

EFFECT OF SUPERVISOR AND PEER SUPPORT ON THE REALIZATION OF INTERNATIONAL TRAINING TRANSFER FOR BRIDGE MAINTENANCE

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1. Introduction

Recently, developing countries are confronted with serious problems in terms of deterioration of infrastructure because of lack of specific knowledge and skills of technicians to manage road infrastructure. Thus, training program must be supportive for such technicians to improve the capacity of road infrastructure management. Japan International Cooperation Agency (JICA) organizes training program to give international engineers and policy makers from developing countries the knowledge and skills relevant to road infrastructure management. Those who are trained during the program (i.e., trainees) are expected to apply Japanese expertise to the development in their countries (i.e., training transfer) [1]. Nonetheless, there are some intervention into the training transfer (e.g., inappropriateness of training contents, budgetary problems, etc.).

Among these, trainee's supervisor and peer support affect training transfer. Therefore, it is necessary to find out what kind of effect supervisor and peer support causes on training transfer. This research investigates the effect of supervisor and peer support on realization of training transfer by analyzing response to questionnaire conducted of people who attended training program organized by JICA.

2. Research method

2.1. Questionnaire

The questionnaire-based survey was an anonymous online-survey in a month period from June till July conducted among 70 people who graduated JICA "Bridge Maintenance" program at Nagasaki University. Finally, there were 33 respondents, which was 47% for response ratio. The questionnaire includes 10 sections, but this research targeted one section relevant to supervisor and peer support.

Responses to the questionnaire give both quantitative and qualitative responses. Quantitative responses are on a five-point scale of Likert-type responses (i.e., 5: strongly agree, 4: agree, 3: neutral, 2: disagree, and 1: strongly disagree), with six questions (Q1-Q6) shown on Table.1. Qualitative responses are sentences-based responses to open-ended questions asking in what way respondents were encouraged (i.e., positive reason) and in what way respondents were discouraged (i.e., negative reason) to apply training contents, with 10 respondents giving

Table.1 Contents of Q1-Q6

	Question contents
Q1	Supervisor encouragement to apply training contents
Q2	Supervisor encouragement to share training contents with others
Q3	Supervisor support to overcome obstacles to apply training contents
Q4	Peer encouragement to apply training contents
Q5	Peer encouragement to share training contents with others
Q6	Peer support to overcome obstacles to apply training contents

Table.2 Positive reasons and negative reasons

		Description
Positive reason	Responsibility	Respondents are assigned to responsible position
	Request	Respondents are requested to share training contents
	Trust and Encouragement	Respondents are trusted and encouraged to apply training contents
	Knowledge and Technics	Respondents receive specific knowledge and technics
Negative reason	Lack of Opportunity	Respondents don't have opportunities to apply training contents
	Lack of Capability	Budget or supervisor/peer skills isn't enough to apply training contents
	Lack of Interest	Supervisor/peer are not interested in training contents
	Lack of Support	Respondents don't receive support to apply training contents

positive reasons (i.e., Positive reason given) and with 12 respondents giving negative reasons (i.e., Negative reason given). Qualitative responses are generalized into brief description and categorized as shown on Table.2.

2.2. Respondents characteristics

Of the 33 respondents, more than 80% were from either South, Southeast Asia or Africa, more than 90% held either bachelor or master degree, and more than half worked as engineer belonging to the administrative organization.

3. Result and discussion

3.1. Quantitative responses

According to the frequency of quantitative responses to Q1, Q2, Q4 and Q5 on Fig.1, more than half of respondents strongly agreed or agreed that supervisor and peer encouraged respondents to apply or share training contents in their countries, on the other hand, the frequency of quantitative responses to Q3 and Q6 shows that 54.5% of respondents responded "neutral" to Q3, and so did 39.5% of respondents to Q6. It seems that most of respondents thought that their supervisor and peer didn't support to overcome obstacles to apply training contents as well as they encouraged respondents to do.

Correlation coefficient between each response shows

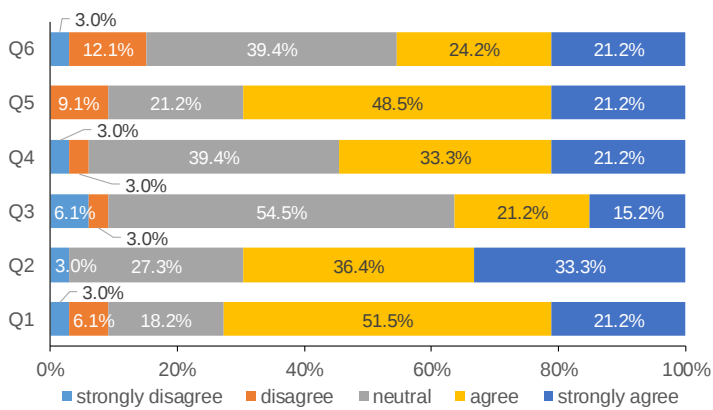


Fig. 1 Frequency of quantitative responses (N=33)

