A STUDY ON EVALUATION OF EDUCATION PROGRAM EFFECTIVENESS: A CASE OF KDI SCHOOL

By

Hwa-Sun Jung

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

MASTER OF DEVELOPMENT POLICY

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Committee in charge:

Professor Yoon Cheong CHO, supervisor

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Approval as of December, 2012

ABSTRACT

A STUDY ON EVALUATION OF EDUCATION PROGRAM EFFECTIVENESS: A CASE OF KDI SCHOOL

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This paper proposes an evaluation model of education program, especially concentrated on master's degree program of KDI School for international students. To prove the effectiveness of education, this research is applied Kirkpatrick's four-level training evaluation model. Based on Kirkpatrick's model, to find out the relationship between each level such as reaction, learning, behavior and result, survey was conducted and data was analyzed by using regression. A significant finding in this paper is that, satisfaction to education program lead positive result in learning and behavior. Although there's little correlation between behavior and result, learning affects behavior positively. In addition to Kirkpatrick's model, this research added motivation part to found out how motivation affects on learning and behavior level.

Dedicated to God

ACKNOWLEDGEMENTS

This research would not have been possible without the support from KDI faculty and staff, my family members, lovely friends and KDI alumni who responded to the survey.

First and foremost, I would like to thank to my supervisor professor, Yoon-Cheong Cho, who provided me with permanent support and immediate comment while I was writing this thesis. I also wish to thank professor Kye-Woo Lee, who firstly introduced me about ODA world with his broad knowledge and keen insight.

Further, I would like to express my thanks to friends in KDI. Hyang-sook Seong always encouraged me with her warm-heart and gave me lots of helpful suggestions for the study. I am also indebted to Arum Kim who acted as my consultant. I can't imagine the life in KDI without her strong support. My gratitude also goes to Hyun-I Choi who works in Tunisia. She always inspired me not to forget my dream.

Finally, my most sincere thanks go to my family members. My parents have provided me with physical and emotional care. Last but not least, my special thanks go to my husband Won-Seok who assisted me in numerable ways. I might say here cannot do full justice to the extent and the value of his contribution. I love you.

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I. INTRODUCTION

1.1 Background of the Study

South Korea joined OECD Development Assistance Committee (DAC) as a full member in 2010. Korea transformed remarkably from an aid receiving country into an aid donor country, and becoming a successful example for the international community. Korea is so difficult to find its origin in the world because of its successful social and economic development experience. Based on successful experience, Korea has a strategic advantage in the field of development experience sharing among OECD DAC countries.

Accordingly, Korea's grant aid organization, KOICA, dedicated to support recipient countries by sharing development experience while taking advantage of the social and economic development experience. To develop human resources and institutions in developing countries, KOICA is actively inviting developing countries' government officers and experts. Specifically, the developing countries' engineers, researchers, policy makers related to education, health care, administrative systems, information technology, rural development and energy industry, was invited to Korea for taking the training courses. Through this partnership with developing countries promote the government and public sector to build a network.

As a part of sharing developing experiences, KOICA has conducted various training programs. Training courses are differentiated according to the purpose of the training. KOICA offers Regular Training Program, Country-focused Training Program and Scholarship Program which is long-term research program for Master's degree. (KOICA, 2012) [1]

According to a report analyzed the effectiveness of training programs in Korea (KOICA, 2010), among various types of training, effectiveness and satisfaction of the master's degree program

[1] www.koica.go.kr

was relatively higher than other types of education programs. Currently, KOICA dispatch international students to seven graduate schools including KDI School, Kyung Hee University and so on.

On the other hand, among those seven graduate schools, KDI School is built for the purpose of sharing Korea's development experience and it has specialty on knowledge sharing. KDI School is a leading institute which is inviting developing countries students to learn about Korea and achieve master's degree.

Recently, in terms of enlargement of aid, the importance of knowledge sharing and education is highlighted. Because of these demand, Korea government is inviting lots of workers from abroad. So it is proper time to measure the effectiveness of education which is aim to developing countries' workers. In this paper, I evaluated the effectiveness of education program by focusing on KDI School via conducting a survey from the KDI School alumni who are from abroad.

1.2 Purpose of the Study

The goals of this study is to measure the effectiveness of education especially focus on master's degree program of KDI School. To achieve these research purposes, the Revised Kirkpatrick's four-level training evaluation model (1960) was utilized to find out the effectiveness of education.

In recent years, numerous studies have attempted to find and explore education effectiveness by using Kirkpatrick's four-level training evaluation model. But most of them only focused on reaction part (Sugrue and Rivera, 2005). In this research paper, in addition to prove the effectiveness of education by using Kirkpatrick's model, it also concentrated on the relation among each level. For example how reaction affects learning, behavior and result.

There are four research questions used for the survey. I based these questions on literature review and an assumption that is frequently raised in education sector. To find out which factor affects the result of the education and how successful KDI School's education program for international students, these questions should be included every level from Kirkpatrick's model.

The research questions are as follows:

Q1. Motivation directly affects the each level of Kirkpatrick's model?

Q2. Reaction directly affects learning, behavior and result?

Q3. Learning directly affects behavior and result?

Q4. Behavior directly affects result?

II. LITERATURE REVIEW

2.1 Motivation Theories

Motivation orients the direction of the capacity (Jin Park, 2011). For example, individuals who have a capacity may or may not exert efforts toward desirable way (Keller, 2010). Therefore, capability which includes knowledge and skills is a necessary but not sufficient condition without motivation (Jin Park, 2011). Without motivation, knowledge and skills in a person will not make any changes nor deliver services to people (Keller, 2010).

The most popular motivation theory was made by Abraham Maslow. He is a preeminent 20th century psychologist whose most enduring contribution was his “hierarchy of needs” theory (Amity et al., 2012). Maslow (1943) initially presented a five step ladder that represents a human being’s desire as a hierarchical model. And he argued that five basic needs which arranged in a hierarchy from lower-order to higher-order are essential to optimal human existence. The lower-order needs, also called ‘deficiency needs’ include physiological, safety, and love/belonging needs. Higher-order needs, or growth needs, include esteem and self-actualization needs. Maslow (1943) proposed that only when deficiency needs were sufficiently met could an individual gradually and fully progress to the achievement of growth needs (Amity et al., 2012).

One more theory which approached from an aspect of motivation is the ERG (Existence, Relationship, and Growth) theory which was established by Alderfer (Shin, 2007). Followed by this theory, human beings try to accomplish three categories of desire, which are growth needs (to progress toward one’s ideal self), Relatedness needs (to be recognized and feel secure as a part of a group, a family and a culture) and existence needs (e.g. food, water, air, shelter, clothing, safety, physical love and affection).

While Maslow and McClelland shared similar views on the needs approach to motivation, Herzberg distinguished between what he called “motivation” and “hygiene factors”

(Hwara, 2009). Herzberg (1993) defined a motivator as an influence that usually has uplifting effect on attitudes or performance. Hygiene factors produce no improvements but rather serve to "prevent losses" of morale or efficiency (Hwara, 2009).

