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Effectiveness Analysis of Maternal and Child Health ODA Project in Tanzania: Analysis of the Effect of Education Satisfaction on Transfer of Learning

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Abstract: Background: In health ODA, the importance of nurturing and training skilled health care workers is emerging to strengthen the health system of developing countries. **Objectives:** This study aimed to determine the effect of education satisfaction of health care workforce capacity-building programs, especially in the Korea health ODA project, and how it affected transfer of learning in a job context. **Methods:** A survey was conducted among 27 participants who received ODA capacity-building training in Tanzania, using a self-administered questionnaire. Collected data was analyzed using SPSS ver. 26.0, and multiple linear regression analysis was performed to verify the factors that affected transfer of learning. **Results:** Education satisfaction, both environment satisfaction ($\beta = .636$, $p < .01$) and content satisfaction ($\beta = .433$, $p < .05$), significantly affected transfer of learning. **Conclusions:** Educational program developers should find the best way to maximize positive transfer for better learning outcomes in ODA projects, considering participants' satisfaction. In designing the training program in the health ODA project, increasing the participants' satisfaction using appropriate educational environments and content should be essential in order to improve the program's effectiveness.

Key words: global health, healthcare workforce, education satisfaction, transfer of learning

1. Introduction

According to the OECD Development Assistance Committee (DAC), official development assistance (ODA) refers to government aid promoting and targeting developing countries' economic development and welfare [1, 2]. ODA is a concept that encompasses bilateral and multilateral aid, funds, or technical cooperation provided to the government of developing countries or international organizations [3]. In the past, ODA was dominated by top-down aid centered on donor countries that did not consider the capabilities of recipient countries [4, 5]. However, with the change in the paradigm of international development cooperation, country ownership and capacity-building have become mainstream for the sustainable development of the international community [6, 7]. The UN presented the Sustainable Development Goals (SDGs), suggesting a change in development method from the quantitative expansion of aid to the qualitative improvement of aid effectiveness [6, 8].

The main focus with regard to the SDGs is the development method that seeks to achieve development led by the recipient country under a mutually beneficial cooperative relationship with the recipient country rather than the donor-centered development [9, 10]. Due to such change in the paradigm of development cooperation in the international community, the necessity of capacity-building and training for human resources in recipient countries is growing.

Tanzania is one of the countries with high maternal and neonatal mortality ratios at 524/100,000 live births

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maternal mortality as of 2017 and 20/1000 live birth for neonatal mortality as of 2019 [11]. Tanzania is implementing SDGs, including efforts to reduce child and maternal mortality ratios. These efforts align with the Korean Government's ODA goals to address SDGs by improving maternal health services. "The project for the improvement of health care services for mothers and newborns in Chanika and surrounding areas in Tanzania" was an example of the Korean Government ODA project to address these issues.

The main issues of the maternal and child health system in developing countries are the absolute shortage of health human resources and the lack of an education system to train suitable health professionals [12]. The WHO has also been concentrating on nurturing human resources to strengthen the capacity of health personnel [13]. Recently, in Korea's health ODA projects, the importance of nurturing and training skilled health workers is emerging to strengthen the health system of the recipient country [14-16].

Transfer of learning refers to trainees effectively applying the knowledge, skills, and attitudes learned from education to a job context [17, 18]. The final outcome of the health care workforce education project is that the skills, knowledge, and attitudes acquired by trainees through the education program are applied to the field, ultimately contributing to strengthening the human resources of the recipient country. Therefore, it is essential to understand the association between educational satisfaction and transfer of learning to enhance the overall effectiveness and sustainability of the health care workforce education ODA project.

Therefore, this study aims to analyze the effect of trainee education satisfaction on transfer of learning with the case of the health care workforce capacity-building program implemented in Chanika, Tanzania, as an ODA project. Furthermore, implications for improving the effectiveness of the education program in ODA projects are to be drawn through the empirical study of effectiveness factors in the health care workforce education.