	Q1	Q2	Q3	Q4	Q5	Q6
Q1	1					
Q2	0.75	1				
Q3	0.73	0.57	1			
Q4	0.52	0.64	0.56	1		
Q5	0.37	0.63	0.47	0.85	1	
Q6	0.52	0.60	0.60	0.87	0.83	1

Fig.2 Correlation matrix

positive value in correlation matrix (Fig.2), but some correlation coefficient shows relatively small value such as correlation between Q1 and Q5 (0.37) because some respondents responded “neutral” or “agree” to Q1, whereas responding “disagree” to Q5, and others responded “disagree” to Q1, whereas responding “agree” to Q5. Hence, there seems to be dissidence between supervisor and peer in terms of encouraging respondents.

3.3. Positive reasons and negative reasons

Qualitative responses to open-ended questions are summarized on Fig.3. According to the bar chart of positive reasons, “Trust and Encouragement” show the highest value, on the other hand, according to the bar chart negative reasons, “Lack of Interest” shows the highest value. Hence, it seems that lack of interest in training contents by supervisor and peer is the most factor undermining training transfer whereas most of respondents receive trust and encouragement to apply training contents.

3.4. Specific reason given to quantitative responses

Effect of positive or negative reasons on the overall Likert-type responses is examined by following methods.

According Fig.4, in Group.1, density of mean score (μ') (i.e., average quantitative response of each respondent) of “Positive reason given” is higher around $4 < \mu' \leq 5$ than of “No positive reason given”, which may indicate that respondents tend to agree or strongly agree that their supervisor and peer encourage well with positive reasons. On the other hand, in Group.2, density of mean score of “Negative reason given” is higher around $2 < \mu' \leq 3$ than of “No negative reason given”, which may indicate

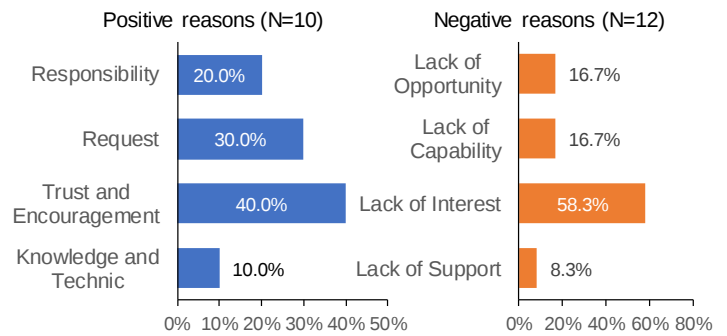


Fig.3 Qualitative responses

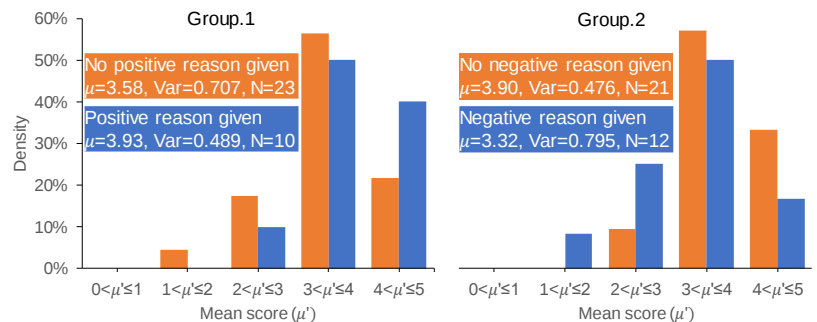


Fig.4 Density of mean score

that respondents tend to slightly disagree that their supervisor and peer encourage well with negative reasons. In addition, t-test is conducted to find out significant difference between mean score of Group.1 and Group.2. However, p-value (two-tail) of each group is over 0.05, which means both positive and negative reasons given to quantitative reasons aren't statistically significant.

4. Conclusion

According to result above, effect of positive or negative reason on evaluation of supervisor and peer is unclear because of insufficient sample size. Hence, it is necessary to find out such effect by analyzing larger sample size. In addition, lack of supervisor and peer support to overcome obstacles and lack of interest by supervisor and peer negatively affect training transfer, therefore, trainers should focus on not only educating trainees but how to arouse curiosity of supervisor and peer about bridge maintenance.

Acknowledgement

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References

- [1] Japan International Agency (JICA), “Infrastructure Realizing Resilient and Sustainable Societies”, JICA annual report 2019, pp 40-41, 2019