2.2 Educational Evaluation Theories

2.2.1 Concept of Evaluation

To begin with this review, it is necessary step to define the term itself. There are various definitions to elaborate evaluation. Goldstein (1980) defined *evaluation as a systematic collection of descriptive and judgmental information necessary to make effective training decisions related to the selection, adoption, value, and modification of various instructional activities"* (Hung, 2010). Another definition by Muraskin considers evaluation as the systematic collection and analysis of data needed to make decisions (Zinovieff, 2008). Mann and Robertson (1996) suggest that "the evaluation of the effectiveness of training programs is critical because without it, organizations have no good way to know whether training pounds are being spent wisely".

According to Shepherd (1999) the primary function of evaluation for training is to enhance a trainee's knowledge, skills, and ability to improve his or her performance. However Spitzer (1999) wrote evaluation is the tool that can turn training into a powerful force for improvement of the business for both the organization and the people in it. Furthermore, Rothwell and Kazanas (1998) indicated three primary reasons why training evaluation is needed. First, training evaluation provides information on how to improve future training programs. Second, the evaluation of training aids trainers in determining whether to continue or discontinue training programs. Finally, training evaluation justifies the existence of the training department by showing how it contributes to an organization's objectives and goals (Hung, 2010). Another rationale for highlighting the purpose of evaluation was suggested by Kirkpatrick (1996). He wrote that evaluations is needed to identify the existing value, quality, and contribution of training programs in order to make sound training

investment decisions that will provide information for future improvement. Evaluating the effectiveness of training programs has several benefits as Phillips (1991) and Grove and Ostroff (1990) point out. For instance, training evaluation can serve as a diagnostic technique to permit the revision of programs to meet the large number of goals and objectives. Thus, the information can be used to select or revise programs (Mann and Robertson, 1996).

Despite the general agreement on the importance of training and development for increased competence, Lin (2008), Wang and Wilconx (2006) suggests insufficient attention is paid by employees and their organizations on the quality and effect of training (Lee-Kelley and Blackman, 2012). Goldstein (1980) also pointed out that, “most organizations do not collect the information to determine the utility of their own training programs”. In addition to those, Phillips (1996) also stated that evaluation is a critical and important training phase, however, it is often the most disregarded. Attia, Honeycutt, and Attia (2002) provide three reasons why this is so. First, training has been limited historically; training budgets have been reduced annually consistently since the 1970s. Second, the academic analysts have criticized evaluation efforts, asserting that they provide weak practical guidance. Third, trainer anxieties result in a desire to avoid performance appraisal unless the outcome is guaranteed to be positive (Tung, 2010).

Discussion on the subject of evaluation types may appear somewhat academic. However, in evaluation literature this discussion inevitably leads to the very concrete examples of evaluation models and schemes.

2.2.2 Kirkpatrick’s four-level training evaluation model

The most famous – and applied – evaluation model was developed by Donald J. Kirkpatrick. Kirkpatrick described 4 levels of training evaluation: reaction, learning, behavior and results. He identified the four levels as: (Zinovieff, 2008):

- *Level 1 (Reaction)* – a measure of satisfaction (what the trainees/fellows thought and felt about the training); evaluation here focuses on the reaction of individuals; an adequate question may be “what did trainees think of this training?”

- *Level 2 (Learning)* – a measure of learning (the resulting increase in knowledge or capability); evaluation here assesses what has been learned through the training; “Was there an increase in knowledge or skill level?”

- *Level 3 (Behavior)* – a measure of behavior change (extent of behavior and capability improvement and implementation/application); evaluation here measures the transfer of what has been learned back to the workplace; “Is new knowledge or skill being used on the job?”

- *Level 4 (Results)* – a measure of results (the effects on the institutional environment resulting from the fellows’ performance); evaluation here measures the impact of the training on overall organizational results; “What effect did the training have on the organization?”

Kirkpatrick’s four-level model is the most generally accepted by academics (Phillips, 1996) and also the model most widely used in organizations (Bates, 2004). Perhaps unsurprisingly, Kirkpatrick's four-level model (1959a, 1959b, 1960a, 1960b) continues to be the most prevalent framework for categorizing training criteria (Alliger et al., 1997). This simple taxonomy of training criteria became very popular in business and academia because it addressed a need to understand training evaluation simply yet systematically (Shelton and Alliger, 1993). This is the most popular model being used with required modifications and is applicable to any organizational setting (Rajeev et al., 2009). For instance, this model has been applied in evaluating training imparted to child-welfare professionals as well as entrepreneurship development training programs (Anita et al., 2006; Fullard, 2006).

However, several weaknesses have been identified with Kirkpatrick’s model, including overemphasis on the reactions of trainees, low correlation between reactions and performance, low correlation between measures at different outcome levels, and incompleteness of the model (Alliger,

1997; Bates, 2004; Holton, 1996; Swanson, 2001, Rajeev et al, 2009). As Noe and Schmitt (1986a) have suggested that trainee satisfaction has no significant relationship with learning. Warr and Bunce (1995b) also founded that there is no significant correlation between reported enjoyment of training, usefulness of training and learning scores (Lee, 2007).

Unfortunately, most of research is only concentrated on reaction level. Based on the research from the American Society of Training and Development shows that over 75% of organizations measure only the level of reaction through the use of questionnaires, the “smile” or “happy sheets” (Zinovieff, 2008). According to the Sugrue and Rivera (2005) state of the industry report, training evaluations occurred at the following rates: level one (employee reaction) 91%; level two (employee knowledge) 54%; level three (transfer of training to the workplace) 23%; level four (impact on business) 8%; and level five (monetary impact of the training) 3% (Hung, 2010).

Although Kirkpatrick (1996) stressed that to evaluate effectiveness of training, it must be evaluated at all four levels. Despite Kirkpatrick’s argument, organizations believe that trainee reactions are valid and reliable indicators for determining the effectiveness of a training program. Lee (2007) founded the reasons why organizations continue to solely use trainee reactions to their training evaluation. First, since it is a self-reported measure, it is easy to implement and collect dat. Second, it is cheaper to plan and implement than levels 2, 3, and 4 from the Four-level Evaluation Model.

2.2.3 Other Theories

Kirkpatrick's four-level model continues to be the most prevalent framework for categorizing training criteria (Alliger et al., 1997). This simple taxonomy of training criteria became very popular in business and academia because it addressed a need to understand training evaluation simply yet systematically (Shelton and Alliger, 1993). The model's simplicity is appealing but, as revealed in other works, this simplicity is also a liability (Alliger et al., 1997). Phillips and Phillips (2001) also

stated that although Kirkpatrick's model is popular in organizations, these models tend to be theoretically and practically vague in their specification of different types of learning outcomes, work behaviors and organizational performance criteria (Birdi, 2010). Because of this reason, some researchers argued that entirely different and better models of training evaluation are needed (Holton, 1996;Kraiger, Ford, & Salas, 1993).

Kraiger et al. (1993) questioned whether the Four-level Evaluation Model differentiates between skills and facts, since the model measures them with the same assessment tools. This is problematic, giving that these elements are substantively different; skills represent the "how" of knowledge, whereas facts reflect the "what" of knowledge (Lee, 2007). Kraiger et al. (1993) took a cognitive approach to training evaluation and proposed a classification scheme for individual learning outcomes (cognitive, skill-based or affective) based on psychological theory (Birdi, 2010).

