THE INFLUENCE OF CURRICULUM ELEMENTS ON THE PERCEIVED EFFECTIVENESS OF DFP TK. PERTAMA LIPI

Ira Saphira
s1090062
isaphira@yahoo.com

A MASTER THESIS IN EDUCATIONAL SCIENCE AND TECHNOLOGY
FACULTY OF BEHAVIORAL SCIENCES

UNIVERSITY OF TWENTE.

AUGUST 22, 2013

Table of Contents

Acknowledgement

First of all, I would like to say my greatest gratitude to the almighty Allah SWT, for His everlasting blessings and for giving me strength to finish this very long journey. With this thesis, I will finish my wonderful time at the University of Twente, which has improved my knowledge in educational science by providing a never ending challenge with its highly educated environment. To my first supervisor, dr. Jenny Ngo, thank you very much for your continuous support and feedback and your patient in guiding me to finish my master thesis. To my second supervisor, Prof. dr. Peter Sleegers, thank you for your valuable feedback to improve the quality of this thesis.

My deepest gratitude also goes to the Dutch government through Nuffic Neso who already gave me an amazing opportunity to study in the Netherlands via its StuNed Scholarship programs. I would like to say thank you to Ms. Monique Davids, who never hesitated to offer her help in solving my cross-continental problems. The gratitude also goes to the Head of Pusbindiklat Peneliti LIPI and its staffs who support my study and help me to conduct my research.

To Isaac and Roberto, thank you very much for always being there whenever I need you, and for the opportunity to experience a colorful life during my stay in the Netherlands. You also make me stay strong in my most difficult time. To Tram, Christel and Daian, thank you for all the time we spent together in the library and the valuable conversations. To my best Indonesian friend, Nida, thank you very much for always being there and for delicious Indonesian food that makes me feel like I'm still at home. To all of my Indonesian, Dutch, and international friends, thank you for making me feel like the Netherlands is my home.

Last but not least, my gratitude goes to my beloved family for their never ending love, prayers and support during my study here. For my late father and mother, this thesis is dedicated to you. This is the accomplishment of half of your dreams. I hope I can accomplish the other half very soon. Rest in peace.

Abstract

This study investigates which curriculum elements give the biggest influence on perceived training program effectiveness. In this study, Diklat Fungsional Peneliti Tk. Pertama (DFP Tk. Pertama) is chosen because this training program is the only training program in Indonesia that focuses on giving the basic knowledge and skills for researchers. This training program has the main goal to teach sufficient knowledge and skills for the researchers to conduct a high quality research. Therefore, the effectiveness of this training program is very important to ensure that the researchers are able to improve their knowledge and skills to conduct a high quality research in the future. This study intends to measure which curriculum elements give the biggest influences on the perceived effectiveness of DFP Tk. Pertama. To investigate the answer, a research was conducted through a questionnaire survey with a 5 Likert-scale. The measurement of curriculum elements' influence on the perceived training program effectiveness is based on the participants' responses which they put on the questionnaire form. The samples in this study are 30 participants of the DFP Tk. Pertama who have different gender, age, education degree, and education background (natural, technical, and social sciences).

The result reveals that curriculum gives a significant influence to the effectiveness of the DFP Tk. Pertama. Measured per curriculum element, the result of the analysis shows that course of the study has the highest influence on the training program effectiveness. On the contrary, the other three of the curriculum elements: textbooks, classroom practices and supporting facilities, have no significant influence on the training program effectiveness. At the end of the training program, the participants agree that the DFP Tk. Pertama is effective to improve their knowledge and skills.

Key words: *training program effectiveness, DFP Tk. Pertama, curriculum elements*

I. Introduction

1.1. Background of the study

A training program is an educational activity that has a specific duration. The main goal of a training program is to improve the knowledge and skills of the participants by giving series of course of the study through a specific curriculum. Monahan (2012) states that a training program can cover a wide range of course of the study to reach its goals. He also states that a training program has a goal to improve knowledge and skills on the participants' expertise in order to keep them motivated and bring the improvement to their institution by implementing the new knowledge in their job (Monahan, 2012). Therefore, conducting a training program is important for an institution or department to improve its quality by updating its employees' knowledge and skills. A training program is an essential effort to increase the productivity, motivate and inspire the employees by giving them important knowledge and skills they need to perform their jobs in the most effective way (Anonymous, 1998 in McClelland, 2002). It is also an important way to cope with the rapid change of technology and the diversity of the participants' work (Hamdani, 2012).

A training program is considered effective if it can improve the participants' knowledge and skills after they follow the program. According to Black & Mendenhall (1990), a training program is effective when it is able to develop participants' specific skills and enhance their job performance. Similarly, Noe (1986) also states that an effective training enables the participants to improve their knowledge and to raise their potential outcome (promotion, raises, etc.) after they follow the program. Its effectiveness depends on the work of the organization as a whole that contributes the supporting atmosphere for the program (Kontoghiorghes, 2001). The effectiveness of a training program also depends on many aspects that influence each other during their implementation. Those aspects are curriculum, implemented training methods, skills or task characteristic trained, and the choice of training evaluation, which are related to the effectiveness of training programs (Arthur Jr., Winston Jr., Edens, & Bell, 2003).

One way to measure the effectiveness of a training program is by conducting a curriculum evaluation. Through a curriculum evaluation, the administrator of a training program can decide whether they want to continue the program or reject it (Lewy, 1973). In other words, the administrator of the training program can use the curriculum evaluation results to assess whether a training program is effective or not. It is because the curriculum evaluation helps the administrator of the training program to identify the strength of the training program that should be maintained or even improved, and the weakness of the program that should be minimized (Champaign 4 Unit District School, 2011). Thus, conducting a systematic curriculum evaluation is considered as a crucial step that can give a substantial influence on the overall effectiveness of the training program (Goldstein & Ford, 2002; McGehee & Thayer, 1961; Sleezer, 1993; Zemke & Zemke, 1994).

Participating in an effective training program is important, especially for researchers who have to improve their knowledge and skills regularly. In Indonesia, an effective training program in a research area is important in order to develop the research and increase the number of researchers. According to Subejo (2010), the research development in Indonesia is left behind compared to other countries, which is reflected from the number of researchers and the research journals or research patents they produce. In Indonesia, training programs for researchers are conducted exclusively by the Indonesian Institute of Sciences (Lembaga Ilmu Pengetahuan Indonesia - LIPI) based on the Presidential Decree Number 128 year 1967. Further, based on the Chairman of LIPI Decree No. 3212/M/2004, LIPI classifies these training programs into training program for first-degree researchers (Diklat Fungsional Peneliti Tingkat Pertama - DFP Tk. Pertama) and technical training programs (Diklat Teknis dan Kedinasan). This classification is made to fulfill the goal of conducting effective training programs for researchers based on their specific needs. DFP Tk. Pertama is the main training program that is conducted by LIPI, with the consideration that this training program is very important to provide a proper basic knowledge and skills for researchers to develop their research in Indonesia.

1.2. Target of the study

The target of this study is the first-degree researchers (*Peneliti Tk. Pertama*) who follow the DFP Tk. Pertama. It is because the effectiveness of the training program will influence the quality of the knowledge that the participants will receive during the training program. Therefore, their opinion about the curriculum in the training program is important to improve the effectiveness of the DFP Tk. Pertama.

1.3. Objective and research questions of the study

This study aims to investigate the perceived effectiveness of the DFP Tk. Pertama. This study will use a curriculum evaluation to evaluate the perceived effectiveness of the training program. Since this study will conduct the curriculum evaluation in the curriculum elements' level, the research question of this study is defined as "Which elements of the curriculum influence the perceived effectiveness of the DFP Tk. Pertama?"

1.4. Context of the study

LIPI was established on August 1967 with a main duty to carry out governmental duties on scientific research in accordance with the provisions of the legislation in force. Including in this duty is the responsibility to act as the foster for local researchers and to collaborate with the foreign researchers to conduct research, inside and outside Indonesia (http://www.lipi.go.id (January 3, 2012)).

Based on the Chairman of LIPI Decree No. 2798/A/2001, LIPI has 47 work units which are divided into five main deputies: Deputy of Earth Sciences (4 Research Centers (RC) and 9 Technical Implementation Units (TIU)), Deputy of Life Sciences (2 RCs, 4 TIUs, and 1 center), Deputy of Engineering Sciences (5 RCs

and 4 TIUs), Deputy of Social Sciences and Humanities (5 RCs), Deputy of Scientific Services (2 RCs, 3 TIUs, and 2 centers); and Principal Secretariat (4 bureaus, 1 center, and 1 RC).

