

Assessment Framework of the Case Method in Yogo Teacher Training and Factors Affecting Participants' Satisfaction

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The case method is designed to hone participants' decision-making and problem-solving capabilities through discussion using simulated cases as teaching materials. This study examines an assessment framework used for the case method in Yogo teacher training and the factors influencing trainee satisfaction. Subjects were 348 Yogo teachers who had attended training workshops held at seven sites. To examine the assessment framework and factors related to Yogo teachers' satisfaction, we conducted the case method with subsequent administration of self-descriptive questionnaires. Results show that the assessment framework included "participation attitude," "possibility of application," and "problem-solving thought." For Yogo teachers to gain a sense of satisfaction through use of the case method, it is important that they participate in discussion positively and that they have an environment in which knowledge can be of future practical use. Furthermore, to gain a sense of satisfaction, Yogo teachers must cultivate awareness of their own development through their participation.

Keywords: case method, evaluation, Yogo teacher

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1. Introduction

The case method was developed to hone participants' decision-making and problem-solving abilities through discussion based on simulated cases that engage the learner's own judgment and response. It is a hands-on, problem-solving education method by which participants must consider and formulate how they would behave in the position of one party involved in a case (Takagi & Takeuchi, 2001; Takagi & Takeuchi, 2006; Takemura, 2002).

Case examples used in the case method for participants' training are educational materials including various problems based on cases that practitioners or professionals frequently confront in practical situations. Using the case method, participants engage in discussion in accordance with the educational objectives of the facilitating

instructor, who presides over the lesson. The participants experience the process to discover problems and solutions. Through this process, they are not only trained to have more intensive discussion and judgment abilities but are also enlightened by other participants' various senses of value. The participants receive the benefits of taking part in the case method instruction many times and thereby increasing simulated experiences to be more ready for cases that they will confront. Additionally, the method stirs participants' interest more than a conventional lecture, increasing their understanding through concrete discussion, and fostering their ability to put their learned items to practical use (Okada & Takehana, 2009; Takagi & Takeuchi 2001; Takagi & Takeuchi, 2006; Takehana, Okada & Kamazuka, 2007b; Takemura, 2002).

The case method differs from traditional

instruction in terms of lecturing. The facilitator does not give knowledge or deliver a specific lecture, but instead acts as a discussion leader who uses “case examples” as educational materials (Takagi, 2001; Takehana, Okada & Kamazuka, 2007b). The case method was conducted originally at Harvard Law School in the early 20th century for management education at Harvard Business School. In Japan, the case method has been used for the training of professionals at the Foundation for Advanced Studies on International Development (FASID), Keio Business School, and Aoyama Business School. Both FASID and the Case Center Japan are offering cases and teaching notes for use with the case method. They are holding seminars instructing people in case writing and teaching methods (FASID, 2001a; FASID, 2001b). Currently, the case method is used in many fields including clinical medicine, community health, international healthcare, and nursing science, as well as law and business; its results are reported frequently in the relevant literature (Fukunaga, Ishii & Emoto et al., 2002; Ishii & Enomoto, 2001; Kinjyo, 2005; Yano, Yamauchi & Karita, 2003).

Nevertheless, the case method is uncommon in the educational field. Aside from the current study, only a few studies such as Ando’s “the case method in school” (Ando, 2009) and Maruyama’s application in educational ethics classes (Maruyama, Sakakoshi & Soyoda, 2005) are described in the literature.

In fact, a Yogo teacher must care for children with widely various health problems, and must sometimes address them on-site through trial-and-error. For those reasons, it is desirable to elevate their professional ability using various educational methods not only in training school but also using on-the-job training. Because workshops with role-playing and case investigative commissions are used in workshop. However, it is difficult to evaluate those effects.