Within the Kirkpatrick's model, Level 4 is considered results and is concerned with the changes in organizational measures such as sales, productivity, cost, quality, staff turnover, etc (Phillips and Phillips, 2001). However, Phillips (1997a) considered Level 4 as business impact by and addresses similar business measures. Phillips(1996a) added a step to isolate the training program from other influences in order to more specifically pinpoint training's contribution to the change in the business measures and offers ten strategies to accomplish this task (Phillips and Phillips, 2001). Figure 1 describes the Phillips five-level framework.

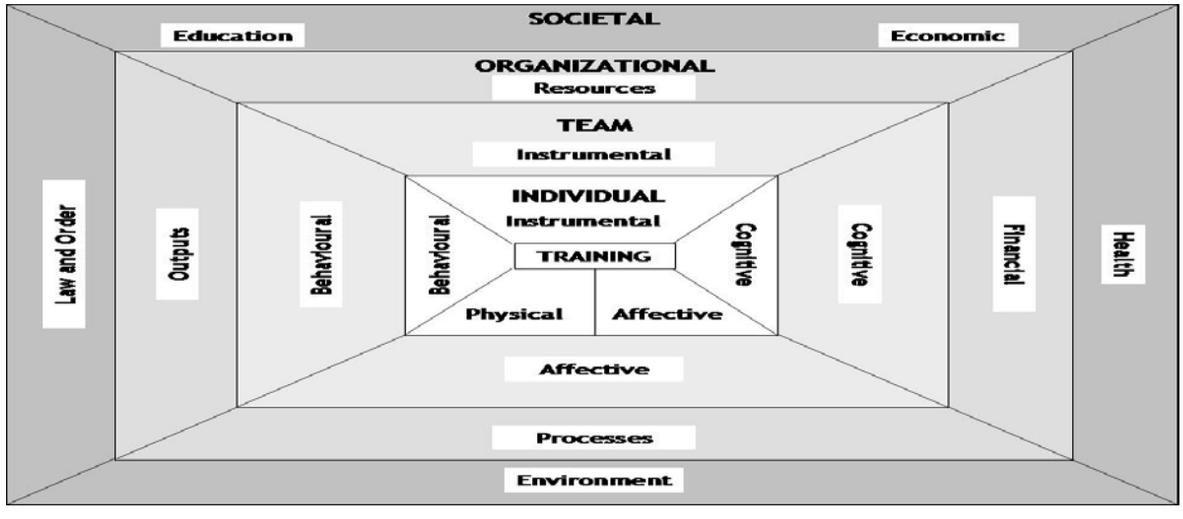
Figure 1. Five-Level ROI Frame work

Level	Brief description
1 Reaction & Planned Action	Measures participant's reaction to the program and outlines specific plans for implementation.
2 Learning	Measures skills, knowledge, or attitude changes.
3 Job Applications	Measures change in behavior on the job and specific application of the training material.
4 Business Results	Measures business impact of the program.
5 Return on Investment (ROI)	Measures the monetary value of the results and costs for the program, usually expressed as a percentage.

(Source: Handbook of Training Evaluation and Measurement Methods. 3rd ed., J. Phillips)

In recent years, Birdi (2010) who propose the Taxonomy of Training and Development Outcomes (TODADO) argued that most studies (e.g. Kirkpatrick, Kraiger et al.) from the employee development literature have used surveys to assess the impact of training and development activities on their participants. Consequently, the outcomes described in the previous section refer predominantly to the individual, whereas other levels of outcomes are equally important. Within the TOTADO framework, outcomes can be measured at four basic levels: individual, team (or work group), organizational and societal. TOTADO attempts to do this (see Figure 2) and will be outlined.

Figure 2. The Taxonomy of Training and Development Outcomes (TOTADO) Framework



(Source: The taxonomy of training and development outcomes: A new model of training evaluation", Birdi)

III. HYPOTHESIS DEVELOPMENT

3.1 The Model of the Study

To evaluate the effectiveness of the master's degree program of KDI School, this research was used Kirkpatrick's four-level model. Although this model have several flaws as we've showed in the literature review part (see e.g., Holton, 1996), however, this model is most widely accepted and used in the academic (Phillips, 1996) and the business world (Bates, 2004), as it is simple, complete, clear and easy to execute as training evaluators expect. Kirkpatrick's four-level training evaluation model is the most universally known in performance evaluation (Yun-Tsan Lin et al., 2011).

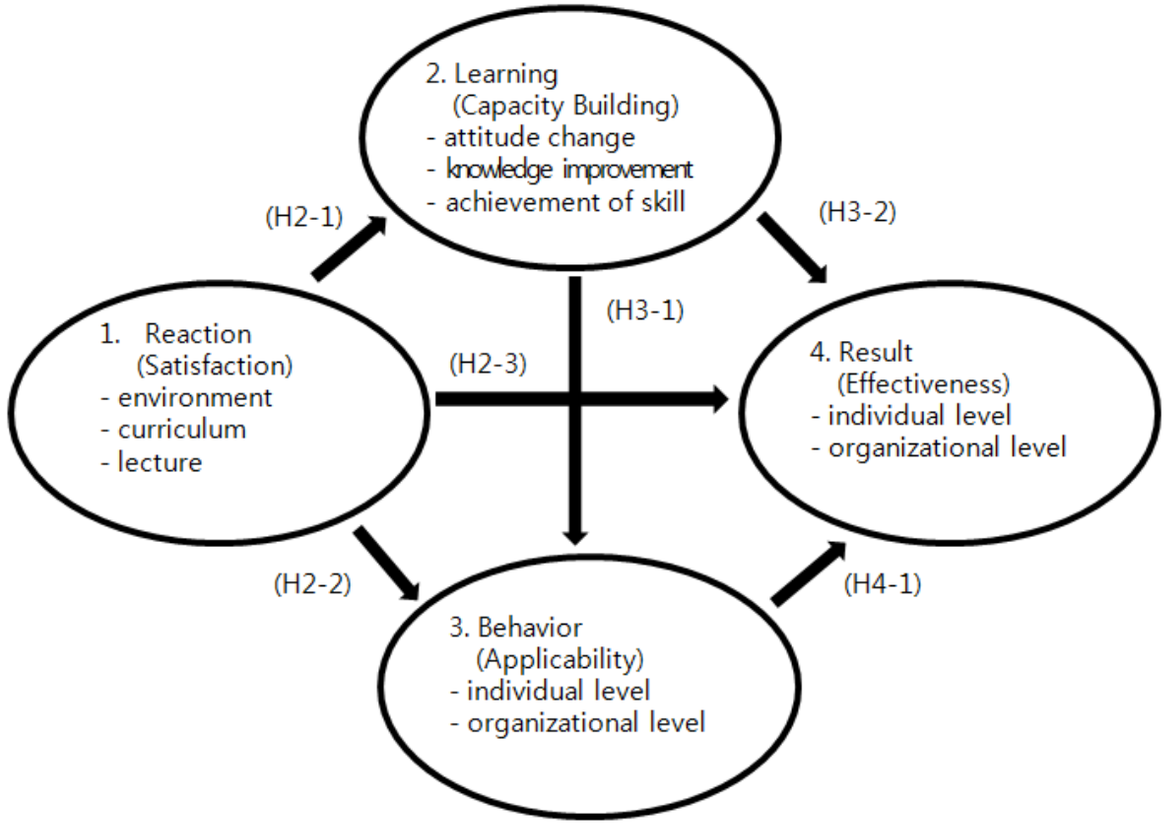
Followed by Yun-Tsan Lin et al (2011)'s illustration about Kirkpatrick's four-level training evaluation model is like below: "This model covers reactions, learning, behaviors and results. Reaction level evaluates the feelings and reactions of trainees on education training. It covers satisfaction of trainees on training arrangement, courses, instructors, teaching materials, and teaching methods; learning level aims at understanding trainees' comprehension of instruction, principles, ideas, knowledge and skills; behavior level evaluates trainees' changes of behaviors after training to measure how trainees apply the what is learned in actual work; result level focuses on influence of trainees' behaviors on training results".