2. Materials and Methods

2.1 Data Source and Study Sample

This study is conducted to understand the educational effectiveness factors of the capacity-building program provided as part of "The Project for Improvement of Health care Services for Mothers and Newborns in Chanika and Surrounding areas (Chanika Project) initiated by the Korea International Cooperation Agency (KOICA). KOICA implemented the Korean government grants, aid, and technical cooperation programs in health, education, and diverse sectors in Tanzania. The Chanika Project focused on improving the Maternal Newborn and Child Health (MNCH) in Chanika, Ilala Municipal, and surrounding areas. The project supported the upgrading of Chanika Dispensary to a health center from 2014 to 2019 and provided capacity-building programs.

Capacity-building was conducted in four main areas as part of the project outcome to strengthen the ability of a human resource to provide quality healthcare services at the health center. The four main areas included 1) Anesthesia, 2) Ultrasound, 3) Basic Emergency Obstetric Neonatal Care (BEmONC) and Comprehensive Emergency Obstetric Neonatal Care (CEmONC), and 4) Theatre Management[1]. 75 hospital staff participated in the training, including basic (BEmONC) and comprehensive (CEmONC) obstetrics, ultrasound, anesthesia, etc. A survey was conducted on hospital staff who were working in hospitals in December 2019 to find the effectiveness of capacity-building education and its practical application, and 29 people participated in the survey. Since the number of incumbents who participated in the KOICA Chanika Hospital personnel capacity-building training conducted in 2015 and 2016 was very small, only a limited number of samples could be collected for the study.

[1] Theatre nurses (theatre manager and theatre nurses) were trained in theatre management. Theatre nurses work in hospital operating theatres and anaesthetic/recovery areas.

2.2 Research Model

The research of the effectiveness of education has been varied, such as evaluations of learning outcomes, studies on factors affecting effectiveness [17, 19-23]. Kirkpatrick (1998) [24] sets the education effectiveness factors with the four-level evaluation model as the 1st stage response, the 2nd stage learning, the 3rd stage behavior, and the 4th stage outcome. This model is being used to evaluate the effectiveness of various education, including training the workforce in the health care field [25-28]. In evaluating education effectiveness, satisfaction refers to the learner's first response to how satisfied with the learning [29]. In the first stage, reaction evaluation measures participant personal satisfaction and opinions about the program operation process, quality education, and training methods. In the second learning stage, the training participants are checked what they have learned through the learning process and how much their knowledge, skills, and attitudes have improved. Transfer of learning is the third stage and refers to the behavioral change stage that appears by applying the skills, knowledge, and attitudes acquired from education and training to on-the-job context. The fourth stage shows whether the organization's performance has improved as a result of training programs. The ultimate purpose of training is to apply the learned skills and knowledge to the collaborative job. Thus, the transfer effect can be the most critical indicator in effectiveness evaluation [18, 30].

In this study, based on Kirkpatrick's theoretical model, variables of education satisfaction and transfer of learning were set as major variables to measure capacity-building program effectiveness and identify correlations. The four-stage model was examined by simplifying it into two stages. First is the satisfaction which is a reaction stage to learning, and second is transfer of learning, which is the behavior stage to examine the direct relationship between two variables. In the organization's performance, the question of organizational contribution was included in transfer of learning. Therefore, the independent variable in this study is education satisfaction, and the dependent variable is transfer of learning. According to previous studies, educational contents, educational methods, facilities, and instructors are commonly suggested as key variables of educational satisfaction [31-34]. In this study, two variables, environment satisfaction and content satisfaction, were used as sub-factors of education satisfaction. Among the sub-factors of satisfaction in this study, satisfaction with the education environment consists of education period, educational location, and overall satisfaction with education. Satisfaction with educational content includes reflection of local community conditions, educational content, and the number of instructors. This is mostly consistent with the educational satisfaction components presented in the previous study [35-39]. The research model is shown in (Fig. 1).

