the optimal education matching the needs of the society with students who will be the future members of the society. It should be noted that the needs of the society is constantly changing. Thus, in order not to lose sight of the needs from the society, in other words, the focus of the mission of education corresponding to new needs, the mission of the higher education must be constantly adjusted. Recently it has been revealed that most university graduates, in three years after graduation, feel the needs for such fundamental skills as the problem solving (situation analysis, data collection and processing, agreement formation, etc.) as well as the teamwork and communication to build trust in a team, leadership. It is attempted to incorporate such features into the curriculum development for communication.

The second is to report the two types of problem solving strategies in the curriculum development for the fundamental academic skills: one for the improvement of the quality of course contents to meet the needs for better communication skills; the other for implementing such methodological improvement into the traditional course operation and management system in support of the cutting-edge media technology.

Thus, this paper purports to share the experience of designing a new course for communication to build long-lasting trust through the process of problem solving in the curriculum design.

**Keywords-component; problem solving; curriculum development; curriculum design, fundamental academic skills; agreement formation; critical thinking; communication skills; trust building; media technology; SNS**

I. INTRODUCTION

It has been a hot issue in the higher education in Japan how to implement the fundamental academic skills into the curriculum. The fundamental academic skills generally consist of the skills necessary to do well in an educational setting as well as in a social situation after graduation. As shown in Figure I, they include basic skills to acquire necessary information, then to process it while synthesizing the prior learning experiences and knowledge, and to present the results in communication.



Figure I. Basic Academic Skills <sup>a</sup>

[http://www.meti.go.jp/policy/kisoryoku/kisoryoku\\_image.pdf](http://www.meti.go.jp/policy/kisoryoku/kisoryoku_image.pdf)

II. FUNDAMENTAL ACADEMIC SKILLS

A. Definition

The fundamental academic skills generally include proactive action with stick-to-itiveness, thinking skills

such as problem-identifying/solving, planning a project taking possible risks in mind, as well as creativity, information processing skills (information gathering, sorting, prioritizing, logical thinking, meta-cognition) and cooperative communication skills in order to work in a team and to comply to the rules and conditions.

#### *B. Debate for Logical Thinking*

The universities have incorporated in the curriculum the various fundamental academic courses to foster all components of the fundamental academic skills. For example, Kansai University has in the curriculum the fundamental study skills courses including problem-identifying, problem-solving, note-taking, report writing, presentation, computer literacy, and debate. Debate is placed as one of the most advanced courses in the fundamental study skills courses, which incorporates the logical thinking and meta-cognition skills. However, the debate course does not offer anything to build trust and good relation between students. Further, it has been found that emotion was not in any part of the communication in the debate. Rather, it is considered as virtue to hide emotion while debate is in progress.

#### *C. A New Approach and the Identified Problem*

In order to remedy the lack of emotion in the debate course, it is proposed in this paper that a new course that incorporates communication and emotion or empathy be incorporated in the curriculum to enhance the series of courses for the fundamental academic skills.

In the course of such incorporation, trust building through communication is fostered through negotiation seminar and exercises in groups. But this type of communication requires strategies to combine lectures, seminars, exercises, and reflection both at the group level and at the individual level. Thus, it requires at least three hours in a session. It does not fit into the regular course schedule. The regular course consists of a 90-minute class per week ranging over 15 weeks in a semester. Thus, it follows that the two problems are identified and summarized in the following section.

### III. TWO PROBLEMS

The raised problems in a new course design are summarized in this section.

#### *A. Debate and beyond . . .*

The issue is how to implement trust building through communication as a course establishing from

the traditional formats such as lectures, seminars, exercises, experiments, and recitation. Debate was the utmost academic skill in which emotion or empathy was out of the range of such domain.

#### *B. Traditional time-frame*

In order to generate maximum learning outcome, minimum of three hours is required per session. That is, the traditional time frame for the courses does not work. The issue here is how to stretch a three-hour session ranging over two weeks (a ninety-minute-long class in a week times two) while keeping students' retention and attention, not to mention, motivation.

A proposed optimal solution for each raised problem is given in the following two sections respectively.