Based on Kirkpatrick's model, each level includes major factors in this paper. Firstly, in reaction level this research measures satisfaction about environment, curriculum and lecture of KDI School. Learning level measures capacity building part which is composed of attitude change, knowledge improvement, and achievement of skill. Lastly, both behavior and result level will be analyzed by two parts, so that, individual part and organizational part. In behavior level, to find out the applicability of the knowledge and skills which are learned in KDI School, through the survey, the respondents answered about the application experiences both in individual level and organizational level. But for several hypotheses, mean of applicability both in individual level and

organizational level are used. In last step, to inspect the effectiveness of education, in individual level, check whether the respondents get wage increase or promotion and in organizational level, inspect whether the organization accepted proposed policy or ideas of KDI alumni or not.

In original Kirkpatrick's model, effectiveness of education is evaluated by the sequential level, but this paper will find out the relation among each levels. For example, how reaction directly affect behavior and result or how learning directly affect the result. To understand feasibility this model can be provisionally explained as Figure 3.

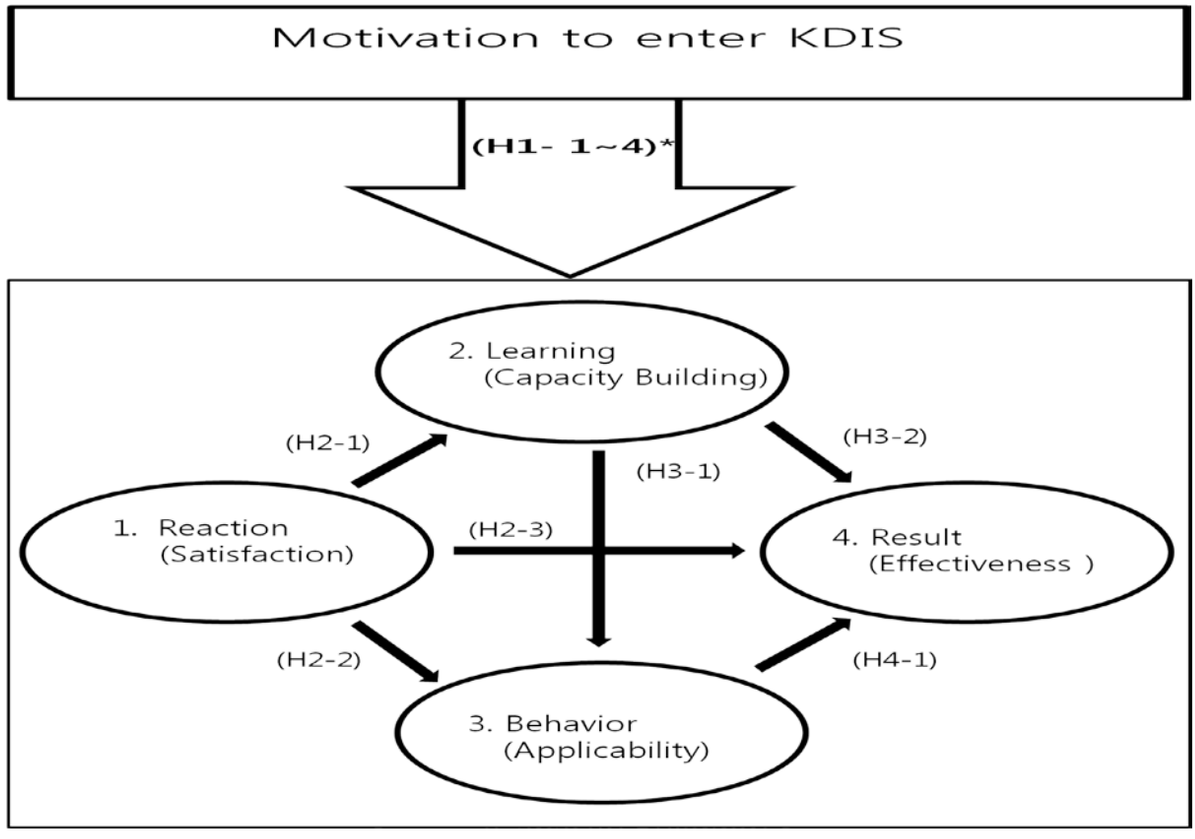
Figure 3.Modified Kirkpatrick's Four-Level Model



(Source: Modified by author from Kirkpatrick and Yun-Tsan Lin et al)

Based on Kirkpatrick's model, I'll add motivation part to measure how motivation affected the each level directly. This concept may be shown as Figure 4.

[Figure 4] Motivation and four-level model



(Source: Modified by author from Kirkpatrick and Yun-Tsan Lin et al)l

* Effects of motivation (H1-1~4) measures motivation to four major variables including reaction, learning, behavior and result.

3.2 Development of Hypothesis

Based on preceding review and theories, this paper proposes following hypotheses to grasp the key findings:

H1. Motivation part: The satisfaction (reaction level), capacity building (learning level), applicability (behavior level) and effectiveness (result level) of education are affected directly by motivation

H1-1.The satisfaction of the education is affected directly by motivation

H1-2.The capacity building of the education is affected directly by motivation

H1-3.The applicability of the education is affected directly by motivation

H1-4a.The effectiveness of the education in individual level is affected directly by motivation

H1-4b.The effectiveness of the education in organizational level is affected directly by motivation

Hypotheses 1-1~1-4b have a distinguished meaning in that high motivation can lead positive educational effectiveness, such as satisfaction, capacity building, applicability and individual or organizational effectiveness. Followed by Tannenbaum et al. (1991) performance during training was associated with post-training motivation. In addition to this, Richard Oliver (2010) also highlighted that high positive expectation may produce high level of satisfaction.

To prove these hypotheses, through the survey, respondents were answered about the questions about their motivation before entering the KDI School. For example, motivation was calculated by asking about their anticipation to gain useful knowledge and skills or to gain promotion and wage increase or to build human network after taking KDI School's education program. These hypotheses can be interpreted as a direct linkage between motivation and each level of Kirkpatrick's four level model of training evaluation.

H2. Student's satisfaction on KDIS program directly affects capacity building, applicability and effectiveness.