2.3 Research Methods and Variables

The questionnaire used in this study consisted of 18 items. The questionnaire was divided into four factors: sociodemographic characteristics, capacity-building program factors, education satisfaction, and transfer of learning. The sociodemographic information of the respondents was structured with six items: gender, age, educational background, length of work experience in Chanika hospital, length of work experience in the health sector, and occupation. All sociodemographic factor variables were categorical. The capacity-building program variables were categorized for analysis and consisted of three items: training sector, training year, and training period.

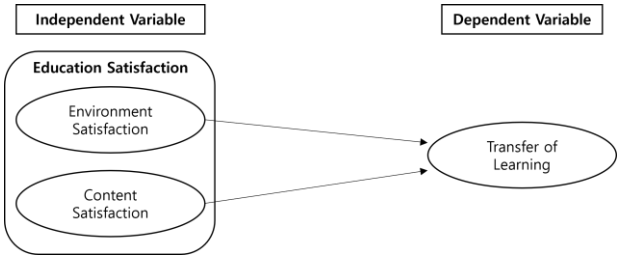

Fig. 1 Research Model.

Table 1 Research hypothesis.

	Hypothesis
H1	Environment satisfaction will have a positive (+) effect on transfer of learning.
H2	Content satisfaction will have a positive (+) effect on transfer of learning.

2.4 Independent Variable

2.4.1 Education Satisfaction

Education satisfaction is variously defined as the subjective judgment of the consumer regarding all education and training services provided by the supplier, emotional and cognitive evaluation, the degree of satisfaction of needs versus expectations, and the difference between expectations and perceptions [40-43]. This study defines education satisfaction as the degree of satisfaction of needs versus expectations that trainees who have received education subjectively perceive education content and education environment. Two sub-factors in the case of education satisfaction were composed of six items: three items for environment satisfaction and three items for content satisfaction. All satisfaction variables were given 1, 2, 3, 4, and 5 points in the order of "Strong Disagree, Disagree, Neutral, Agree, Strong Agree" according to the 5 points Likert scale. Likert-type surveys result were used as continuous data by calculating a mean response across a set of questions.

2.4.2 Environment Satisfaction

In general, the educational environment includes elements related to the environment, such as educational facilities, equipment, and location [43- 45]. In this study, environmental satisfaction indicates satisfaction with education period, place of education, and general education. The environment satisfaction is composed of three items which are "The training period was appropriate", "The training locations were properly organized and planned", "I am satisfied with the training".

2.4.3 Contents Satisfaction

In previous studies, content satisfaction has been described as the most common and general measure of satisfaction with education and training [33, 34, 46]. Educational content is a factor related to the education and training program's characteristics [17]. In this study, satisfaction with educational content reflects local community conditions, educational content, and the number of instructors. The three questions are "The training delivered appropriate level of skill which can be applied to the local situation", "The contents of the training helped to improve the work skills", "The number of trainers was sufficient".

2.5 Dependent Variable

2.5.1 Transfer of Learning

Transfer of Learning refers to the change in behaviors of training participants when they apply what they learn in the education and training program to their jobs [24]. Transfer of Learning refers to how training participants use the acquired skills, knowledge, and attitudes in the workplace [18]. Holton (1996) [22] defined Transfer of Learning as a behavioral change in the workplace caused by education and training programs. This study defined transfer of learning as the level at which training participants' knowledge, skills, and attitudes learned by training are applied in the job. Here, transfer of learning was measured through the use of what they learned, the self-efficacy, and recognition of the organizational contribution.

The self-reported questionnaire includes three items: "I am using what I have learned during the training", "I got the confidence to provide healthcare service for mother and newborns (antenatal care, deliveries, postnatal services), and "I think that Chanika hospital is helpful to improve health care service for mothers and newborns in Chanika and surrounding area." The responses were in the form of the 5 point Likert scale.