The case method might be useful for Yogo teachers to acquire problem-solving and decision-making skills that are useful to cope with similar cases; such skills might also be useful to elevate their assessment abilities (Okada & Takehana, 2009; Takehana & Okada, 2007a; Takehana, Okada & Kamazuka 2007b). Usually, one or two Yogo teachers are allocated to each school. Therefore, they have few chances to debate with many people and express their own opinions about their work. The case method also presents the benefit that such Yogo teachers can have simulated problem-solving experiences as

an organization by discussion. Yogo teachers who have experienced this education can develop the case method with school staff and acquire this new education method as health-promotion leaders (Okada & Takehana, 2009).

Consequently, we produced various cases resembling situations that a Yogo teacher can expect to encounter during a typical career. We examined the contents and methods of the case method to develop decision-making and problem-solving abilities (Okada & Takehana, 2009; Takehana & Okada, 2007a; Takehana, Okada & Kamazuka, 2007b; Takehana, 2009). However, we do not assess participants’ achievement and satisfaction. Even in the fields of law and business, which have pioneered the case method, the assessment methods of its education including participants’ and lecturers’ assessment and the assessment of its educational effects remain undeveloped (Takeuchi, 2009).

The purpose of this study was to produce an assessment framework for Yogo teachers and to clarify factors that might influence their satisfaction.

2. Methods

2.1. Subjects and contents of the case method for Yogo teacher training

The case method for Yogo teacher training was conducted with our preparation of an abuse case, with instruction from 1.5 to 4.5 hours at seven site workshops for Yogo teachers from December 2008 to August 2009. The case is comprised three parts. An outline of the abuse case is shown in **Table 1**. Workshop participants were 416 people in total. Each workshop had 11–199 participants. The analyzed data were those of 348 (83.7% response rate) questionnaire forms that had been completed without any missing value. Tutors differed among workshops. One or more of five tutors took charge. Two or more tutors took charge when participants were about 50 and more (**Table 2**).

Two progressive patterns of the workshops on the case method emerged with an original abuse case. After participants’ self-learning about the case, the choice of whether to conduct a general discussion or to have a group discussion and a general discussion was made depending on the circumstances of each workshop. In terms of self-learning before the general discussion, participants received case materials before

Table 1 The outline of abuse case

Part 1 : Eri, a junior high school student, sometimes visited the school health room. She often said, “I have a headache.” or “I have a nausea.” to Ms. Suzuki, a Yogo teacher. One day when Ms. Suzuki gave her a clinical thermometer, she was very surprised.

Part 2: As Eri checked the temperature, Ms. Suzuki looked at two red lines around her neck. Ms. Suzuki asked her about the red lines. Eri then began to talk about abuse by her father. Ms. Suzuki became worried.

Part 3: A year later, Eri came back to school from a children’s home, but she could not get along well with classmates. Teachers did not mind her and find her troublesome.

The case was written by Yuko KAMAZUKA

Table 2 Outline of the workshops for Yogo teachers

Workshop name	Number of participants	Analyzed data	Number of tutor	Number of groups	Progress	Hour
S	199	177	5	5	Small group discussion (about 5 people in a group) → Group discussion (about 40 people in a group) → Sharing (all people)	2.5
M	80	46	4	4	Small group discussion (about 5 people in a group) → Group discussion (about 20 people in a group) → Sharing (all people)	4.5
B	22	20	1	0	Discussion (all people)	3
W	39	37	1	3	Small group discussion (about 5 people in a group) → Group discussion (about 15 people in a group) → Sharing (all people)	4
C1	31	30	1	0	Discussion (all people)	1.5
C2	34	28	1	0	Discussion (all people)	3
C3	11	10	1	0	Discussion (all people)	1.5
Total	416	348				

the discussion. They were given problems to solve and countermeasures to solve them.

In the discussion, a tutor played the role of facilitator. The tutor served as a mediator when the course of discussion deviated widely or when the point of discussion became confused. When asked a question by participants, they offered minimum amounts of additional information in advance. It is important how vigorously the case is discussed. Therefore, the role of a tutor who exerts an influence on the course of discussion is extremely important for the case method. Consequently, this time, members of our study group who were familiar with the case method assumed the roles of tutors.

After a tutor briefly explained the purpose and method, Yogo teachers began the case method, particularly addressing problems and any possible

countermeasures to solve them, in a free atmosphere.