H2-1.Student's satisfaction on KDIS program has positive influence on capacity building.

H2-2.Student's satisfaction on KDIS program has positive influence on applicability.

H2-3a.Student's satisfaction from KDIS program has positive influence on effectiveness in individual level.

H2-3b.Student's satisfaction from KDIS program has positive influence on effectiveness in organizational level.

According to Tan et al. (2003) the first level of the Four-level Evaluation Model, trainee reaction, is a measure of trainee's feelings about a training program. Reaction level is the most common criterion used in the industry to evaluate training programs (Bassi, Benson, and Scott, 1996; Saari et al., 1988).

However, in recent studies, several researchers (Clement 1982; Alliger and Janak 1989; Arthur et al. 2003) founded that there is no systematic evidence that positive reactions to training are necessarily associated with more positive level 2 or level 3 outcomes, such as better learning and/or more effective transfer of learning to the job. It would be rash to assume that positive training experiences have absolutely no beneficial effect on trainees. According to Goldstein (1980) most trainers believe that “initial receptivity provides a good atmosphere for learning the material in the instructional program”. He stresses that this “does not necessarily cause high levels of learning”. Tannenbaum and Yukl (1991) also said, “liking does not imply learning” (Mann, 1996). However, as argued by Meyer and Allen (1997) and by Rhoades and Eisenberger (2002), positive training experiences may well have a beneficial impact on a number of important employee attitudes and behaviors including, for example, their level of job motivation, organizational commitment and perceived organizational support (Giangreco et al., 2009).

Hypotheses 2-1~2-3b concentrates on the relationship between satisfaction and other levels. In these hypotheses, degree of satisfaction is set as an independent variable and other variables such as capacity building, applicability and effectiveness are set as dependent variables. To interpret these hypotheses, when a student who showed high degree of satisfaction about education is tends to show relatively high degree of capacity building, applicability and effectiveness.

H3. Student’s capacity building from the KDIS program directly affects applicability and effectiveness.

H3-1.Student’s capacity building from the KDIS program has positive influence on applicability.

H3-2a.Student’s capacity building from the KDIS program has positive influence on individual effectiveness.

H3-2b.Student’s capacity building from the KDIS program has positive influence on organizational effectiveness.

These hypotheses assumed that students who have been build his or her capacity through knowledge improvement, achievement of skill and attitude change are tend to apply their knowledge at workplace and enhance effectiveness. These hypotheses have a meaning that high degree of capacity building can affect on applicability and effectiveness.

H4. Student's applicability directly affects effectiveness.

H4-1a.Student's applicability from the KDIS program has positive influence on effectiveness in individual level.

H4-1b.Student's applicability from the KDIS program has positive influence on effectiveness in organizational level.

Baldwin (1988) defined level 3, behavior, as follow: "Transfer of training is same as the "degree to which trainees effectively apply the knowledge, skills and attitudes gained in a training context to the job". However, according to Georgenson (1982), no more than 10 per cent of industrial training expenditure actually results in transfer to the job. Other researchers have similarly concluded that much of the training conducted in organizations fails to transfer to the work setting (Mann, 1996).

Based on previous research, this paper set hypotheses to prove whether behavior, transfer of knowledge at workplace, had affected result or not. 4-1a and 4-1b hypotheses proposed that student's behavior at workplace directly affects the individual and organizational effectiveness. To prove these hypotheses, individual effectiveness is measured by students' wage increase or promotion while organizational effectiveness is measured by acceptance of proposed policies or institutions which is learned in KDI School.

IV. SURVEY DEVELOPMENT

4.1 Structure of Survey

This research concentrates on the relation between the variables which suggested by Kirkpatrick's four level model of training evaluation, so this survey should ask about every four step which are reaction, learning, behavior and result. In addition to this, this research discovers relation between motivation and four level variables.

Every level includes subcategories to measure the variables. To test hypotheses, subcategory questionnaires will be added up to elaborate each variable. For example, to know satisfaction degree, I calculated mean of subcategories which are satisfaction about environment, curriculum and lectures.

In the main survey, answers about each level were assessed on 5-point Likert scales For the Likert scales 1 was the most negative end, while 5 was the most positive. For more accurate answers, besides numbers, the scale also contained signposts as follows: 1- "strongly disagree", 2- "disagree", 3 – "uncertain", 4 –"agree", 5- "strongly agree".

Table 1. Survey structure of this study

Variables	**Subcategory**	
Motivation	1. to gain useful knowledge and skills 2. to be promoted or gain wage increase 3. to build human network	
Satisfaction (1.Reaction)	1.about environment *(e.g. service/facility/locations)* 2.about curriculum *(e.g. lectures/field trips, school activities)* 3.about lectures *(e.g. lecturer/lecture contents/text book)*	
Capacity Building (2.Learning)	1.via attitude change 2.via knowledge improvement 3.via taking useful skills	
Variables	**Subcategory**	
Applicability (3. Behavior)	1.Individual level	:applied knowledge & skills in individual work *(e.g. used economic knowledge, statistic knowledge, Korean and so on)*

	2.Organizational level	:applied knowledge & skills in organizational work *(e.g. introduced new laws, rules or institutions and so on)*
Effectiveness (4.Results)	1.Individual level	: development of individual career *(e.g. Promotion or wage increase)*
	2. Organizational level	: acceptance of proposed policy

4.2 Data collection and statistical treatment of data

Respondents are all international students who graduated KDI School within 2006~2011. The total number of selected students was 432. The survey was conducted for 3 weeks (from 6 to 26 September 2012). The survey is performed based on the on-line survey website 'Qualtric' from distribution of questionnaire to data collection.

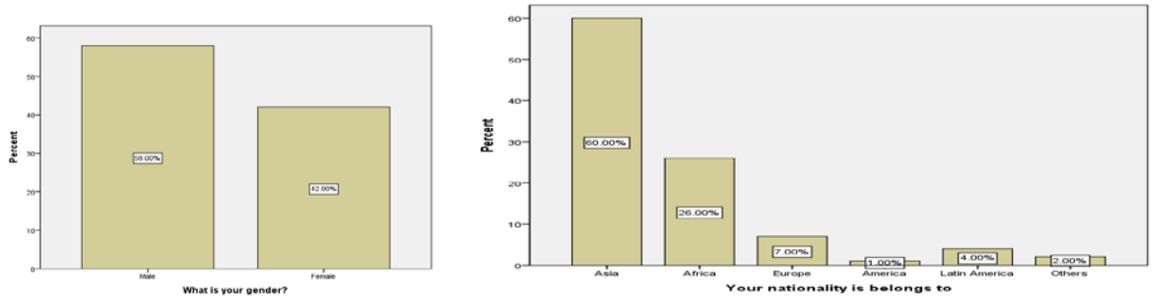
The initial number of responds was 116. The response rate was about 27% (116/432). After data collection, 12 responds were removed via data cleansing process. Deleted data was not filled all questions and some data was filled with same value at every questions which can skew the average. Moreover some responses violate validation rules. For example, they should pick only one answer but checked more than two. After data cleansing process, remain number of data was 104. Among data analysis I used only 104 responds to test hypothesis.