2.6 Statistical Analysis

The data of 29 respondents collected through this

survey were coded into an Excel format file. SPSS statistical software package, version 26.0 was used in all analyses. All statistical tests were two-tailed, with the null hypothesis of no difference being rejected if $p < 0.05$. T-test, Anova, correlation, multiple linear regression analyses were used to analyze whether education satisfaction, such as environment and contents, had any association or influence on transfer of learning.

3. Results

3.1 Differences in Major Variables According to Demographic Characteristics

Of the 29 subjects of the survey, a total of 27 subjects was included in the study, excluding two subjects with many missing values. Of the 27 respondents, there were 10 males (37%) and 17 females (64%). In the age, 51.9% were in their 30s, 25.9% were in their 40s, and 22.2% were in their 20s. As for the educational background of the respondents, 85.2% of the respondents had a diploma or certificate, and 14.8% had a bachelor's degree or higher. 59.3% of the respondent had < 3 years of experience at Chanika Hospital, 18.5% had work experience for 3 to < 5 years, and 22.2% had ≥ 5 years of experience at Chanika Hospital. 40.7% of the respondents had 5 to <10 years of experience in the health sector, followed by 5 years 29.6%, 15 to < 20 years 11.1%, ≥ 20 years 11.1%, and 10- < 15 years 7.4%. As for the occupation of respondents, doctors were 11.1%, nurses were 55.6%, midwives were 22.2%, and other officers were 11.1%. In the capacity-building program sector, 51.9% of respondents received BemOnc/CemOnc education, 11.1% received Theatre management education, 14.8% received Anesthesia training, and 14.8% received Ultrasound training. The number of respondents who received the capacity-building training in 2015 was 66.7%, and 33.3% of the respondents received the training in 2016. Regarding the education period, 18.5% of the respondents received less than 24 weeks of the capacity-building training, and 81.5% received more than 24 weeks.

The difference among the age group was significant in contests satisfaction at a level of $P < 0.05$ ($F = 3.48$). The younger age group had lower contest satisfaction than the older age group. The score of contents satisfaction was significantly lower in the respondents who had a diploma or certificate than respondents who had bachelor or higher education at a level of $P < 0.05$ ($t = 2.62$). Respondents who were trained ≥ 24 weeks had significantly higher content satisfaction than those who were trained < 24 weeks at a level of $P < 0.05$ ($t = -2.85$). No other significant score differences for environment satisfaction and transfer of learning were found among respondents compared by gender, work experience in Chanika hospital, work experience in the health sector, occupation, capacity-building project sector, year of education, period of education. Other demographic data and differences in the education effectiveness variables are demonstrated in Table 2.

3.2 Analysis of Reliability and Validity of Measurement Tools

A construct validity test was conducted using the exploratory factor analysis of the items. As shown in Table 3 and Table 4, all factor loadings emerged fairly high, showing the measurement had convergent validity and no item to be deleted. As a result of factor analysis of environment satisfaction and contents satisfaction, the factor loading of each item was appropriate as 0.6 or more, and the eigenvalues of the factor was found to be suitable as 1 or more (Table 3). In addition, the cumulative variance explanatory power was 71.240%, indicating that the explanatory power of the factor was high. For each sub-factor, environment satisfaction was 53.462%, and contents satisfaction was 17.777%. As a result of factor analysis to test the validity of transfer of learning, it was found that the factor loading of each item was suitable as 0.5 or more, and the eigenvalue of the factor was appropriate as 1 or more. The variance explanatory power was 61.041%,

indicating high explanatory power. The result of exploratory factor analysis for each constituent variable is shown in Table 3 and Table 4.

Table 2 General characteristics of subjects included for analysis and Differences in major variables by demographic characteristics.