2.2. Assessment method

For execution of the case method, we produced a rating form for participants to fill in immediately after the class ended. It included the following contents: “the satisfaction level of the case method” (5 levels), 12 items related to evaluation of the case method (about participants’ own participation attitudes and level of understanding, future application possibilities, and discussion leader) (5 levels), participants’ awareness that they have changed through their participation (change of awareness) (5 levels), and impressions or requests by free description. Meanwhile, in terms of evaluation, the simply tallied results, which had been reported, revealed that the

results are identical irrespective of group discussion or general discussion (Okada, Takehana & Isobe et al., 2010). Consequently, this time, we tallied and analyzed them en bloc.

The characteristics, “the satisfaction level of the case method,” and “change of awareness” were shown as ratios. With regard to “evaluation of the case method,” using explanatory factor analysis (principal factor method and promax rotation), they were examined as constructive concepts and scaled. The internal consistency of scaling was considered using Cronbach’s alpha. We conducted multiple regression analyses using “the satisfaction level of the case method” as a dependent variable and sub-scaling of “evaluation of the case method,” “change of awareness,” and “age” as independent variables. Data analysis were performed using statistical package SPSS 16.0 for Windows. Significance level was inferred for $p < 0.05$. The freely written descriptions obtained at four workshops were coded in such a form as to retain the original nuance as well as possible, categorizing them into sub-categories, categories, and core categories. As described in this

paper, the category, sub-category, and typical codes are expressed, respectively, in [], < >, and “ ”. To improve the trustworthiness and credibility, two researchers classified and confirmed the data.

2.3. Ethical considerations

We provided subjects with a verbal explanation of an outline of study, assured protection of privacy, and obtained their written or verbal consent before starting the case method instruction.

3. Results

3.1. Subjects

Table 3 shows that Yogo teachers who were in their forties and fifties accounted for about 60% of participants. In terms of their place of work, 60% of the Yogo teachers worked at an elementary school.

3.1.1. Satisfaction with the case method and change of awareness

Table 4 shows the level of satisfaction of participants who took part in the case method instruction. Participants who answered that they were “very satisfied” or “rather satisfied” accounted for more than 90% of the participants, suggesting that they were generally satisfied. Asked if they thought that they had changed after experiencing the case method, 85% answered yes. Many participants acknowledged their own change, giving free descriptions similar to those below: “I gained a broader perspective by listening to others’ opinions” and “I became aware of many things.” However, about 15% of them answered, “I do not know” or

Table 3 Attribution of Yogo teachers (n=348)

	Percentage (%)
Age	
20s	16.1
30s	20.7
40s	37.4
50s	25.9
Yogo teacher's working place	
Elementary school	60.1
Junior high school	34.2
High school	5.8

Table 4 “The satisfaction level of case method education,” and “change of awareness” by Yogo teachers

Question items	Response options	n	%
Check your satisfaction level of today's case method education.	Very satisfied	140	40.2
	Rather satisfied	195	56.0
	Yes and no	11	3.2
	Less satisfied	2	0.6
	Not satisfied at all	0	0.0
	Total	348	100.0
Do you feel some change in yourself before and after participating in case method education? (change of awareness)	Yes	295	84.8
	I don't know	47	13.5
	No	6	1.7
	Total	348	100.0

“no.” The following were freely described responses: “I cannot say anything about it because I experienced it only once” and “I was not able to take part in discussion.”

3.1.2. Factor structure about evaluation after the case method

To scale the 12 items of evaluation after participation in the case method, we conducted explanatory factor analysis (principal factor method and promax rotation). We determined the number of factors based on eigenvalues of more than 1.0. Items that had factor loading of 0.35 or more were considered in interpreting the factors. **Table 5** shows three factors. Judging from item contents, the first factor was named “participation attitude.” The second factor was named the “possibility of application.” The third factor was named “problem-solving thought.” Moderate correlation was shown

for each factor. Cronbach's alpha were .80, .82, and .52. Consequently, each total score of each factor is useful as a scale. The average scores and standard deviations of “participation attitude,” “possibility of application,” and “problem-solving thought” were 18.22 ± 3.59 , 12.26 ± 1.76 , and 7.71 ± 1.33 .