V. KEY FINDINGS FROM THE SURVEY

5.1 Demographic Statistics for the Subjects

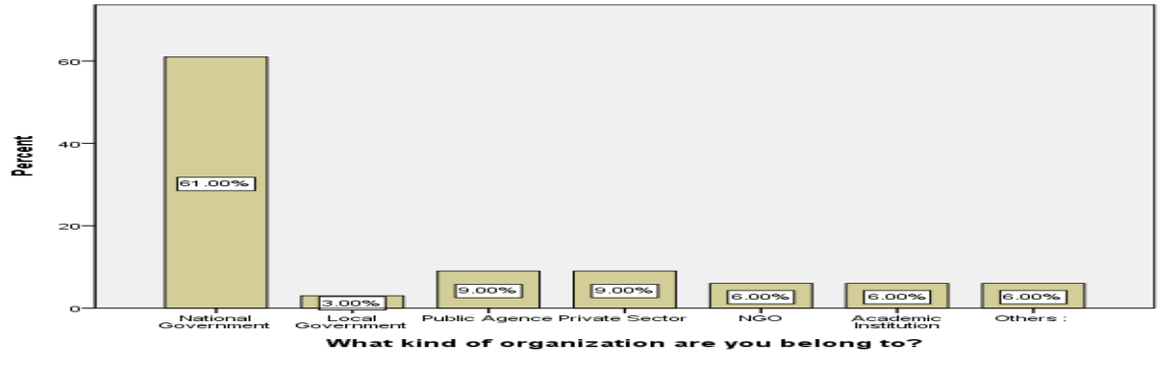
Among 104 respondents, male respondents occupy 58% (62 people) while female 42% (42 people). Among frequency analysis of respondents nationality, Almost 60% of respondents were from Asia (60), 26% from Africa (26), others from Europe (7), Latin America (4), and so on. More than 90% students were dispatched from developing countries from Asia, Africa and Latin America. In this question, 4 respondents didn't answer, so missing number is 4.

Figure 3.Frequency analysis of gender and nationality



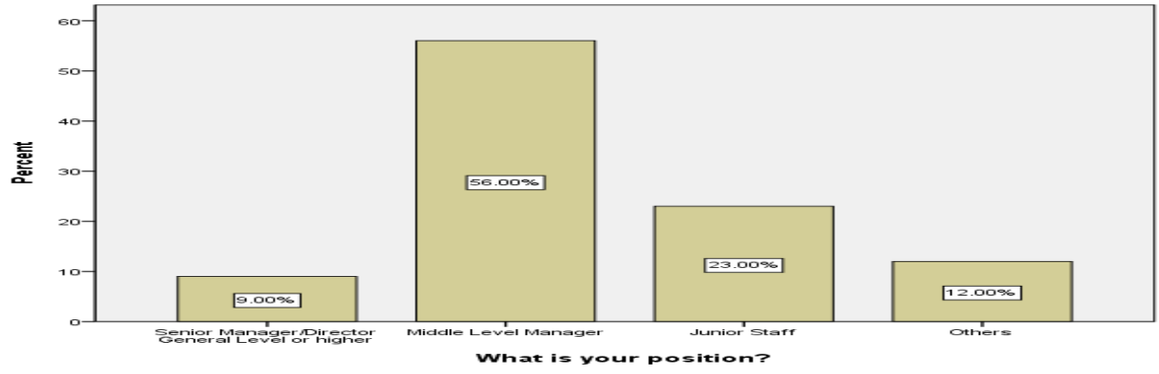
Among 104 respondents, almost 65% are work for national or local government. 9% of respondents are working for private sector, and another 9% are working for public agency. Last of respondents are works for NGO, academic institutions and so on.

Figure 4.Frequency analysis of occupational type



Followed by frequency analysis of position, 56% respondents are middle level manager while 9% are senior manager or director and 23% are junior staff.

Figure 5.Frequency analysis of position



5.2 Result of Hypothesis test

H1. Motivation part: The satisfaction (reaction level), capacity building (learning level), applicability (behavior level) and effectiveness (result level) of education are affected directly by motivation.

Table2. Result of Hypothesis H1-1

H1-1	The satisfaction of the education is affected directly by motivation	Result
		Rejected

The result of regression analysis between motivation and satisfaction shows 0.061 of R^2, 0.11 of p-value and 24.458 f-value. Thus, this hypothesis is to be turned down. It means motivation does not directly affect satisfaction.

Table3. Regression analysis for motivation and satisfaction

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Motivation → Satisfaction	.195	.075	.248	2.583	.011

Table4. Result of Hypothesis H1-2

H1-2	The capacity building of the education is affected directly by motivation	Result
		Accepted

Regression analysis between motivation and mean of variables which are belongs to capacity building (attitude change, knowledge improvement, achievement of skill) shows 0.193 of R^2, 0 of p-value and 24.458 of f-value. H1-2 Hypothesis is accepted within α significance of 1%. β coefficients indicates 0.44. Thus motivation directly affects capacity building.

Table 5.Regression analysis for motivation and capacity building

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Motivation→ Capacity building	.359	.073	.440	4.945	.000

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Table6. Result of Hypothesis H1-3

H1-3	The applicability of the education is affected directly by motivation	Result
		Accepted

To verify Hypothesis 1-3, applicability was measured by calculating mean of individual and organizational applied experiences. Result of regression between motivation and applicability demonstrates R^2 0.l32 level and 0 of p-value and 15.510 of f-value. In conclusion, the Hypothesis H1-3 is accepted within α significance of 1%. β coefficients indicates 0.363.

Table 7.Regression analysis for motivation and applicability

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Motivation→ Applicability	.405	.103	.363	3.938	.000

Table8. Result of Hypothesis H1-4a

H1-4a	The effectiveness of the education in individual level is affected directly by motivation	Result
		Accepted

The result of regression analysis between motivation and individual level effectiveness shows 0.069 of R^2, 0.008 of p-value and 7.317 of f-value. In conclusion, the Hypothesis H1-4a is accepted within α significance of 10%. β coefficients indicates positive, but does not show so high score (0.264). It means relatively high motivation to enter KDI School directly affects respondents' promotion and wage increase positively.

Table 9.Regression analysis for motivation and individual level effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Motivation→ Individual effectiveness	.334	.124	.264	2.705	.008

Table10. Result of Hypothesis H1-4b

H1-4b	The effectiveness of the education in organizational level is affected directly by motivation	Result
		Rejected

The result of regression analysis between motivation and organizational level effectiveness shows 0.010 of R^2, 0.311 of p-value and 1.039 of f-value. Thus, this hypothesis is to be turned down. It means degree of motivation does not directly affect the acceptance for respondents' proposed policy, rules and institutions which are learned in KDI School.

Regarding with motivation variable, motivation directly affects capacity building, applicability and individual level effectiveness while it didn't affects satisfaction and organizational level effectiveness.

Table 11.Regression analysis for motivation and organizational level effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Motivation→ Organizational effectiveness	.171	.168	.102	1.019	.311

H2. Satisfaction part: Student's satisfaction on KDIS program directly affects capacity building, applicability and effectiveness.