	Total		Education effectiveness factors								
			Satisfaction						Transfer of learning		
			Environment satisfaction			Contents satisfaction					
	N	%	M	SD	t/F	M	SD	t/F	M	SD	t/F
Gender											
Male	10	37.0	4.43	.50	-.30	4.43	.55	.49	4.60	.41	-.93
Female	17	63.0	4.49	.46		4.33	.49		4.75	.38	
Age											
20-29	6	22.2	4.11	.50		3.94	.39		4.44	.40	
30-39	4	51.9	4.50	.45	3.27	4.45	.48	3.48*	4.69	.40	2.49
≥ 40	7	25.9	4.71	.30		4.57	.46		4.90	.25	
Education											
Diploma/Certificate	23	85.2	4.41	.46	1.77	4.28	.48	2.62*	4.67	.40	.78
≥ **Bachelor**	4	14.8	4.83	.33		4.92	.17		4.83	.33	
Work experience in Chanika											
< **3 years**	16	59.3	4.42	0.52		4.38	0.50		4.67	0.44	
3- < **5 years**	5	18.5	4.40	0.37	0.68	4.40	0.43	0.02	4.80	0.30	0.22
≥ **5 years**	6	22.2	4.67	0.37		4.33	0.63		4.67	0.37	
Work experience in health sector											
< 5 years	8	29.6	4.21	0.56		4.25	0.50		4.58	0.43	
5-< 10 years	11	40.7	4.45	0.40		4.27	0.51		4.61	0.42	
10-< 15 years	2	7.4	4.67	0.47	1.49	4.50	0.71	1.09	5.00	0.00	1.12
15-< 20 years	3	11.1	4.78	0.19		4.44	0.51		5.00	0.00	
≥ 20 years	3	11.1	4.78	0.38		4.89	0.19		4.78	0.38	
Occupation											
Doctor	3	11.1	4.56	.19		4.44	.19		4.56	.19	
Nurse	15	55.6	4.44	.53	2.18	4.36	.53	2.93	4.71	.42	1.00
Midwife	6	22.2	4.22	.27		4.06	.39		4.56	.46	
Other Officer	3	11.1	5.00	.00		5.00	.00		5.00	.00	
Training Sector											
Theatre management	3	11.1	4.44	0.51		4.33	0.58		4.78	0.19	
Anaesthesia	5	18.5	4.47	0.45		4.33	0.41		4.53	0.38	
BemOnc/CemOnc	14	51.9	4.38	0.50	0.60	4.24	0.53	1.28	4.69	0.46	0.38
Ultrasound	4	14.8	4.67	0.38		4.75	0.32		4.75	0.32	
Others	1	3.7	5.00			5.00			5.00		
Training Year											
2015	18	66.7	4.46	0.50	-0.10	4.35	0.50	-0.27	4.70	0.38	0.23
2016	9	33.3	4.48	0.41		4.41	0.52		4.67	0.44	
Training Period											
< 24 weeks	5	18.5	4.47	0.45	-0.01	4.07	0.15	-2.85*	4.73	0.43	0.26
≥ 24 weeks	22	81.5	4.47	0.48		4.44	0.53		4.68	0.39	
Total	27	100.0									

*p < 0.05, **p < 0.01, ***p < 0.001

Table 3 Validity and reliability analysis of measuring tools: Education satisfaction

Questionnaire items	Factor component 1 (contents satisfaction) loading factor	Factor component 2 environment satisfaction loading factor	Eigen values	% of variance	Cumulative %	Cronbach's α)
Contents satisfaction 1: Reflecting community conditions	.909		3.208	53.462	53.462	0.809
Contents Satisfaction 2: Training content	.812					
Contents satisfaction 3: number of instructors	.733					
Environment satisfaction 1: Overall satisfaction with education		.907	1.067	17.777	71.240	0.743
Environment satisfaction 2: training period		.785				
Environment satisfaction 3: training place		.560				

KMO =.654, Bartlett's test = 64.855, df = 15, p < .001

Table 4 Validity and reliability analysis of measuring tools: Transfer of learning.