Later, under the Principal Secretariat, based on the Chairman of LIPI Decree No. 3212/M/2004, LIPI established the National Training, Education Center for Researchers Development *(Pusbindiklat Peneliti LIPI)* on October 28, 2004. Pusbindiklat Peneliti LIPI has the main goal to improve the researchers' competence and the capacity of research and development at the Center and Region, in accordance with the policy set by the Chairman of LIPI. Pusbindiklat Peneliti LIPI has the main duties to implement the education, training, and functional development of researchers both for central and regional researchers inside and outside LIPI; and to provide the education and training program for employees in LIPI (http://www.pusbindiklat.lipi.go.id (December 11, 2011)). To carry out its main duties, Pusbindiklat Peneliti LIPI conducts several training programs each year to provide training programs for researchers all over Indonesia and for LIPI's employees. These training programs are divided into two types: training program for first-degree researchers (DFP Tk. Pertama) and technical training program (Diklat Teknis dan Kedinasan).

1.4.1. Training program for first-degree researchers (DFP Tk. Pertama)

DFP Tk. Pertama is known as the main training program conducted by Pusbindiklat Peneliti LIPI. This training program is conducted only for the researcher candidates from the Indonesian government institutes and/or ministers from all over Indonesia regardless their research background (social/technical/natural sciences). This training program has two main funding sources. The first funding source comes from the Indonesian Institute of Sciences (LIPI) for the researchers who come from LIPI. In other word, LIPI's researchers can follow the training program for free regardless their origin departments. The second funding source is the government institutes/ministers outside LIPI. These ministers/institutions have to pay around Rp. 12.625.000,- (+/- € 986.39) for each researcher they sent to follow the training program.

DFP Tk. Pertama has the main goal to improve the knowledge and research skills based on the researchers' expertise and develop a professional character as researchers, in order to support the development of the research in Indonesia (http://pusbindiklat.lipi.go.id (December 11, 2011)). To maintain the effectiveness of DFP Tk. Pertama, Pusbindiklat Peneliti LIPI conducts some evaluations with the focus on curriculum, the duration of the learning process, and the instructional strategies. Beside the evaluations, the administrator also conducts pre-test and post-test to find out how far the participants of the DFP Tk. Pertama improve their knowledge. The tests are conducted during the training program and administered under the supervision of the head of the training program administrator.

DFP Tk. Pertama is conducted for three weeks, from Monday to Saturday. The program consists of five main subject domains: *Introduction and Formulation of Research Proposal, Research Design, Data Collection, Data Analysis, and Technique for Scientific Writing*. These course studies are placed in a specific sequence so that the participants will be able to understand the subject materials in the most effective and efficient way.

Each class in the DFP Tk. Pertama consists of 30 participants, which is separated based on their research expertise (social and technical/natural sciences). Every year, Pusbindiklat Peneliti LIPI conducts the DFP Tk. Pertama approximately 12 times, which means that around 360 new researchers graduate from this training program every year.

1.4.2. Technical training programs (Diklat Teknis dan Kedinasan)

To support the DFP Tk. Pertama, Pusbindiklat Peneliti LIPI also conducts some technical training programs, in which the researchers can follow optionally. These training programs are:

a. English for academic purpose training program
   English for academic purpose training program has the main goal to improve the ability in understanding scientific English for the researchers and other employees from Indonesian Institute of Sciences.
b. Training program for proposal writing
   Training program for proposal writing has the main goal to enhance the researchers' ability in writing a research proposal by giving the knowledge about proposal writing formulation. This training program has two main subjects: Scientific Proposal Writing and Scientific Presentation Technique.
c. Training program for scientific writing
   Training program for scientific writing has the main goal to enhance the researchers' capability in writing a research report in a scientific way. This training program can also be considered as the continuation of one of the subjects in the DFP Tk. Pertama (*Technique for Scientific Writing*). Therefore, the main requirement to follow this training program is the participants must have already followed DFP Tk. Pertama, which is proven by the certificate of the training program.
d. Training program for research method and data analysis
   This training program has the main goal to improve the data analysis competency for the researchers and other employees. After following the program, the participants are expected to be able to do the data analysis by using an efficient and accurate method, and to have a conceptual, comprehensive and broad mind in doing the data analysis.
e. Training program for research design
   The training program for research design has the main goal to improve the researchers' knowledge and skills in research and develop their dynamic and comprehensive mindset. After following this training program, the participants are expected to understand the general concept of research design, and be able to make a research design based on the correct scientific methodology.

This study attempts to investigate the effectiveness of DFP Tk. Pertama. It is because DFP Tk. Pertama is the main training program that is conducted by LIPI, and this training program's main goal is aligned with LIPI's main function as the founder of research in Indonesia.

1.5. Overview of the remaining chapters

This study will be comprised of five chapters. Following the introductory chapter, which outlines the nature of the study and research questions, Chapter 2 will present reviews on related literature about curriculum, curriculum evaluation, and training program effectiveness. Chapter 3 will discuss the research methodology that is used to investigate which curriculum elements has the biggest influence to the effectiveness of DFP Tk. Pertama. This chapter will be followed by chapter 4, which will discuss the result of the investigation to answer the research question. Finally, Chapter 5 will conclude the study through an articulation of the research findings, a discussion of the findings and a presentation of a set of recommendations.

II. Literature Review

2.1. Introduction

This chapter gives a review about some relevant literatures for this study. This review discusses the curriculum definition, especially in a training program. After that, it discusses about curriculum evaluation that can lead into an effective training program. The last discussion in this chapter is the definition of the effectiveness of a training program and what requirements should be fulfilled to have an effective training program.

2.2. Curriculum definition

The curriculum has some definitions according to its usage in the training program. Some authors define curriculum as an implemented system to describe the content of a course in the learning process in the classroom, which also provides a measurement of the participants' knowledge (Sconce and Howard, 1994; Curriculum Evaluation Manual, 2011). It is often used to indicate a program, whether for a subject, grade, the entire subjects, or even the whole range of a program cycle (Lewy, 1977). According to Leathwood and Phillips (2000), curriculum aims on the outcome oriented approach that emphasizes the participants' skill and capabilities, which will lead them to become capable graduates and to be fully prepared for their future career.

Curriculum is an implemented system that consists of four different elements, those are: textbooks, course of the study, classroom practices, and supporting facilities. The first element is the *textbooks*. Hoover (1999) states that curriculum consists of plan books, courses of the study, and textbooks. Further, he also states that curriculum intends to have an outcome that matched between what should be learned and what the students really learn. A good curriculum should support and facilitate the participants' effort to achieve similar results as the intended goals of the training program. Altrichter (2005) agrees that curriculum should provide textbooks, computer software, teaching strategies' recommendation and working material for students. Textbooks are also considered as the key component in a training program (Rabow, Gradie, Fair, & McPhee, 2000; Posner, 2004; Richards, 2012). Therefore, textbooks become an important part in curriculum because it functions as a day-to-day guide during the learning process to ensure curriculum effectiveness. Lewy (1977) emphasizes the importance of the textbooks by stating that textbooks are part of the curriculum that can be evaluated to maintain the effectiveness of a training program. The importance of the textbooks is usually considered based on its content and compatibility in its update with the recent development of the science. It may consist of some knowledge than can be used to improve the students' understanding of the recent science standard (Ciborowski, 1992; Rabow, Gradie, Fair, & McPhee, 2000). It also may provide the basis of the content of the lesson and some practices in which the students take part in the learning process (Richards, 2012), the references and reviews about the related topics (Rabow, Gradie, Fair, & McPhee, 2000), and provide an exclusive treatment to the internal validity in evaluating the training program

(Sackett & Mullen, 1993). The quality of the printing in the textbooks is also important to have a better understanding what is presented inside in order to upgrade the student's academic achievement (Neumann, 1980). It is because the students will be able to study at ease and more comfortable when the textbooks have a good printing quality.

The second element is *the course of the study*. The course of study is important because of its function as a guide to view a curriculum as a series of courses that the participants must go through, which can ensure that they are not overlapping each other (Posner, 2004). Bokonjic, Steiner & Sonntag (2009) define course of the study as a subset of a program of study that should be designed through a very specific institutional procedure to ensure its effectiveness. Course of the study is also known as the essence of the curriculum, which should encourage and develop the critical thinking skills and problem-solving abilities of the training participants (Ashraff, 2011). It enriches the participants' knowledge and skills by having several tests of learning, which results in the enhanced experience in the related subjects (Roesenzweig & Benner, 1996; Tomlinson-Clarke, 2000). An effective course of the study will include support from the teachers and peers, which eventually will give a useful hint for the participants to improve their job (Whipp and Chiarelli, 1994; Tomlinson-Clarke, 2000). Brodwell and Thompson (2004) states that through a well managed course of the study, the students can examine how the training programs reflect the needs and condition in the reality and, conversely, sometimes helps them to get a better job. Therefore, designing an efficient, effective and un-overlapping course of the study in a training program is crucial to create an effective curriculum.