Table12. Result of Hypothesis H2-1

H2-1	Student's satisfaction on KDIS program has positive influence on capacity building.	Result
		Accepted

Regression analysis between satisfaction and mean of variables which are belongs to capacity building (attitude change, knowledge improvement, achievement of skill) shows 0.365 of R^2, 0 of p-value and 58.653 of f-value. H2-1 Hypothesis is accepted within α significance of 1%. β coefficients indicates 0.604. Thus satisfaction on KDIS program directly affects students' capacity building.

Table 13. Regression analysis for satisfaction and capacity building

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Satisfaction→ Capacity building	.627	.082	.604	7.659	.000

Table14. Result of Hypothesis H2-2

H2-2	Student's satisfaction on KDIS program has positive influence on applicability.	Result
		Accepted

The result of regression analysis between satisfaction and applicability which was measured by calculating mean of individual and organizational applied experiences shows 0.167 of R^2, 0of p-value and 20.445 of f-value. In conclusion, the Hypothesis H2-2 is accepted within α significance of 1%. β coefficients indicates 0.409. Thus, student's satisfaction has positive influence on applicability.

Table 15.Regression analysis for satisfaction and applicability

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Satisfaction→ Applicability	.579	.128	.409	4.522	.000

Table16. Result of Hypothesis H2-3a

H2-3a	Student's satisfaction from KDIS program has positive influence on effectiveness in individual level.	Result
		Rejected

The result of regression analysis between satisfaction and individual level effectiveness shows 0.013 of R^2, 0.246 of p-value and 1.364 of f-value. Thus, this hypothesis is to be turned down. It means there is no relationship between satisfaction from KDI School and respondents' promotion or wage increase.

Table 17.Regression analysis for satisfaction and individual level effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Satisfaction→ Individual effectiveness	.265	.227	.115	1.168	.246

Table18. Result of Hypothesis H2-3b

H2-3b	Student's satisfaction from KDIS program has positive influence on effectiveness in organizational level.	Result
		Rejected

Regression between satisfaction and organizational level effectiveness shows 0.021 of R^2, 0.155 of p-value and 2.054 of f-value. Thus, this hypothesis is to be turned down.

In conclusion, satisfaction from KDIS has positive influence on capacity building and applicability while do not affects effectiveness.

Table 19.Regression analysis for satisfaction and organizational level effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Satisfaction→ Organizational effectiveness	.299	.209	.143	1.433	.155

H3. Capacity building part: Student's capacity building from the KDIS program directly affects applicability and effectiveness.

Table 20.Regression Result of Hypothesis H3-1

H3-1	Student's capacity building from the KDIS program has positive influence on applicability.	Result
		Accepted

Result of regression between capacity building and applicability demonstrates R^2 0.391 level, 0 of p-value and 65.525 of f-value. In conclusion, the Hypothesis H3-1 is accepted within α significance of 1%. β coefficients indicates 0.625. It means respondents who have experienced capacity building are likely to apply their knowledge and skill on both individual and organizational work.

Table 21.Regression analysis for capacity building and applicability

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Capacity building→ Applicability	.854	.106	.625	8.095	.000

Table 22.Regression Result of Hypothesis H3-2a

H3-2a	Student's capacity building from the KDIS program has positive influence on individual effectiveness	Result
		Rejected

The result of regression analysis between capacity building and individual level effectiveness shows 0.058 of R^2, 0.014 of p-value and 6.252 of f-value. Thus, this hypothesis is to be turned down.

Table 23.Regression analysis for capacity building and individual level effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Capacity building→ Individual effectiveness	.535	.214	.240	2.500	.014

Table 24.Regression Result of Hypothesis H3-2b

H3-2b	Student's capacity building from the KDIS program has positive influence on organizational effectiveness.	Result
		Accepted

Regarding with capacity building variable, regression analysis was conducted with setting the organizational effectiveness as dependent variable. Results of regression demonstrate R^2 0.130 level, 0 of p-value and 14.704 of f-value. In conclusion, the hypothesis 3-2b is accepted is accepted within α significance of 1%. β coefficients indicates 0.361

With independent variable 'capacity building', applicability and organizational effectiveness shows positive relationship with x-variable while individual effectiveness does not revealed any relationship with capacity building.

Table 25.Regression analysis for capacity building and organizational level effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Capacity building→ Organizational effectiveness	.730	.190	.361	3.835	.000

H4. Applicability part: Student's applicability directly affects effectiveness.

Table 26.Regression Result of Hypothesis H4-1a

H4-1a	Student's applicability from the KDIS program has positive influence on effectiveness in individual level.	Result
		Rejected

The result of regression analysis between applicability and individual level effectiveness shows 0.026 of R^2, 0.11 of p-value and 2.608 of f-value. Thus, this hypothesis is to be turned down.

Table 27.Regression analysis for applicability and individual level effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Applicability→ Individual effectiveness	.255	.158	.161	1.615	.110

Table 28.Regression Result of Hypothesis H4-1b

H4-1b	Student's applicability from the KDIS program has positive influence on effectiveness in organizational level	Result
		Accepted

The result of regression analysis between applicability and organizational level effectiveness shows 0.317 of R^2, 0 of p-value and 45.392 of f-value. H4-1b Hypothesis is accepted within α significance of 1%. β coefficients indicates 0.563. Thus applicability on KDIS program directly affects students' capacity building.

In conclusion, respondents' application experience affects only organizational level while does not affects individual level effectiveness.

Table 29.Regression analysis for applicability and organizational level effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Applicability→ Organizational effectiveness	.619	.092	.563	6.737	.000

Summary of the above verification results are as below the table 30;

Table 30. Synopsis on results of verification

No	X variable	Y variable	Result
H1-1	Motivation	Satisfaction	Rejected
H1-2		Capacity building	Accepted***
H1-3		applicability	Accepted ***
H1-4a		Effectiveness(individual)	Accepted *
H1-4b		Effectiveness(organizational)	Rejected
H2-1	Satisfaction	Capacity building	Accepted ***
H2-2		applicability	Accepted ***
H2-3a		Effectiveness(individual)	Rejected
H2-3b		Effectiveness(organizational)	Rejected
H3-1	Capacity building	applicability	Accepted ***
H3-2a		Effectiveness(individual)	Rejected
H3-2b		Effectiveness(organizational)	Accepted ***
H4-1a	Applicability	Effectiveness(individual)	Rejected
H4-1b		Effectiveness(organizational)	Accepted ***

*** significant at 1% level
** significant at 5% level
* significant at 10% level

5.3 Other findings

Q1. Why foreign government officer chose KDIS program? Which factor attracts them?

Followed by survey question no.4 (“Please answer about the reasons why you chose to study at the KDI School?”), the biggest reason why students chose KDIS was ‘scholarship support’ (86/104), second reason was ‘opportunity to learn about Korea’s economic and social development’ (76/104), third reason was ‘classes are taught in English’(68/104), and other reasons like ‘school reputation’ (49/104), ‘curriculum’ (44/104), ‘professors’ profiles’ (47/104), ‘prospects of networking’ (53/104), and ‘partnership with other institutes’ (36/104) were chosen with similar percentage.