Questionnaire items	Factor component 1 (transfer of learning) Loading factor	Eigen values	% of variance	Cumulative %	Cronbach's α)
Transfer of Learning 1	.885	1.831	61.041	61.041	0.629
Transfer of Learning 2	.829				
Transfer of Learning 3	.601				

KMO = .562, Bartlett's test = 15.431, df = 3, p < .01

Reliability analysis was performed to examine the consistency of the multiple indicators. In the reliability test, Cronbach's Alpha (α) value was obtained, and the level is classified as follows. When $\alpha \geq 0.9$, the reliability can be judged as a very good level, when $0.7 \leq \alpha < 0.9$, the reliability is good, when $0.6 \leq \alpha < 0.7$, it is an acceptable level, and when $0.5 \leq \alpha < 0.6$, the reliability is bad, and $\alpha < 0.5$ was classified as an unacceptable level of reliability (Cronbach, 1951). As a result of calculating the reliability coefficient (Cronbach's α) to find out the internal consistency of the questionnaire, the environment satisfaction was 0.743, the contents satisfaction was 0.809, and transfer of learning was 0.629, indicating a high level of internal consistency overall (Tables 3, 4).

3.3 Correlation Analysis Between Major Variables

The results of the correlation analysis of the major variables of education effectiveness are as follows Table 5. Correlation analysis shows a significant positive correlation at $p < 0.01$ among all major variables. The correlation coefficient between variables is high, ranging from .497 to .733. Environment satisfaction has a significant positive relationship with contents satisfaction ($r = .529$, $P < 0.01$) and transfer of learning ($r = .733$, $P < 0.01$). Contents satisfaction has a significant positive relationship with transfer of learning ($r = 0.497$, $P < 0.01$).

Table 5 Correlation analysis between key variables.

	Education effectiveness factor		
	Environment satisfaction	**Contents satisfaction**	**Transfer of learning**
Environment satisfaction	1		
Contents satisfaction	.529**	1	
Transfer of learning	.733**	.497**	1
Mean (SD)	4.47(0.46)	4.37(0.50)	4.69(0.39)

*p < 0.05, **p < 0.01, ***p < 0.001

3.4 Multiple Regression

Multiple regression analysis was performed using environment satisfaction and contents satisfaction as independent variables and transfer of learning as dependent variables. Multicollinearity problems were checked based on tolerance and variance expansion factor (VIF). The tolerance value was more than .10, and the variance expansion factor (VIF) value was less than 10. Therefore, it can be seen that there is no multicollinearity problem between environmental satisfaction and contents satisfaction.

Age, educational background, gender, and occupation were input as control variables. Then two variables (contents satisfaction, environmental satisfaction) were sequentially input into the research model to determine the effect on collaboration applicability. As a result of multiple regression analysis, the F value was 4.497 ($p < 0.01$), which was found to have significance, so this regression model was confirmed to be suitable. The overall model showed an explanatory power of 70.4%. The Durbin-Watson value, which can confirm the independence of variables, is 1.714, which is located between 1 and 3, thus satisfying the requirement for independence of the residuals. As a result of multiple regression analysis, both environmental satisfaction and contents satisfaction were found to affect transfer of learning significantly. That indicates environment satisfaction and contents satisfaction are a predictor of the model where environment satisfaction significant positive effect on transfer of learning ($\beta = .636$, $p < .01$) and contents satisfaction has a significant positive effect on transfer of learning ($\beta = .433$, $p < .05$).

Table 6 Multiple regression analysis of key variables.

	Unstandardized Coefficients		**Standardized coefficients**	**T**	***p***	**TOL**	**VIF**
	B	**SE**	**Beta (*β*)**				
Constant	.698	.845		.827	.420		
Environment satisfaction	.536	.142	.636	3.773**	.002	.613	1.631
Contents Satisfaction	.339	.155	.433	2.185*	.043	.443	2.258
F(p)			4.497**				
R^2			.704				
adj.R^2			.548				
Durbin-watson			1.714				

*p < 0.05, **p < 0.01, ***p < 0.001

a. Dependent variable: Transfer of Learning

Control Variable: Age, Gender, Education Level, Occupation

4. Discussion

4.1 Association Between Education Satisfaction and Transfer of Learning

There are various studies on the relationship between educational satisfaction and practical application. Faerman & Ban (1993) [47] found a significant correlation between the satisfaction of training participants and their behavioral changes after training. Holton (1996) [22] stated that participants who showed satisfaction in education and training use the knowledge and skills obtained from education and training in their jobs. It was emphasized that educational satisfaction and learning transfer had a significant relationship with job performance [47-49].