The third element is *the classroom practices*. Providing suitable classroom practices during the learning process could help the participants to develop a better exploration and conceptualization about the course of studies (Langrange, 2005). Therefore, classroom practices indeed influence the improvement of students' achievement (U.S. Department of Education, 1996; Wenglinsky, 2001). Including in the classroom practices are learning activities in the classroom and the equality of the between the burden of study hours and the subject credits. Noe (1986) emphasizes the importance of the group work on learning activity to encourage the participants' knowledge improvement and personal development. While Wenglinsky (2001) states that classroom practices includes problem-solving activities that involve the simulation and group work, which enables the participants to move from the abstract concepts into concrete ones. Further, U.S. Department of Education (1996) stated classroom practices covers any activities that happen in the classroom during the learning process. U.S. Department of Education (1996) and Wenglinsky (2001) agree that the equal comparison of the study time and subject credit is very important to increase the academic performance. Together with appropriate textbooks and effective course of study, suitable classroom practices are able to improve the participants' knowledge and skills in a training program.

The last element in the curriculum is *the supporting facilities in a training program*. In a wider range, the curriculum involves infrastructure and learning resources, student activities, and a supporting system around it (Verghese and Ponmudiraj, 2008; Cornbleth, 2012). These all support the learning process in a program to achieve a better student outcome. In a learning process, training facilities can give a direct effect on the students' achievement. According to Langrange (2005), classroom situation and school facilities have an essential role in improving the students' achievement. Further, Schneider (2003) states that poor training facilities trigger some difficulties for teacher in delivering the adequate education to

the participants, which will influence the improvement of the participants' knowledge and skills. In fact, a conducive classroom condition helps the participants to have a better performance and a better learning outcome (Hale, 2002; Olson & Kellum, 2003; Hunter, 2006; Bullock, 2007). The flexibility of the supporting facilities to accommodate changing learning patterns and methods has a significant relationship with the student achievement (TACR, 2003; Hunter, 2006; Vandiver, 2011). Thus, good training facilities will support an effective curriculum implementation in a training program. To reach an effective training program, the administrator of a training program should implement all of the curriculum elements, since they influence each other.

In general, curriculum is divided into three types that can bring influences on the participants' achievement. Those types are intended curriculum, implemented curriculum, and attained curriculum. The first type, *the intended curriculum*, is the reflection of the institution's preference for teaching and learning. The intended curriculum is also known as the goal of learning, and it is usually written on a document and has an official status (Johansson, 2005; Martin & Kelly, 1996; Valverde, 2012; Voogt and Pelgrum 2005). The intended curriculum describes what students are expected to know and able to do, and under what condition these things will occur (Cuban 1992; Kissane, 2000; (Plaza, Draugalis, Slack, Skrepnek, & Sauer, 2007). Based on its function, the intended curriculum is placed on the educational level system, in which it "reflects societal visions, educational planning, and official or political sanctioning for educational objectives" (Johansson, 2005, p. 120) and intended to "directly influence teacher training and certification, school course offerings, instructional resources, and systems of accountability" (Valverde, 2012, p. 2).

The second type is *the implemented curriculum*. This type of curriculum is also recognized as "curriculum in action" (Remmen et al., 1999, p. 600), since it is what is taught in the classroom that consists of teachers' intention and objectives, and classroom activities (Stevenson and Baker, 1991; Martin & Kelly, 1996; Plaza et al., 1997; Johansson, 2005). This curriculum is the implementation of the intended curriculum in the classroom that is strongly affected by textbook and classroom practices (Cuban, 1992; Kissane, 2000; Voogt and Pelgrum, 2005). According to Kissane (2000), classroom practices involve the emphasis of practical views of the subject and the use of the helping tools during the learning process (e.g. calculator in mathematics). Since the emphasis on curriculum implementation in the classroom will be in the context, needs, perceptions, and reactions of users, especially teachers (van de Akker and Verloop, 1994), there will be some differences between what is stated in the intended curriculum and the real implementation in the field (school/classroom).

The last type is *the attained curriculum*. This curriculum type is what the students actually learn as the result of the learning process in the classroom (Cuban, 1992; Martin and Kelly, 1996; Kissane, 2000; Plaza et al., 2007). The result of this curriculum is the skills, knowledge, and dispositions that students gain after they follow the program (Valverde, 2012) and the learning outcome for the teachers (Voogt and Pelgrum, 2005). Therefore, assessment becomes a key in understanding the attained curriculum (Kissane, 2000), since it is strongly related to the test and the participants' perspective about the curriculum. The attained curriculum is influenced by the implemented curriculum in the sense of the curriculum materials those are taught by the teachers during the learning process in the classroom (Kissane, 2000; Voogt and Pelgrum, 2005).

This study will investigate the attained curriculum from the DFP Tk. Pertama to answer the proposed research question. The investigation will be conducted through reaction sheets (questionnaire). The questionnaire will measure the participants' perspective about which curriculum elements could give the biggest influence on the effectiveness of the DFP Tk. Pertama.

2.3. Curriculum evaluation

In order to investigate the effectiveness of the DFP Tk. Pertama, this study conducts an evaluation toward the existing curriculum of the program. A curriculum evaluation can be used to maintain or even improve the quality of the training program, and to detect the lack in the training program that is needed to be improved. According to Lewy (1973), a curriculum evaluation helps the program administrator to maintain or reject a program, makes some specific modifications needed, and helps to explain the best condition to implement the program. Further, Jacob and Koehn (2004) agree that a curriculum evaluation is essential to maintain a program to prepare competent and high-quality practitioners. Therefore, curriculum evaluation can be used to control the quality of the training program by maintaining its effectiveness. In a broader scope, curriculum evaluation is conducted to improve the quality of education through the information collected during the evaluation implementation. In other words, the art of curriculum evaluation is to collect and spread the information that can be used to improve the quality of educational practice (Norris, 1998).

This study uses Kirkpatrick's model to evaluate the effectiveness of DFP Tk. Pertama through curriculum evaluation. Kirkpatrick's model was introduced in 1959 and represents some levels to evaluate a training program, in which each level influences the next level (Indira, 2008). Kirkpatrick's model has four levels, those are Reaction, Learning, Behavior, and Result (Kirkpatrick, 1967; 1975; 1994). Level 1 is *Reaction*, which measures the participants' satisfaction toward the program through a reaction sheet (Kirkpatrick 1967; 1975; 1994; Kirkpatrick & Kirkpatrick, 2009). The result of the Reaction evaluation can be used to determine the effectiveness of a training program and to improve the training program (Kirkpatrick, 1994) based on the reaction of the participants toward the program. A training program can be considered effective when the participants present their satisfaction toward the program. The feedback from the participants can also be used to improve the training program by improving the points in which the participants give the low mark. Therefore, the evaluation should be given during the program, so the evaluation result can be used to improve the last section of the program (Kirkpatrick, 1967).

Level 2 is *Learning*, which can be evaluated from how far the participants improve their knowledge and skill level after following the training program (Kirkpatrick, 1967). Unlike Level 1 evaluation that can be measured through reaction sheets (e.g. questionnaires), Level 2 evaluation is usually measured from the different score between pre-test and post-test that shows the learning outcomes (Chyung, 2009). Learning level is meant to measure the participants' knowledge, skill, and/or behavior before and after the training by using pre-test, post-test, and performance test for skills (Kirkpatrick, 1994; Kirkpatrick & Kirkpatrick, 2009). Further, Dick, Rich, & Waters (2009) support this statement by stating that pre-test and post-test was suggested in conducting the Learning evaluation to demonstrate the learning outcomes as a result of the learning process. To get the best picture about the participants' knowledge and skills improvement, the administrator should pay attention to the test materials. The test materials

should cover the subject matters that have been taught in order to get the most reliable and valid result of how far the learning process has taken place (Kirkpatrick, 1994; Dick, Rich & Waters, 2002). Since the evaluation in the learning level is more complex rather than in the reaction level, it also requires more work to do. The Level 2 evaluation needs a lot of work to do, started with the planning of the evaluation procedure, conducting the evaluation, analyzing the obtained data result, until interpreting the result (Kirkpatrick, 1967). Alike with the Level 1 - Reaction, the Level 2 - Learning evaluation also takes place when the training program is still in progress.

Level 3 is *Behavior*. The main goal of the Level 3 evaluation is to find out whether the knowledge and skills learned in the training program is transferred to the participants' job. Level 3 evaluation is usually conducted after the participants finish their training program. Kirkpatrick (1967) states that behavior evaluation is conducted to measure to what extend the participants change their behavior after following the training program. It means that the participants' behavior should change after they follow the training program so that the training program can be considered as a successful program. This evaluation is recognized as the most difficult and probably the most important level. Because it is based on this evaluation result, the evaluator will be able to see whether the participants' behavior has changed, or to determine the reasons why changes has not occurred (Kirkpatrick, 1994).