3.1.3. Factors affecting satisfaction with the case method

Multiple regression analysis was conducted with the dependent variable of “the satisfaction level of the case method” and with independent variables of sub-scaling of “evaluation of the case method,” “change of awareness” and “age.” Results show that the factors significantly affecting the satisfaction with the case method were “participation attitude,” “possibility of application,” and “change of awareness” ($\beta=.13$, $p=.018$, $\beta=.31$, $p=.001$ and $\beta=.22$, $p=.001$, (**Table 6**). In other words, participants who participated in

Table 5 Factor analysis about evaluation of case method education (promax rotation)

(n=348)

Items	Factors		
	Participation attitude	Possibility of application	Problem-solving thought
② Were you able to inform members of your thoughts or opinions well?	0.87	-0.08	0.02
① Were you able to participate in the workshop positively?	0.75	0.04	-0.01
③ Were you able to ask questions you wondered about?	0.74	0.002	-0.14
⑥ Were you able to put forward various countermeasures?	0.45	-0.11	0.35
⑫ Was your group an appropriate size for discussions?	0.43	0.19	-0.02
⑧ Did your discussions bring you some new awareness?	-0.03	0.84	0.02
⑨ Will you be able to apply the content of discussion to your future work?	0.17	0.72	-0.02
⑦ Did your discussion deepen your understanding?	-0.07	0.69	0.10
⑤ Were you able to look at the case from various standpoints?	-0.04	0.05	0.65
④ Did you try to make clear question extraction, question points, and problems?	0.16	0.11	0.36
⑪ Was the case described in a way that is easy to understand?	-0.05	0.15	0.26
⑩ Was sufficient discussion time allocated?	-0.10	0.20	0.21
Eigenvalue	3.97	1.76	1.05
Contribution(%)	33.06	14.65	8.74
Factor correlation matrix for rotated factors	Factor1	-	
	Factor2	0.34	-
	Factor3	0.56	0.45
α coefficient	0.80	0.82	0.52

Table 6 Multiple regression analysis of “The satisfaction level of case method education” (n=348)

multiple regression analysis ^{a)}				
	Non standardized coefficient (B)	Standard error	Standardized coefficient (β)	p value
Factors				
Participation attitude	0.02	0.01	0.13	0.02
Possibility of application	0.10	0.02	0.31	0.001
Problem-solving thought	0.05	0.02	0.10	0.05
Change of awareness	0.30	0.07	0.22	0.001
Age	-0.04	0.03	-0.07	0.14

a) Significance of the model by multiple regression analysis is $F_{(5,342)}=28.15$, $p<0.001$,

Adjusted $R^2=0.28$

discussion more, who felt possibilities of application were greater, and who felt themselves changed more reported higher satisfaction. The adjusted R^2 was .28. Therefore, these three variables explained 28% of the satisfaction level of the case method.

3.1.4. Feedback of participation in the case method

Table 7 shows the categorized free description related to feedback of participation in the case method. The categories are the following six items: [Awareness through discussion], [Difficulty of discussion], [Learning items with case examples], [Role of tutor], [Possibility of future application], and [Request]. That of [Awareness through discussion] is sub-categorized into five items. They indicate impressions about discussion and statements. In [Difficulty of discussion], they discovered that their statements cannot help but be similar and discovered the difficulty of statements. That of [Learning items with case examples] included sub-categories such as <Importance of assessment> and <Simulated experience>. They showed the purpose of the case method. In that of [Role of tutor], the importance of a tutor was described. The [Possibility of future application], <Expectation for future training> was shown. As [Request], time allocation and many peoples' participation were described.