According to Kirkpatrick's research [26], education effectiveness is determined by assessing outcomes of training such as trainees' reaction to the education content and training process, knowledge or skill acquisition, behavior change, and organizational performance such as the positive impact on the workplace. A number of studies reveal that trainee reaction to education programs and changes in knowledge, attitude, and behavior occur jointly [32, 50, 51]. Trainees' satisfaction regarding the education program is considered an important influence on learning and behavior change [32].

Consistent with previous studies, our results showed that education satisfaction has a significant association with transfer of learning. When examining the relationship between satisfaction and transfer of learning, it was found that both content satisfaction and environment satisfaction, which are sub-factors of education satisfaction, had a statistically significant positive effect on transfer of learning. In most previous studies, training content and environmental situation showed a significantly positive effect with learning outcomes such as behavior changes, which was consistent with the results of this study. Al-ammar (1994) [48] said that learner's satisfaction had a significant effect on practical application, and Faerman & Ban (1993) [47] also revealed a significant correlation between the satisfaction of training participants and their behavioral changes after training. Several other studies examine the effect of satisfaction on transfer of learning by revealing a significant relationship between satisfaction and learned behavior generalized to the job context [38, 52-54]. In this study, content and environmental satisfaction, which are sub-factors, respectively, were analyzed along with overall satisfaction, and both environmental satisfaction and content satisfaction showed a significant relationship with transfer of learning. It confirms the results of the previous studies once again in the ODA project.

4.2 Important of Improving Education Satisfaction

It can be said that the capacity-building ODA project for the health care workforce is a learning process planned and designed for the transfer of high-quality skills and know-how to the health care workers and professionals of the recipient country. In the workplace, capacity-building program such as training is a process that helps employees achieve organizational goals by cultivating the knowledge, skills, and abilities necessary to perform their duties [17, 32]. Capacity-building is a process in which an individual acquires the skills and knowledge necessary to meet the job demands [55]. In the process, transfer of learning is more than an initial reaction or improving knowledge or skill [17, 56, 57].

In this study, it was evaluated whether transfer has occurred by examining whether the training program participants apply the acquired knowledge, skills, and attitudes to the field in which they work. At this time, it can be inferred that the program is effective when the trainees use what they learned in the field of the recipient country. If the satisfaction level corresponding to the first response stage has a significantly positive effect on transfer of learning, the satisfaction evaluation is very important in investigating the effectiveness of the training program

[47, 48]. It means that increasing the participants' satisfaction when designing the training program in the health ODA project should be an essential factor in determining the effectiveness of the overall capacity-building program.

The result also shows that for better learning outcomes like behavior change and transfer of learning in ODA projects, educational program developers or trainers need to consider how to maximize positive transfer, considering recipients' satisfaction. We need to find the best way to improve recipients' satisfaction with the program in designing the capacity-building program in ODA projects. The training aims to utilize the knowledge, skills, and attitudes learned through training at the job site. We found that the proper curriculum content and training environment can be the important factors to consider to encourage individuals to be more effective in the workplace. Therefore, the most important thing in education design is that priority should be given to developing the program's content and environment that can increase satisfaction by training type, target, instructors, place, and period.

This study also shows the significant differences among the age group, education level, and training period in content satisfaction. The younger, the less educated, and the shorter trained participants showed lower contest satisfaction. The results imply that the training curriculum, contents design, learning methods and tools, and approaches should be developed, considering the trainee's social demographic background such as age and educational level. Further studies are needed to determine other sociodemographic factors that may affect education satisfaction and develop educational strategies for improving satisfaction for these groups. In addition, the training program should be organized and implemented for an appropriate period to maximize learning outcomes.