Level 4 is *Result*. Result evaluation can be defined as the final results that happen after the participants follow the training program, which are recognized by the production increasing, cost reducing, profit increasing, etc. (Kirkpatrick, 1967; 1994; Kirkpatrick & Kirkpatrick, 2009). In the end, these changes will influence the organization's existence. Therefore, this evaluation is conducted some time after the participants left the training program in order to see the real results of the implementation participants' knowledge and skills which are attained from the training program.

Kirkpatrick's model can be presented in the model below:

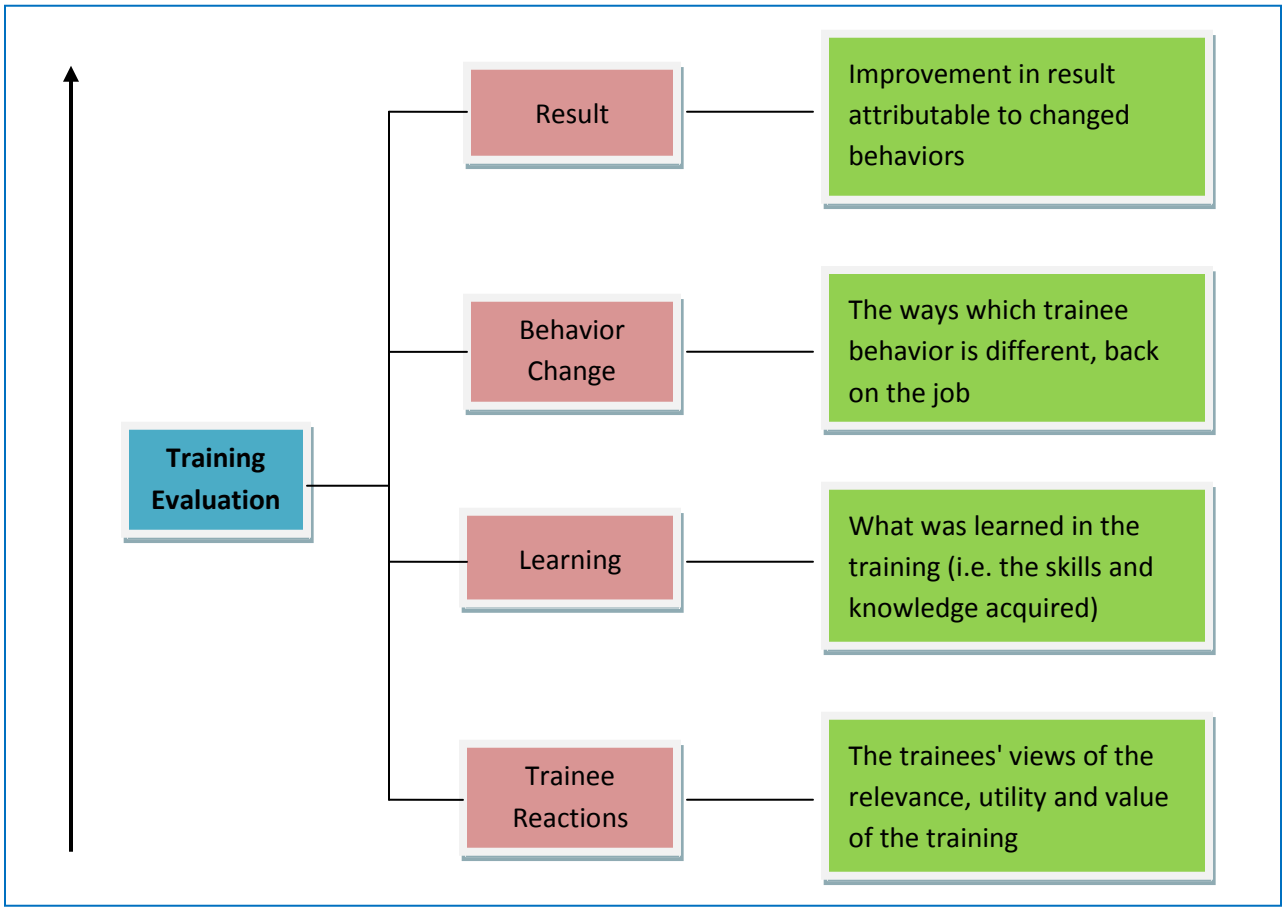

Fig. 1. The Evaluation View of Kirkpatrick's Model - Nickols, 2011

The Figure 1 gives a clear framework about the flow of the evaluation of the reaction level to result level based on the Kirkpatrick's model. In the reaction level, the participants give their opinion about the training program. Learning level evaluates how far the participants are able to gain knowledge and skills from the training program through the score difference in pre-test and post-test. The behavior level evaluates to what extend the participants' behavior change after they follow the training program, and whether they can implement this new behavior in their work. The last level, the result level, shows the final result in the organization scale that happen after the participants follow the training program (Kirkpatrick, 1967).

Due to the limited time in doing the research, this study will only employ level 1 evaluation to answer the research question. The investigation of Level 1 will be conducted through the questionnaire, which will measure the participants' reaction toward the curriculum elements' influence on the effectiveness of DFP Tk. Pertama. Level 2, 3 and 4 will not be investigated in this study because these levels need deeper explorations and could take months or even years before the result can be observed.

2.4. Training program effectiveness

The main goal of this study is to investigate the influence of the curriculum on the perceived effectiveness of the DFP Tk. Pertama. The effectiveness of the training program itself can be defined as a planned learning process that is designed to make permanent changes in participants' knowledge, attitude, or skills (Campbell, Dunnette, Lawler, & Weick, 1970). Quiñones (1997) states that training effectiveness refers to the extent the training objectives are met after being evaluated by measuring a number of training activities and transfer outcomes. However, it is not easy to measure the effectiveness of a training program. It is because there are questions to which level the effectiveness of a training program can be seen, whether it comes from Reaction, Learning, Behavior, or Result (Kirkpatrick, 1967; 1994; Artur Jr., Winston Jr., Edens, & Bell, 2003). According to Quiñones (1997), Strother (2002), and Artur Jr., Winston Jr., Edens, & Bell (2003), the effectiveness of a training is influenced by various factors, those are the training delivery method, the course of the study, and classroom practices; which sometimes some factors are may fall outside the training system (Baldwin & Ford, 1988). However, those factors could not stand alone to support the effectiveness of the training program. Kontoghiorghes (2001) ensures that "training effectiveness is not only dependent on the soundness of the training program and the prevailing training transfer climate, but the entire organization as a whole" (p. 12).

A training program is considered effective when it is able to improve the participants knowledge. One of the indicators of this improvement can be measured from the score improvement in the post-test compares to the pre-test score (Kirkpatrick, 1967; Schneider, 2002). Beside the improvement of the post-test score, there are some other indicators to measure the effectiveness of a training program based on some researchers. First, it can be considered effective when it is able to change the participants' behavior in ways that they become more customer oriented (Bregman and Jacobson, 2000). Second, the training program can increase the participants' competitiveness in the labor market (Quiñones, 1997) by giving them the adequate knowledge during the program. Three, the training program can encourage the participants to gain the divergent thinking abilities to communicate a better idea in solving the problem (Mansfield, Busse, & Krepelka, 1978). Four, Black and Mendenhall (1990) states that a training program can be considered effective if it can improve the participants' skill, with the emphasize on the ability of cross-cultural situation, and the job performance improvement. Five, the training program gains the wanted results, such as knowledge improvement, behavior change, and improvement in job-related outcome (Noe, 1986; Morton, Shepherd, & Geaither, 2009). In summary, all of those researchers implicitly and explicitly state that a training program can be considered as effective if it can improve the participants' knowledge and change their behavior in their work.

In this study, the effectiveness of the DFP Tk. Pertama is measured based on the contribution level of the curriculum element. And based on the question of Arthur Jr., Winston Jr., Edens & Bell (2003), this study will only measure the effectiveness of the DFP Tk. Pertama in the Reaction level.

2.5. Summary

This study focuses on the curriculum evaluation as one of the effectiveness indicators of DFP Tk. Pertama. It is because the curriculum consists of some crucial elements in the learning process, such as textbooks, course of the study, classroom practices, and training facilities that support the training program. To investigate a training program effectiveness, a curriculum evaluation can be conducted before, during and after the program. This study conducts a curriculum evaluation in the element level to investigate which elements give the biggest influence on the perceived effectiveness of the DFP Tk. Pertama by using the Reaction level of the Kirkpatrick's Model. In this study, the curriculum evaluation is conducted by the end of the training program through a survey. Through a questionnaire, the participants give their reaction on the curriculum elements based on what they have experienced during the training program. Here, the participants will rate the relevance of the curriculum elements and their influences on the effectiveness of the DFP Tk. Pertama LIPI, which is given in a 5 Likert-scale.

However, this study does not investigate the Level of Learning - Behavior - and Result from Kirkpatrick's Model due to the time and resource limitation. In other word, the research in this study will be limited only to explore the Reaction Level in order to answer the research question.