4. Discussion

In terms of the usefulness of the case method, despite the publication of several related reports (Fukunaga et al., 2002; Kinjyo, 2005; Takagi & Takeuchi, 2006; Takagi, 2001; Takemura, 2002; Yano,

Yamauchi & Karita, 2003), objective evaluation figures have never been offered (Takeuchi, 2009). This study is important in that it yielded an evaluation framework of the case method, such as “participation attitude,” “possibility of application,” and “problem-solving thought” to assess usefulness. Although the adjusted R^2 was low, the possibility exists that the Yogo teachers' satisfaction rating is explained by the Yogo teachers' positive participation in discussion, the possibility of applying the case method, and the recognition that they could be changed by participation. These results show that future enhancement and development of the case method can be achieved by having tutors encourage Yogo teachers to take part in discussion and help them to use self-learning.

Evaluation items used this time were almost equivalent to the items related to discussion evaluation used by Minakami (2009), which is considered appropriate as an evaluation item of discussion. Meanwhile, as Table 5 shows, the “participation attitude” indicates whether a participant can take part in discussion or not; the “possibility of application” shows the case method including a new awareness. “Problem-solving thought” is to think of case examples from various standpoints or to try to clarify problems. They are items designated as purposes of the case method (Takagi, 2001; Takagi, 2006; Takemura, 2002). It might be said that the validity of the constructive concept was demonstrated by them.

Because free description also has categories similar to “participation attitude,” “possibility of application,” and “problem-solving thought,” the validity of

Table 7 Self description categories about impressions and requests of case method education

Categories	Sub-categories	Typical codes
Awareness through discussion	Learning items with case examples	The cases are enlightening, because they are possible in my school.
	Importance of diverse opinions	I know that there are various standpoints.
	Ease of statement	I think we were able to have discussions in a good atmosphere.
	Sense of accomplishment by statement	I was very nervous but I felt fulfilled when I expressed my opinion.
	Pleasure and freshness by participation	The workshop, giving me many new discoveries, were very informative.
Difficulty of discussion	Similarity of statement	I want flexibility to understand those from others' viewpoints.
	Difficulty of statement	I couldn't say anything through general discussion.
Case materials	Importance of assessment	I felt health-assessment was very important.
	Simulated experience	The simulated cases sometimes remind us of similar experiences of mine.
Role of tutor	Role of tutor	The role of the tutor is important.
Possibility of future application	Expectations for future training	I wish it could be applied to in-school training.
	Possibility of application	This will be very useful in having contact with children and teachers.
Request	Insufficient time	Because the workshop was long, my concentration was reduced and I felt it was more difficult.
	Participation method	I want to argue with other teachers.

this sub-category might be demonstrated also. Additionally, results showed that the “participation attitude” and “possibility of application” exert important effects on the satisfaction level of the case method. Furthermore, the possibility of “problem-solving thought” affecting it had significance of 10%. Therefore, even if the items of “problem-solving thought” must be examined, the possibility of using this framework for the Yogo teachers’ assessment of the case method was suggested by these 10 items.

Takagi (2005) reports that the case method is useful to develop the power of execution. He explained the necessity of learning theory and practice in practical education at professional graduate schools that are being established now in many areas (Takagi, 2005). This time, at the workshops of Yogo teachers, “participation attitude,” “possibility of application,” and “change of awareness” were indicated as factors by which Yogo teachers were satisfied with the case method. Yogo teachers felt that the viewpoint of problem-solving and countermeasures were useful

for practice, and that the “possibility of application” might affect satisfaction. Yogo teachers work almost alone in school health rooms; relations to acceptance for the children and teachers are requested from them (Morita, 2004). Therefore, it is sometimes difficult for them to have opportunities for argument or discussion with others. A “participation attitude” reflects that Yogo teachers were able to communicate their own thoughts and opinions to other members well or that they were able to participate positively in discussion and affected the level of satisfaction. It might be said that Yogo teachers themselves became aware of the necessity of constructively changing such a situation. If they received some “change of awareness,” then it might represent an increased feeling of self-efficacy, which in turn might engender their change of behavior.