4.3 Development of Education Contents based on Context of Environment

When planning and developing an education program, it should be considered that learners are more likely to apply the learning content to the workplace if it is similar to that used in the work environment [46, 52, 58]. In order for training to achieve results, it is effective to conduct training in an environment similar to their job situation. The trainees feel that the content is familiar and practical when the trained knowledge and skills could be more appropriately applied to the field [49].

"The project for Improvement of Health Care Services for Mothers and Newborns in Chanika and surrounding areas" provided a training program that can be used to build the capacity of health care workers in Ilala Municipal Council, Tanzania. A total of 75 trainees were mentored, taught and supervised in practical by respective mentors in areas of BEmONC, ultrasound, theatre management and anesthesia for a period of 6 months or more in 2015 and 2016. Among the 75 trainees, 29 staff remained working in the hospital until 2019 and they participated in this study. Trainees answered that they gained a great deal of experience, skills, and knowledge reflected in assessments results.

The Amana Regional Referral Hospital was recommended as an ideal venue for conducting capacity-building. The hospital had conducted similar training programs and has continued to facilitate such programs over the years. Amana Regional Referral Hospital was equipped with adequate training rooms that were used by the Municipality in training and other conference services. The regional hospital had all the sophisticated technology that can be used by medical staff under training for practice. For example, ultrasound, laboratory technicians, and anesthesia can utilize the facilities at Amana Regional Referral Hospital for practice.

It seemed that the participants on the capacity-building program in Chanika may become familiar with the learning environment with a common understanding of the local situations and learn better in

a similar regional environment. Bramley (1991) states that the more common elements between training and on-the-job work, the higher the job performance after training. It was found that trainees apply the training content to the job better if the training content and materials are similar to those used in the work environment [46, 52]. This means that transfer of learning is positive and effective when understanding the learning content through similar examples and situations and clearly understanding how the learned content will be used in the field [58, 59].

5. Conclusion

This study seeks to obtain primary data and policy implications for improving the effectiveness of the health ODA project by identifying the relationship between the satisfaction of participants in the capacity-building education ODA program and transfer of learning on the job. The study sample was trainees who completed the local health care workforce training program provided as part of the capacity-building ODA project conducted by KOICA from 2014 to 2019. In order to evaluate the effectiveness, education satisfaction was divided into two sub-factors, environment and content, and the effect on and correlation to transfer of learning was investigated. As a result of the study, it was found that both content satisfaction and environmental satisfaction, which are sub-factors of satisfaction, had a positive effect on transfer of learning.

It is essential to improve participants' satisfaction and design appropriate educational content based on the context to increase the effectiveness of the ODA project. In particular, the training contents should be highly suitable for the recipient country. In order to increase the effectiveness of education and training, it should be composed of similar contents and environment to the field. Even if the quality of the content is high, if the content of education cannot be applied to the local situation in developing countries and project areas, the receptivity of trainees will decrease and it will not be easy to reflect it in practice. Content should be organized in a similar environment to the field by reflecting the needs of the trainees and the local situation. It is necessary to refer to existing studies that learning content similar to the on-the-job work environment enhances understanding and helps in application [46, 52, 59].

There are several limitations to this study. First, the study sample is small, so it is hard to generalize the results with other types of health ODA projects. Second, self-reported cross-sectional data was used, so the order and the causal mechanisms between satisfaction and transfer of learning cannot be clearly delineated. However, the results support other diverse theoretical and practical studies that describe the educational causal mechanism. Third, this study only uses satisfaction and transfer of learning for main variables. There can be diverse variables that can impact the relationship.

Despite these limitations, the primary strength of this study is that it investigates an empirical study with specific ODA project cases, and the results can give implications for further strategy development and research. Therefore, research in diverse countries on more health care workforce ODA projects should be carried out in the future to apply the results to other situations.

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