In order to have a better understanding of the variables of the study, the following keywords are defined:

1. *Training program* is a program that is conducted in a different specification than school, which based on the purpose to improve the knowledge and skills of the participants
2. *Curriculum* is a part of a training program that is used to describe and explain the content of the course of the study during the learning process
3. *Curriculum element* is designation of what area of content, facts, material, plans, and activities that the curriculum deals with

III. Methodology

3.1. Introduction

This chapter discusses the methodology in investigating the research question of the study. First, it discusses the types of research design, and which research design fits the most with this study. Second, this chapter discusses which research method uses to investigate the research question. Then, it describes about the sample of the study, including the amount and other information regarding to the samples. The last discussion covers which kind of research instrument is used to collect the data.

3.2. Research design

This study tries to answer the research questions about the influence of the curriculum elements on the perceived effectiveness of DFP Tk. Pertama. Due to the limited time, this study will only employ a field survey with a limited sample size to investigate the research questions.

There are three types of research design in conducting a research study: descriptive, explanatory and exploratory research design. The descriptive research is used to answer the "what" research question about the variables that will provide an objective, reliable, and scientifically valid description about the variables in their original state (Vaus, 2005; Mitchell & Jolley, 2010). This research merely describes and measures things as they are, without any effort to change the variable condition. In other words, the descriptive research observes the variables without intervening them (Hopkins, 2000). Therefore, this research is sponsored a lot by government especially in the social fields, such as the population research, household expenditure patterns, time use studies, employment, and the like (Vaus, 2005). The descriptive research takes several different forms in order to be able to measure the variables based on the specific research questions. According to Hopkins (2000), the common forms of descriptive research are: observation, case, case-series, cross-sectional studies, prospective or cohort studies, and case-control studies.

The second research design is the explanatory research design. This research design attempts to answer the "why" research question by developing a causal explanation (Vaus, 2005; Fraenkel & Wallen, 1993; van Akken, 2004). The main purpose of explanatory research design is to describe, explain, and predict in order to understand the setting of construction or improvement problems and to know the properties of the materials to be used (van Akken, 2004). Therefore, this research design has a deeper and more complex investigation toward the variables comparing to the descriptive research design. At the end of the study, we will find out whether the relationship between variables might or might not mean causation between them (Fraenkel & Wallen, 1993). By explaining the causation between variables, Vaus (2005) states that the explanatory research design is important to be used to collect information that enables the readers to see which empiric way will work best in order to avoid invalid inferences.

The third research design is exploratory research design. Exploratory research design is an empirical pilot study that explores the development of several conceptual measures and models and the implications of varying assumptions and hypotheses (Bontis, 1998; Bankes, 1993). The purpose of exploratory research

design is to identify the underlying dimensional structure of a set of measurement (Stewart, 2001). Therefore, the exploratory research design is more sophisticated comparing to the others, since it requires a deeper research and skills to answer the research questions. The result of this research design is the researchers are able to improve their ability to collect and analyze the data to provide an effective means for evaluating model purpose (Leinhardt & Wasserman, 1979). The data that is collected during the exploratory research provides a rich description, from a small scope until broad range of population (Neuman, 1994 in Cuthill, 2002) will enable the researchers to provide a thorough data analysis that can represent the trend in the population.

Based on the research question of this study, we will employ the descriptive research design, since we want to investigate which curriculum elements have the biggest influences to the effectiveness of the DFP Tk. Pertama. This study uses survey research design as the implementation of the descriptive research design. The evaluation result of the survey will be used to answer the research question.

3.3. Research method

In general, research methods can be divided into three categories: qualitative, quantitative, and a mixed model between qualitative and quantitative. In a qualitative research, a researcher observes the sample/population to collect and analyze data. Therefore, a qualitative research is much more subjective than a quantitative research, since it has no exact measurements or statistic but uses words, descriptions and quotes to explore the answer of the research questions (Anderson, 2006; Shields, 2003). On the other hand, a quantitative research relies on the numbers, proportion and statistic used to answer the research questions (Shields, 2003). The use of numbers and statistical methods in analyzing the data in a quantitative method can minimize the bias from the researchers' personal opinion that eventually will affect the final interpretation of the result. Anderson (2006, p. 1) states that a quantitative measurement will be "objective, quantitative and statistically valid". The last research method is the mixed model between quantitative and qualitative research. Basically, a mixed model combines both quantitative and qualitative research to answer the research questions. It represents research that involves collecting, analyzing, and interpreting both qualitative and quantitative data in a single study or series of studies (Leech & Onwegbuzie, 2009; Creswell & Plano Clark, 2007).

To answer the research question, this study will employ the quantitative research method to analyze the evaluation results which are collected from the questionnaire survey. The choosing of quantitative method is based on the reality that the quantitative approach puts a considerable trust in numbers that represents opinion or concepts in a definite way (Amaratunga et.al., 2002). Therefore, the result of the quantitative approach will be more definite and precise, and also has minimum subjectivity compare to the qualitative approach, since the quantitative approach calculates relationships between variables by using statistical measurement (Hopkins, 2000; Anderson, 2006).

The research question in this study requires a brief description about the implemented curriculum elements of DFP Tk. Pertama. Therefore, the use of quantitative approach is appropriate, since according to Leech & Onwuegbuzie (2006) in Lowenthal & Leech (2009, p. 8) most of the quantitative approaches have "quantitative research questions which are either descriptive, comparative, or relationship based".

With the implementation of quantitative approach in analyzing the data result, this study will avoid the bias from the personal subjectivity and able to provide a more reliable and valid outcome.

3.4. Sample

In a study, sample size can be determined through several ways: by using a census, which can eliminate error and provide data for all the individuals in the population that usually can be resulted from questionnaires; by imitating a sample size of similar studies that can provide a guidance about typical sample sizes those are used; and by using published tables, which provide sample size for the given set of criteria (Israel, 2009). This study will use a questionnaire to minimize the error and to collect information about the population.

The target population of this study is the participants of the current DFP Tk. Pertama, which consists of 30 participants. The information of the samples is collected from the questionnaire sheets, which provides respondents' information in the sense of participants' prior education, gender, age, and their research experiences before they follow the training program. The gender of the respondents is 14 females (46.67%) and 16 males (53.33%). From this result, we can see that the ratio of male/female is almost equal, which shows that the gender does not matter when someone wants to become a researcher. The age of the participants falls within 24 years old until 40 years old, with the average age is 29.57 (=30) years old. The educational background of the participants ranges from bachelor 90% and master degree 10% from different majors: natural sciences 22 participants (73.33%), technical sciences 6 participants (20%), and social sciences 2 participants (6.67%). Before the respondents follow the training program, some of them do not have any experience in research (23.3%), while the other respondents already have research experience ranging from 1 year until 8 years of experience (76.7%).

The respondents come from various Indonesian government departments and ministries, with the composition as follows: Ministry of Health (17 participants), The Ministry of Forestry (2 participants), National Institute of Aeronautics and Space (7 participants), and Indonesian Research Institutes for Estate Crops (4 participants). Before they follow the DFP Tk. Pertama, most of the participants already have research experience. There are only 23.3% of the participants who does not have experience at all in research fields. However, with around 67% of the participants still have research experience less than 5 years, it can be assumed that most of the participants still have the possibilities to improve their basic knowledge and skills so that they will be able to do a higher quality research in the future. The feedback rate of the respondents is 100%, which means that all of the approached respondents participated both in the survey and pre- and post-test. The full list of the participants' background can be seen in Appendix 2.

3.5. Instruments

The data in this study are collected by means of a questionnaire, which is used to measure the participants' reaction/opinion about which curriculum elements has the biggest influence to the effectiveness of the DFP Tk. Pertama. The questionnaire in this study uses an adaptation of Kirkpatrick's Reaction Level, which is adjusted to the current condition in the DFP Tk. Pertama. Those questions are chosen from some of the Kirkpatrick's questionnaire question models[1], because we believe that those questions fit the most with this study's aim to investigate the curriculum influence to the effectiveness of DFP Tk. Pertama. The type of the questionnaire is a closed questionnaire, in which the respondents will answer the questions based on a 5-Likert scale. The Likert scale is used to enable the participants to express their opinion about the curriculum elements in the DFP Tk. Pertama based on the scale given.

The questionnaire has 30 questions, which are divided into five parts. In the first part, the participants are required to answer four questions about *textbooks*. This part evaluates the quality of the study materials; whether the study materials match with the development of the current research or not. The measurement of the textbooks includes: the printing quality, the content of the textbooks, and the compatibility of the textbooks with the development of the recent research. The second part measures the *classroom practices* during the training program. The measurement includes the learning activities in the class and the correspondence between the participants' burden in studying the course of the study and the credit of it. The third part of the questionnaire measures the quality of *the course of the study*. It emphasizes on the ability of the course of the study in improving the participants' knowledge and skills, and whether the course of the study will help their career as researchers. The fourth part explores some questions about the *training facilities*, and it measures the ability of those facilities in supporting the learning process in DFP Tk. Pertama. Finally, the last part is used to assess the participants' opinion about *the effectiveness of the DFP Tk. Pertama*. This measurement consists of whether the DFP Tk. Pertama offers new knowledge and helps to improve the participants' knowledge and skills, and whether it is relevant with their job as researchers.