It has already been reported that the case method fosters critical thought (Takagi, 2001; Takagi & Takeuchi, 2006; Takemura, 2002). As main factors of critical thought, the following three are often

described in the literature: “attitude” to observe attentively and to ponder problems, “knowledge” about logical inquiry and reasoning methods, and “technique” to apply those methods. The most important is presumably the attitude of critical thought (Zechmeister & Johnson, 1996). However, others assert that it is not always easy to acquire this attitude of thought (Zechmeister & Johnson, 1996). Effective measures to extend it are to present the principle of thought such as rules, frameworks, or methods to introduce thought (Zechmeister & Johnson, 1996). Meanwhile, it is also indicated that this education of thought is an important empirical approach, the fostering of thought by knowing principles that are useful in daily life (Zechmeister & Johnson, 1996). Although the category of free description has insufficient objectivity, the importance of discussion, difficulty in making remarks, learning from case examples, and the possibility of future application were described. It is said that the case method includes the three factors of attitude, knowledge, and technique. Yogo teachers will be able to learn methods of thought with materials of situation or problems familiar to them by the case method. In other words, for Yogo teachers, the case method was confirmed as useful not only to learn how to argue but also to foster critical thought.

On the other hand, “problem-solving thought” does not strongly affect “the satisfaction level with the case method,” which suggests that Yogo teachers themselves should not consider that it is important to analyze their own problems or to see case examples from various viewpoints. Analysis and assessment of problems are important to produce a practice of critical thought. Consequently, it is suggested that some approach to extend “problem-solving thought” will be necessary in the future.

In contrast, Problem-Based Learning (PBL) is designated as one education method used in the health care field as a participant-subjective learning model. The case method and PBL are similar in their purposes of motivating the participants’ willingness to learn and honing their problem-solving and critical-thinking abilities by participants’ subjective participation. However, PBL, as a method by which the participants can identify their own problems in cases and proceed with learning by taking a cue from them, is designed to put the newly acquired knowledge and problem-solving skills to practical use (Majumdar & Takeo, 2004; Woods, 2004;

Yoshida, 2004). In contrast, using the case method, the thought process introduced through discussion to solve problems is regarded as more important; its purpose should be to elevate the level of decision-making (Takagi, 2001; Takagi & Takeuchi, 2006; Takemura, 2002). In this regard, their ultimate educational objectives might differ (Ishii & Enomoto, 2001). Moreover, a case study often used in the field of education is a method by which the participants consider the problems and solutions of present or past cases together with the parties who are interested in them. Consequently, the case study, in which the parties’ side is often emphasized, is learning of a kind that is confined to their cases alone and which sometimes makes it difficult for learners to generalize. In this regard, it also differs from the case method. Any educational method provides merits and presents shortcomings. However, these results show that the case method for Yogo teacher training presents useful possibilities for Yogo teachers as health-promotion leaders.

No clear methodology exists in relation to evaluation methods such as participants’ learning effects or acquisition of skills, which have been presented as issues for the case method (Takeuchi, 2009). Such a methodology will call for urgent attention to establish the case method as an educational methodology by examining evaluation methods such as performance evaluation (Matsushita, 2007) and peer evaluation, which are mutually conducted among participants. It is considered that the establishment of evaluation methods will make a great contribution to the popularization of the case method.

5. Conclusion

To clarify the utility of the case method for using in Yogo teacher training, this study examined the assessment framework of the case method and identified the factors affecting satisfaction through workshops on the case method with original abuse cases such as “participation attitude,” “possibility of application,” and “problem-solving thought.”

For Yogo teachers to gain a sense of satisfaction through the use of the case method, it is important for them not only to participate positively in discussion but also to be in an environment where the knowledge can be put to practical use in future. Furthermore, for a sense of satisfaction, it is important that Yogo

teachers foster awareness that they have developed through their own participation.

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- Psychosocial factors that affect fulfilling school life of adolescence with Type 1 diabetes, *Japanese Journal of School Health* 51: 395-405, 2010 (in Japanese)

Membership in Learned Societies:

- Japanese Association of School Health
 - Japanese Association of Health Consultation Activity
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