### IV. DEBATE AND BEYOND . . .

It was observed that chances for the students to have debate in the daily life are less than chances for them to communicate with others in order to maintain good relation. In other words, people communicate daily to have or maintain good relationship. Furthermore, the difficulty of having debate in a course is that the emotional aspect of communication is ignored, which fundamentally constitute the foundation of the basic communication in the society. A question that naturally arises at this point is how to educate such basic communication skill as one of the fundamental academic skills. Finding an optimal solution for this is considered as our first problem.

After researching methodologies for communication, it was found that Dr. Roger Fisher at Harvard University developed a methodology for better communication with emotion incorporated in order to solve international conflicts. Afterwards, his methodology was applied to the business negotiation and has been taught at law schools as well as business schools in the U.S.

Dr. Roger Fisher's methodology has been considered as the methodology for building a long-term good relation between people.

For ease of exposition, the basic idea of Dr. Roger Fisher's methodology is summarized below. The main goal of the methodology is generally called negotiation to lead to say yes. In short, it is called the negotiation.

The negotiation requires prior preparation to set a mission, which is the optimal goal to be aimed at, in this case, for maintaining a long-term good relationship, [1].

In order to accomplish such mission, some preparation is needed. Since it is not usually possible to achieve the 100% of the mission through negotiation, a zone of possible agreement is set to limit the range between the maximum and the minimum goals prior to the actual negotiation. This zone of goals is called ZOPA, [2]. Furthermore, if all the options for possible agreements prepared for the ZOPA fail, the best alternative to the ZOPA, called BATNA, is further planned, as shown in Figure II, [3] & [4].



Figure II. The Framework for Negotiation <sup>b</sup>

<sup>b</sup> From: J. Tamura, et. al. (2010). “Visual Explanation: An Introduction to Negotiation”, Nihon Keizai Shinbun.

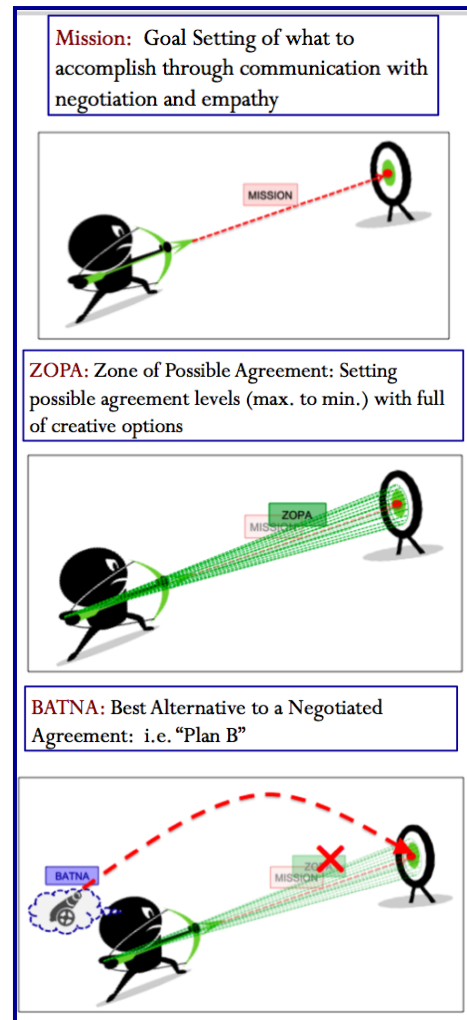


Figure III. Mission, ZOPA, and BATNA

The negotiation skills described above in Figure II & III demonstrate the skills for gathering information for a certain topic and then making a decision based on the information. By understanding the common framework of negotiation consisting of the mission, ZOPA, and BATNA, and by conforming to them, is it possible to demonstrate the logical thinking skill, the critical thinking skill, as well as the skill to conform to the rules and conditions, [3]. Further, by exercising the framework of negotiation, students can develop their communication skills to elicit information necessary for the negotiation as well as the arrangement skill for conducting the negotiation, [4]. This can be only possible with the mission aiming at a long-term good relationship.