The items in the questionnaire are measured by using a 5-Likert scale, which will be used to measure the participants' opinion about those items. The score range from 1 (strongly disagree) to 5 (strongly agree), which provide a wide choice for the participants to express their opinion. The internal consistency of each curriculum element in this study is calculated by using Cronbach's Alpha. The result of the calculation shows that the internal consistency of each curriculum element is still in the acceptable range (Appendix 3). In specific, three of the variables have satisfactory reliability, while two of them have low reliability. Those two variables are textbooks (.518) and course of the study (.525). This result shows that the inter-correlations among the item in the textbooks and course of the study is not as strong as the other elements. Unfortunately, this study does not do any further investigation in this matter. However, the low reliability of two of the curriculum elements does not bring negative effect the reliability level of the questionnaire (.855), which is considered as high. With this result, we can assume that in general, the curriculum elements in this study have fair reliability levels.

[1] (Kirkpatrick, Evaluating training programs : the four levels, 1994)

By having a high reliability, the questionnaire in this study strengthens the findings in earlier studies. Since the 1976 Kirkpatrick's questionnaire model has become one of the leading questionnaire to measure a training program effectiveness, with the result in most cases closely resembled the preconceived constructs and satisfactory by having Cronbach Alpha Coefficient values greater than 0.6 (Nehemia, 2010). Therefore, the result shows that Kirkpatrick's questionnaire model indeed has high reliability.

IV. Result

This section discusses the results of the evaluation that was conducted through a survey. The first part discusses about the correlation between the curriculum elements and training program effectiveness. The second part discusses which curriculum elements give the biggest influence to the perceived effectiveness of the program. The data are presented in tables including some related explanation to make the data is easier to interpret.

4.1. Correlation between curriculum elements and training program effectiveness

In this study, the evaluation result is gathered from the questionnaire survey. The questions in the questionnaire were constructed based on curriculum elements that are considered to give some contribution to the effectiveness of the DFP Tk. Pertama. According to Johnson (2001), the combination of the curriculum elements offers a strong foundation for training effectiveness. Those curriculum elements are textbooks, classroom practices, course of the study, and supporting facilities. This study has the curriculum elements as the independent variables and the training program effectiveness as the dependent variable. The independent variables represent the elements of the existing curriculum in the DFP Tk. Pertama as a benchmark in measuring the effectiveness of the DFP Tk. Pertama. Therefore, the questions in the questionnaire sheets explore these elements and also the effectiveness of the training program by using a 5 point Likert-scale (see Appendix 1).

Table 1. Mean Spread of the Variables

	Mean	Std. Deviation
Textbooks	15,50	1,889
Classroom Practices	34,60	3,255
Course of the Study	26,53	2,675
Supporting Facilities	23,50	2,957
T.P. Effectiveness	15,97	2,008

N = 30

The questionnaire in this study has the most questions in classroom practices (9 questions). Apparently, the number of the questions affects the result of the analysis, which shows that classroom practices has the highest mean and spread of the answers. On the other hand, by having the same amount of questions, textbooks shows almost the same result with the training program effectiveness. Further, those two variables shows to have the lowest means and the distribution of the participants' reaction. In sum, Table 1 shows that the curriculum elements in this study have a normal distribution.

To answers the research question, we will measure the correlation between those variables. The result of the analysis is shown in Table 2.

Table 2. Correlations between Curriculum Elements and T.P. Effectiveness

		Text Books	Classroom Practices	Course of the Study	Supporting Facilities	TP Effectiveness
Textbooks	r	1				
	p-value					
Classroom Practices	r	,352	1			
	p-value	,061				
Course of the Study	r	,478**	,377*	1		
	p-value	,008	,044			
Supporting Facilities	r	,458*	,251	,621**	1	
	p-value	,013	,197	,000		
TP Effectiveness	r	,359	,189	**,660****	,338	1
	p-value	,051	,327	,000	,073	

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Table 2 shows that among four elements of the curriculum, course of the study shows the strongest significant correlation with training program effectiveness (r = .660, p = .000). This finding shows that course of the study is highly related to the training program effectiveness. From the table above we can also indicate that course of the study is not only highly related to the training program effectiveness, but it is also significantly related to the other elements. On the other hand, the other three curriculum elements show that they are weakly related to the training program effectiveness. And among those three elements, classroom practices has the weakest relationship with the training program effectiveness. This is a contrast with the result of Wenglinsky's research (2001) which stated that the classroom practices has a strong correlation with the effectiveness of a training program.

4.2. The influence of the four elements of the curriculum on the perceived effectiveness of the training program

From the questionnaire sheets, this study collects the data that shows which curriculum elements give the biggest influence on the perceived effectiveness of the DFP Tk. Pertama. The analysis result is stated below.

Table 3. The Influence of Curriculum Elements on the Perceived Effectiveness of DFP Tk. Pertama

Curriculum Elements	Perceived Effectiveness of Training Program				
	β	p-value	t-value	R	R^2
				.682[a]	.466
Text Books	.236	.230	1.233		
Classroom Practices	-.120	.481	.716		
Course of the Study	.684	.003	3.291		
Supporting Facilities	-.203	.316	-1.024		

Dependent Variable: TP Effectiveness

The findings indicate that the curriculum is highly related to the training program effectiveness. Curriculum is also proven to be able to explain around 46.6% the variance in the training program effectiveness. In other words, the curriculum is able to explain almost half of the distribution of the training program effectiveness, which means that curriculum has a big influence to the perceived effectiveness of DFP Tk. Pertama. When we look further to the curriculum elements, Table 3 shows that among other curriculum elements, course of the study is the only element that significantly influences the effectiveness of the training program (t-value = 3.291, $p < .05$). From four curriculum elements, the course of the study has the highest β value (.684). It means that the course of the study has a higher ability in predicting the effectiveness of the training program compared to the other curriculum elements.

When we relate the result above with the Alpha value of the curriculum elements, it seems that the Alpha value has no effect on the curriculum elements influence on the perceived effectiveness of the training program. Course of the study, which happens to have one of the lowest Alpha value (.525), shows to be the only element that influences the perceived effectiveness of the training program. It is assumed that unlike the reliability analysis in which course of the study stands alone, in this analysis the course of the study has to correlate with training program effectiveness in order to show its influence on the DFP Tk. Pertama. Therefore, the analysis result shows different outcome.

V. Discussion, Conclusion, and Recommendations

5.1. Introduction

This chapter discusses about the summary of the study, which include the step in gaining the data analysis through survey. The discussion part will follow to discuss about the result of the data analysis. This discussion also includes some relevant literatures to support or even contradict the result of the study, and the limitation of the study. Then, the result of the study will be concluded briefly. The last part of this chapter is recommendations for future research and for Pusbindiklat Peneliti LIPI.

5.2. Summary

The overall objective of this study is to investigate the perceived effectiveness of DFP Tk. Pertama in the Indonesian Institute of Sciences (LIPI), which is indicated by the influence of the curriculum elements on the training program effectiveness. This training program is chosen because it is the only training program in Indonesia that focuses on giving the basic knowledge and skills for researchers. Furthermore, this study also aims to investigate the ability of the effectiveness of the DFP Tk. Pertama in improving the participants' knowledge and skills. To answer the research question, this study uses the curriculum as the independent variable and the training program effectiveness as the dependent variable. A questionnaire survey was conducted after the training program to find out the participants' satisfaction level on the perceived effectiveness of the DFP Tk. Pertama.

This study aims to answer the following research question: "Which elements of the curriculum influence the perceived effectiveness of the DFP Tk. Pertama?" The research question was examined based on some elements in the curriculum. This section intends to discuss the result of the data analysis in the previous chapter to answer the research question.

To answer the research question, this study uses two different data analysis. First, the participants' reaction is analyzed using a correlation analysis to find out the relation between the curriculum elements and training program effectiveness. On the correlation analysis, it is stated that among four of the curriculum elements, the course of the study is highly related to the training program effectiveness. On the other hand, classroom practices have the weakest relationship with the training program effectiveness. In summary, the curriculum elements have different strength in their relationship with the training program effectiveness, ranging from poor relationship (classroom practices) until strong relationship (course of the study).