Q2. People who were participated in KDIS program are satisfied with the program? (Satisfaction)

Within the survey, respondents answered about the satisfaction to environment, curriculum and lectures (survey question no.5~7). Analyze the answers which were assessed on 5-point Likert scales (In this survey, 1 was the most negative end, while 5 was the most positive), mean of three question was 4.368. It means respondents were strongly satisfied with overall KDI School’s environment, curriculum and lectures. To present more specifically, mean of the satisfaction to ‘environment’ (service, facility, location, students) was 4.375, mean of the satisfaction to ‘curriculum’ (lectures, field trips, school activities) was 4.385 and mean of the satisfaction to ‘lectures’ (lecturer, lecture contents, text book) was 4.346.

Q3. People who were participated in KDIS program can achieve knowledge improvement and useful skill? (Capacity building)

Most of students answered positively about this question (survey question no.8.1~8.3). The mean of capacity building was 4.333, this shows most of students were strongly agree about their acquisition of capacity building. More specifically, means of students answer was most high about ‘knowledge improvement’ (4.480), next one was ‘acquisition of useful skills’ (4.336), and last one was ‘attitude change’ (4.182).

Q4. Is the Knowledge which learned from KDIS able to use in there working area? (Applicability)

Students agreed that they used knowledge and skills which learned in KDIS in individual work (4.144), but when it comes to organizational work, most of answers were ranked among uncertain and agree (3.807).

Q5. Is the KDIS program effective for student's work and their nation? (Effectiveness)

To inspect the effectiveness of education, in individual level, the respondents answered about wage increase or promotion. In organizational level, survey asked about whether the organization accepted proposed policy or ideas of KDI alumni or not.

When it comes to individual level, respondents answered about individual effectiveness which was measured by wage increase (3.375) and promotion (3.461) among uncertain and agree, while mean of organizational effectiveness which was measured by acceptance of proposed policy was calculated 3.288. These result shows there's no high effectiveness of education in KDIS.

VI. CONCLUSION

6.1 Summary and Implication

This paper evaluated effectiveness of education program especially about KDI School's program of master's degree for international students. Most of education evaluating is concentrating on satisfaction level, however, this research tried to find out the relationship between satisfaction, capacity building, applicability and effectiveness based on Kirkpatrick's four-level model. In addition to this, this paper added motivation part to find out the affects of motivation to every level.

The conclusion which can be drawn from this study are these: 1) Motivation affects capacity building and applicability and individual level effectiveness. It means when students' motivation to participate the education is high, they are more likely to put their efforts on learning and behavior. 2) Students' satisfaction has high correlation with capacity building and applicability. In recent years, some arguments have been made that satisfaction to education program do not affect learning (Clement 1982; Alliger and Janak 1989; Arthur et al. 2003). But in this paper, although satisfaction do not have any relationship with effectiveness, it is certain that satisfaction is the basic level to escalate for next step. However, 3) Capacity building cannot affect individual level effectiveness but it has affection to organizational level effectiveness. Lastly, 4) Applicability only affects the effectiveness organizational level.

Although there can be differences depends on types of education, all of this leads to a straightforward conclusion. When students' motivation before participate the education and satisfaction after the education is high, capacity building and applicability is also marked high degree. When it comes to education conductor, they cannot adjust participants' motivation but they can put their effort to enhance the satisfaction of students to let the students to get relatively high result of learn and behavior level.

6.2 Limitation and Further Research

The first limitation of this study is that, data size of this study was relatively small. Although initial sample size was 432, only a quarter (116) responded. Moreover after data cleansing, only 104 responds were remained. Certainly, this study measures with limited factual data, which might characterize as insufficiently reliable. To attain reliable result, the present paper's limitation in scope should be modified. Further studies on different large scale assessments are needed.

Second, backgrounds of students were various so that it is hard to measure organizational effectiveness with productivity or improvement in organizational morality. For that reason, in this paper, to measure a variable 'organizational effectiveness', we used the respondents' experience on whether their applied policies or institutions which was learned in KDI School was accepted or not at their organization. Regretfully it is relatively vague to represent the effectiveness. To get more exact result, in further research should ask organization directly about the effectiveness of trainees' education participation experiences.

Third, this study applied Kirkpatrick's evaluation model by targeting only one case which is master's degree program of KDI School. To find out general result, which can apply all of the sectors, about relation between each levels, more implementation should be conducted in various field.

APPENDICES

Appendix 1 : Survey Questions

For each of the following statements and/or questions, please circle or check the point on the scale that you feel is most appropriate in your opinion or feeling.

Motivation

1. Before I enter the KDIS, I was anticipated to gain **useful knowledge and skills** from KDIS.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

2. Before I enter the KDIS, I was anticipated to gain **promotion or wage increase** after taking KDIS.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

3. Before I enter the KDIS, I was anticipated to **build human network** from KDIS

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

4. Please answer about the reasons why you chose to study at the KDI School? Check all that apply.

a. ____School's reputation
b. ____Curriculum
c. ____Professors' profiles
d. ____Opportunity to learn about Korea's economic and social development
e. ____Classes are taught in English
f. ____Prospects of networking
g. ____Partnership with other international institutes
h. ____Scholarship support
i. ____Other (Specify) _____

Satisfaction

5. I was satisfied with overall **environment** (service, facility, location, students)of KDIS.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

6. The overall **Curriculum** of the KDIS was well structured.(ex : lectures, field trips, school activities)

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

7. The overall quality of the KDIS **Lectures** (Lecturer, lecture contents, text book) were high.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

Capacity building

8. KDIS program affected to my capacity building.(ex : attitude change, knowledge & skill improvement)

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

8.1. KDIS program was changed my **attitude** about the work.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

8.2. My **knowledge** was improved after taking KDIS program.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

8.3. I learned useful **skills** from KDIS which can be used in my work

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

Applicability

9. I have used knowledge and skills which learned in KDIS in my **individual work**. (ex : I used the economic knowledges, statistic knowledges, korean, and so on individually)

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

10. I have used knowledge and skills which learned in KDIS in **organizational work.** (ex : I introduced new laws, rules or institutions to my country, using the knowledge and skills which I've learned in KDIS.)

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

Effectiveness

11. KDIS program have contributed to the development of my career.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

11.1. I have been promoted after taking the KDIS program.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

11.2. My wage has been raised after taking the KDIS program.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

12. My organization accepted my proposal policy which is learned from KDIS program.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

Others

13. My perception about Korea has improved after taking the KDIS program.

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

14. I would like to recommend the KDIS to my collegues in my country.`

I----------I----------I----------I----------I----------I

Strongly Disgree Disagree Uncertain Agree Strongly Agree

Questions about Demographics

15. What is your age ? ____

16. What is your gender? Male ____ Female ____

17. What is your marrital status?

Single ____ Married ____

18. Your nationality is belongs to

Asia Africa Euroup America Latin America Oceania

others (the name of country :)

19. What kind of organization are you belong to?

- National Government
- Local Government
- Public Agence
- Private Sector
- NGO
- Academic Institution
- Others : ( )

20. What is your position?

- Senior Manager/Director General Level or higher
- Middle Level Manager
- Junior Staff
- Others

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