Having the basic concepts of negotiation, the negotiation methodology has been developed incorporating a case study and a role-play simulation.

Table I demonstrate the time allocation for one session of three hours. Figure IV shows the slides for the information for a case study and the instruction for exercises.

TABLE I. ONE SESSION FOR NEGOTIATION

0~20 min.	Explanation of the Negotiation Exercise The class is split into two groups.
20~50 min.	Reading the case synopsis common to both groups and synopses for their own groups
50~90 min.	Within group discussion: prep session Setting the mission, the ZOPA, and the BATNA.
90~120 min.	One-to-one peer negotiation session
120~150 min.	Reflection session in peers
150~180 min.	Feedback & Conclusion

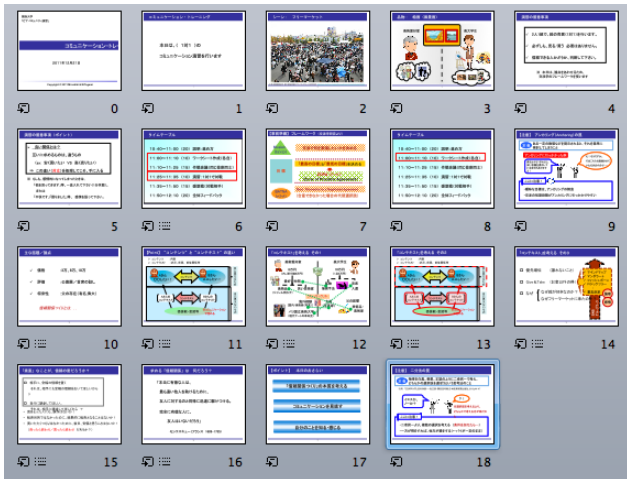


Figure IV. The basic structure of one session

## V. TRADITIONAL IN-CLASS CONTACT HOURS

In order to generate the maximum learning outcome for the designed negotiation course, it requires three hours in a session. However, the traditional time frame or contact hour for the course is 90-minute long, meeting only one a week. Thus, it requires two weeks of class contact hours in order to get hold of a session of three hours. Table II shows the schedule for the first and the second weeks. The problem is how to maintain students' motivation and

attention to be stretched to the class on the second week. In other words, the retention of the learning experience from the within group discussion will be lost on the second week if nothing is done by the students. By the time when the class resumes on the second week, the students need to review what they learned on the previous week. In other words, much time will end up being wasted to refresh what the students learned on the first week.

TABLE II. ONE SESSION RANGING OVER TWO WEEKS

[first week]	
0~20 min.	Explanation of the Negotiation Exercise The class is split into two groups.
20~50 min.	Reading the case synopsis common to both groups and synopses for their own groups
50~90 min.	Within group discussion: prep session Setting the mission, the ZOPA, and the BATNA.
[second week]	
0~30 min.	One-to-one peer negotiation session
30~60 min.	Reflection session in peers
60~90 min.	Feedback & Conclusion

Our proposed solution to this problem is as follows. After the within group discussion, the students are asked to post the minimum of five times to post their own strategic plans to the SNS designed for the class and to give comments to other members' posts. The two within groups have their own communities on the SNS and thus they do not have cross-membership to both within groups. The two within groups will not exchange their ideas on the SNS until the class on the second week.

Furthermore, it should be noted that due to the fact that over 80% of the students have their own smart phones on their own, the SNS can be accessible for 24/7 for most students, [5], [6].



Figure V. SNS Log-in Page

Although the discussion function of the e-Learning system on campus may serve the purpose, it is not as handy as the smart phone from the perspective of human interface since the students need a networked computer to log in to such system.

## VI. CONCLUSION

Two problems that were raised in the process of developing a new course have been elaborated. One was to incorporate the communication with emotion to maintain a good relation into the fundamental academic skills courses. And the other was to retain and to maintain the students' retention of the course contents till the following week so that the first half of the three-hour session be smoothly fed into the second half of the three-hour session without psychological interruption with the help of technology.

Although the SNS was employed in this study, the group as well as the event feature of the facebook may be made use of in the next academic year, due to a better interface design of the smart phone.

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