Second, we use regression analysis to know the influence of the curriculum elements on the perceived effectiveness of the training program. The result of this analysis shows that even though curriculum as a whole gives a significant influence on the training program effectiveness, it has a different result when we take a deeper look at the result analysis of each curriculum elements. From four curriculum elements, three of the elements (textbooks, classroom practices, and supporting facilities) show that they do not have significant influences on the training program effectiveness. Course of the study is the only curriculum element that gives an important influence on the training program effectiveness. This phenomenon reflects that course of the study has already matched the participants' needs as

researchers. In other words, the participants agree that course of the study helps them gain new knowledge and skills that will be needed to support their career as researchers. The influence of the course of the study on the training program effectiveness is also mentioned by Alexander & Pallas (1983) and Graves (1998), who stated that curriculum through specific course of the study highly contributes to the enhancement of the students' achievements by helping them gain a better understanding of the knowledge needed.

5.3. Discussion

One of the most important elements in a training program effectiveness is curriculum. A good and an un-overlapping curriculum mostly can guarantee the effectiveness of a training program, especially if it is supported by a good teaching methods and instructions. This study only focuses on the curriculum with its four elements due to the limited time and resources. Through the analysis of the curriculum elements of the DFP Tk. Pertama, this study confirms that the curriculum elements are indeed effective to influence the perceived effectiveness of the training program.

The findings in Chapter 4 show that from four curriculum elements, course of the study shows to give the biggest influence on the training program effectiveness. It is because the participants believe that the correct course of the study will help them to improve their knowledge and skills. A good course of the study contributes to a higher performance and skills of the participants that enables them to conduct a higher quality job (Merril, 1994; Piccoli, Ahmad & Ives, 2001). Moreover, course of the study is also known as the essence of the curriculum (Ashraff, 2011), which will influence the effectiveness of the training program. The course of the study can be considered as the tool that can be used to fill the gap between the participants' prior knowledge and the goal of the training program. It is because a good course of the study will encourage and develop the critical thinking and problem solving abilities of the training participants (Ashraff, 2011). These abilities are very important to improve the participants' knowledge and skills. It is because they can explore the subjects deeper and able to solve the problem in the most efficient and practical way. In the future, the participants should be able to implement these abilities when they face some problems in their job. Therefore, it can be asserted that a good course of the study can ensure the perceived effectiveness of the training program.

Another reason why course of the study significantly influences the effectiveness of the DFP Tk. Pertama is because it can predict the effectiveness of the training program by giving some hints about the sequence of the curriculum during the training program. Since the effectiveness of the training program can also be seen from the curriculum sequence, the course of the study provides useful insights related to the training effectiveness (Campbell et al., 1970; Latham, 1988; Noe, 1986, in Mathieu, Tannenbaum & Salas, 1992). In DFP Tk. Pertama, the sequence of the course of the study is carefully placed from general to specific subjects. The main goal of this kind of arrangement is to help the participants to absorb the new knowledge and skills in the most efficient way. Therefore, the participants are able to show the improvement of their way of thinking to solve some given research problems effectively during the training program. The influence of the course of the study can be seen from its constant influences to the perceived effectiveness of the DFP Tk. Pertama. During the training program, the participants agree that the course of the study is able to give the influences simultaneously. This

influence is proven by the significant result of the analysis of course of the study compare to the other three elements (p = .003).

On the other hand, the participants consider the other three curriculum elements - textbooks, classroom practices, and supporting facilities - give no significant influence on the DFP Tk. Pertama effectiveness. It means that they think these three elements do not give significant contributions to the improvement of their knowledge and skills to support their future research. Some of the reasons why these elements not significant are the participants think that some content of the textbooks do not follow the development of the current research, and the learning process is still conducted in a teacher-centered learning process. These conditions do not support the participants to develop their curiosity in exploring the new knowledge and/or skills during the learning process. Combined with the fact that sometimes the audiovisual facilities sometimes do not work properly, the participants assume that these three elements do not give any significant influence to the effectiveness of the DFP Tk. Pertama. The finding in this study is interesting, because it contradicts the findings of previous research; which indicates that textbooks, classroom practices and supporting facilities significantly influence the training program effectiveness (Lewy, 1997; Wenglinsky, 2011; Hunter, 2006; Bullock, 2007). Unfortunately, this study does not do any further exploration on how far the contradiction of the findings occurs. Moreover, we could not find any supporting literature that directly compares the influence of the curriculum elements on the effectiveness of the training program.

In DFP Tk. Pertama, the perceived effectiveness of the training program can be achieved by having a good curriculum arrangement. This good arrangement of the curriculum sequence enables the participants to learn the course of the study in the most effective way. The course of the study in the DFP Tk. Pertama are chosen based on the training program's goal to improve the participants' knowledge and skills. These subjects are prepared in the specific order for not overlapping into each other. Therefore, this sequence enables the participants to improve their knowledge gradually, from the general into specific knowledge. Together with the application of the other curriculum elements, the participants will be able to improve their knowledge and skill effectively. An integrated curriculum will enable the participants' to perceive an adequate amount of knowledge substance during the training program, rather than if those elements are implemented separately (Ringwalt et al. 2003; Wetzel, Potter & O'Toole, 1982).

Based on the evaluation process and discussion above, this study still contains some limitations. The first limitation is about the difficulties in finding previous research that perfectly matches with the goal of this study. The resources that discuss about the relationship between the curriculum elements and the training program effectiveness are also very limited. The second limitation is time and resources constraints. This study only has a very limited time and resources that hinders a deeper exploration to investigate the answers of the research questions. These limitations also hinder us in taking a bigger number of the sampling. Therefore, there is always a possibility that the result of this study could not represent the real population phenomenon.

5.4. Conclusion

From the discussion above, we can conclude that:

- the curriculum gives a significant influence on the effectiveness of the DFP Tk. Pertama
- from the four elements of the curriculum, course of the study is the only element that strongly influences the effectiveness of DFP Tk. Pertama
- at the end of the training program, the participants give a considerable satisfaction level on the perceived effectiveness of the DFP Tk. Pertama

5.5. Recommendations

From the results and the discussion of this study, there are several issues that can be addressed to improve the effectiveness of the DFP Tk. Pertama. These recommendations are made based on the participants' reaction about the effectiveness of the DFP Tk. Pertama during the evaluation process. Even though in general the evaluation result shows positive reactions about the effectiveness of the DFP Tk. Pertama, we believe that this training program can still be improved in the future. Therefore, this study proposes some recommendations for future research, and for the administrator of the training program (Pusbindiklat Peneliti LIPI). Those recommendations are stated as follows:

a. Future research:
   - could possibly explore the same topic with a broader scope, which includes larger sample sizes to have a higher level of reliability and validity
   - could focus on the instructional strategies or management system which will cover deeper levels of studies
   - should include the comparison of pre-test and post-test to measure the improvement of the participants knowledge and skills after they follow the DFP Tk. Pertama. This measurement acts as the implementation of Level 2 of Kirkpatrick's model (Learning Level)
   - should include the Kirkpatrick's Behavior Level and Result Level of evaluation (Level 3 and 4) in order to have a complete insight how far DFP Tk. Pertama can give an impact on the participants' contribution in developing their institutions after they follow the training program
b. Pusbindiklat Peneliti LIPI:
   - should pay more attention to the classroom practices, with the emphasis on the activities that can encourage the participants to have a deeper exploration about the subject content
   - have a better quality of supporting facilities to support the learning process
   - have a better quality of textbooks which contains the recent update of the research development, both in national or international scope

References

Akker, J. v., & Verloop, N. (1994). Evaluation approaches and results in curriculum research and development in the Netherlands. *Studies in Educational Evaluation, Vol. 20*, 421-436.

Alexander, K. L., & Pallas, A. M. (1983). *Curriculum reform and school performance: An evaluation of the "new basics".* Baltimore: Johns Hopkins University.

Altrichter, H. (2005). Curriculum implementation – limiting and facilitating factors. In P. Nentwig, & D. Waddington, *Context based learning of science* (pp. 35-62). Munster: Waxmann.

Amaratunga, D., Baldry, D., Sarshar, M., & Newton, R. (2002). Quantitative and qualitative research in the built environment: application of "mixed" research approach. *Work Study, Vol. 51(1)*, 17-31.

Anderson, J. D. (2006). *Qualitative and quantitative research.* Imperial COE.

Arthur Jr., W., Winston Jr., B., Edens, P. S., & Bell, S. T. (2003). Effectiveness of training in organizations: a meta-analysis of design and evaluation features. *Journal of Applied Psychology, Vol. 88(2)*, 234-245.

Ashraf, U. (2011, December 28). *Curriculum, history and elements of curriculum.* Retrieved from Slide Share Website: http://www.slideshare.net

Baldwin, T. T., & Ford, J. (1988). Transfer of training: A review and future directions for future research. *Personnel Psychologie, Vol. 41(1)*, 63-105.

Bankes, S. (1993). Exploratory modelling for policy analysis. *Operation Research, Vol. 41 (3)*, 435-449.

Black, J. S., & Mendenhall, M. (1990). Cross-cultural training effectiveness: a review and a theoretical framework for future research. *The Academy of Management Review, Vol. 15(1)*, 113-136.

Bokonjic, D., Steiner, T., & Sonntag, H.-G. (2009). *Manual of teaching and learning in medicine.* Heidelberg: EU Tempus.

Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision, Vol. 36(2)*, 63-76.

Bregman, P., & Jacobson, H. (2000). Searching for answers: Yes, you can measure the business results of training. *Training, Vol. 38(8)*, 68-72.

Bullock, C. (2008, July 4). *The relationship between school building conditions and student.* Retrieved from Scholar Library Website: http://scholar.lib.vt.ed/theses/available/etd-08212007-163313

Campbell, J. P., Dunnette, M. D., Lawler, E. E., & Weick Jr., K. R. (1970). *Managerial behavior, performance, and effectiveness.* New York: McGraw-Hill.

Champaign 4 Unit District School. (2011, January 29). *Curriculum evaluation manual.* Retrieved from Champaign School Website: http://www.champaignschools.org

Chyung, S. Y. (2009). Systematic and systemic approaches to reducing attrition rates in online higher education. *American Journal of Distance Education, Vol. 15(3)*, 36-49.

Ciborowski, J. (1992). *Textbooks and the Students Who can't read them: A guide to teaching content. The cognitive strategy training series.* Cambridge, MA: Brookline Books.

Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research.* Thousand Oaks, CA.: Sage.

Cuban, L. (1992). What happen to reforms that last? The case of the junior high school. *American Educational Research Journal, Vol. 29(2)*, 227-252.

Cuthill, M. (2002). Exploratory research: citizen participation, local government and sustainable development in Australia. *Sustainable Development, Vol. 10*, 79-89.

Dick, A. J., Rich, W., & Waters, T. (2009). *Curriculum evaluation.* California: Department of Correction and Rehabilitation - The California University.

Dick, W. (2002). Evaluation in instructional design: the impact of Kirkpatrick's four-level model. In W. Dick, & R. B. Johnson, *Trends and issues in instructional design and technology* (pp. 145-153). Upper Saddle River, NJ: Pearson.

Fraenkel, J. R., & Wallen, N. È. (1993). *How to design and evaluate research in Education.* Retrieved from Tusculum: http://www.tusculum.edu/faculty/home/mnarkawicz/html/534notes.doc

Goldstein, I. L., & Ford, J. K. (2002). *Training in organization.* Belmont, CA.: Wadsworth.

Graves, S. L. (1998). *Success in post-secondary developmental mathematics: A curriculum evaluation.* Waco, TX.: Center for Occupational Research and Development, Inc.

Hale, O. (2002). Improving performance. *American School and University, Vol. 75*, 32-25.

Hamdani, S. R. (2012, July 12). *What is the importance of employees training and dev. prog?* Retrieved from www.ezinearticles.com

Hoover, R. L. (1999). *Aspect of Curriculum.* Retrieved from Youngstown State University: http://people.ysu.edu/~rlhoover/ClassConnections/Diagrams/hiddenullovert.html

Hopkins, W. (2000). Measures of reliability in sports medicine and science. *Sports Medicine, Vol. 30(1)*, 1-15. Retrieved from US National Library of Medicine Web site.

Hunter, M. A. (2006). Public school facilities: Providing environments that sustain learning. *Teachers College Columbia University.* New York, NY.: National Access Network.

Indira, A. (2008). Evaluation of training programs for rural development. *Journal of Applied Quantitative Method, Vo. 3(2)*, 139-150.

Israel, G. D. (2009, April). *University of Florida.* Retrieved from University of Florida Web site: http://edis.ifas.ufl.edu

Jacob, P. M., & Koehn, M. L. (2004). Curriculum evaluation: who, when, why, how. *Nursing Education Perspective, Vol. 25 (1)*, 30-35.

Johansson, M. (2005). Mathematics textbooks – the link between the intended and the implemented curriculum? *Reform, Revolution and Paradigm Shifts in Mathematics Education* (pp. 119-123). Johor Bahru: Universiti Teknologi Malaysia.

Johnson, J. A. (2001). Principles of effective change: Curriculum revision that works . *Journal of Research for Educational Leaders, Vol. 1(1)*, 5-18.

Kirkpatrick, D. L. (1967). Evaluation of training. In R. Craig, & I. Mittel, *Training and Development Handbook* (pp. 87-112). New York: Mc.Graw Hill.

Kirkpatrick, D. L. (1975). *Evaluating training programs : a collection of articles from the Journal of the American Society for Training and Development.* Madison, Wis.: ASTD.

Kirkpatrick, D. L. (1994). *Evaluating training programs : the four levels.* San Francisco, CA.: Berrett-Koehler Publishers.

Kirkpatrick, D. L., & Kirkpatrick, J. D. (2009). *Evaluating training program, 3rd ed.* San Fransisco, CA.: Berrett-Koehler Publishers.

Kirkpatrick, D. L., & Kirkpatrick, J. D. (2009). *Implementing the four levels: a practical guides for effective evaluation of training program.* San Fransisco, CA.: Berret-Koehler Publishers.

Kissane, B. (2000). Technology and the curriculum: the case of the graphic calculator. *Proceedings of TIME 2000: An International Conference on Technology in Mathematics Education* (pp. 60-71). Auckland: Time .

Kontoghiorghes, C. (2001). Factors affecting training effectiveness in the context of the introduction of new technology - a US case study. *International Journal of Training and Development, Vol. 5(4)*, 248-260.

Langrange, J. B. (2005). Curriculum, classroom practices, and tool design in the learning of functions through technology-aided experimental approaches. *International Journal of Computers for Mathematical Learning Vol. 10*, 143-189.

Leathwood, C., & Phillips, D. (2000). Developing curriculum evaluation research in higher education: process, politics, and practicalities. *Higher Education: The International Journal of Higher Education and Education Planning, Vol. 40 (3)*, 313-330.

Leech, N. L., & Onwuegbuzie, A. J. (2009). A typology of mixed methods research designs. *Qual Quant, Vol. 43*, 265-275.

Leinhardt, S., & Wasserman, S. S. (1979). Teaching regression: an exploraroty approach. *The American Stastician, Vol. 33(4)*, 196-203.

Lembaga Ilmu Pengetahuan Indonesia. (2012, January 3). *LIPI*. Retrieved from LIPI Website: http://www.lipi.go.id

Lewy, A. (1973). *The practice of curriculum evaluation.* Ontario: Blackwell Publishing.

Lewy, A. (1977). *Handbook of curriculum evaluation.* Paris: UNESCO.

Long, P. W. (1995). *When is a difference between two groups significant?* Retrieved from Mental Health Web site: http://www.mentalhealth.com/dis-rs/rs-effect_size.html

Lowenthal, P. R., & Leech, N. L. (2009). Mixed reserach and online learning: Strategies for improvement. In T. T. Kidd, *Online education and adult learning: New frontiers for teaching practices.* Hershey, PA: IGI Global.

Mansfield, R. S., Busse, T. V., & Krepelka, E. J. (1978). The effectiveness of creativity training. *Review of Educational Research, Vol. 48(4)*, 517-536.

Marsh, H. W. (1982). SEEQ: a reliable, valid, and useful instrument for collecting students' evaluations of university teaching. *British Journal of Educational Psychology, Vol. 52*, 77-95.

Martin, M. O., & Kelly, D. L. (1996). *Third international mathematics and science study: An overview.* Boston: Boston College.

Mathieu, J. E., Tannenbaum, S. I., & Salas, E. (1992). Influences of individual and situational characteristics on measures of training effectiveness. *The Academy of Management Journal, Vol. 35(4)*, 828-847.

McClelland, S. D. (2002). *A training needs assessment for the united way of Dunn County Wisconsin.* Wisconsin: The Graduate School University of Wisconsin Stout.

McGehee, W., & Thayer, P. W. (1961). *Training in business and industry.* London: Wiley.

Merril, M. D. (1994). *Instructional design theory.* Englewood Cliffs, NJ.: Educational Technology Publication.

Mitchell, M. L., & Jolley, J. M. (2010). *Research design explained, 8th edition.* Belmont, CA.: John-David Hague.

Monahan, J. (2012, July 19). *The importance of developing a training program for your company.* Retrieved from http://ezinearticles.com/?The-Importance-Of-Developing-A-Training-Program-For-Your-Company&id=114536

Moody, D. L., & Sindre, G. (2003). Evaluating the effectiveness of learning interventions: An information systems case study. *ECIS* (pp. 1-17). London: ECIS.

Morton, G. R., Shepherd, A., & Geaither, R. (2009). *The six moving part of correctional training effectiveness.* Colorado: U.S. Department of Justice.

Nehemia, N. M. (2010). Justification for skills transfer and validating a specific developed measuring instrument. *African Journal of Business Management, Vol. 4(6)*, 1085-1094.

Neumann, P. H. (1980). Publishing for schools. Textbooks and the less developed countries. *World Bank Staff Working Paper, International Bank for Reconstruction and Development, No. 398*, 79.

Nickols, F. (2011, April 21). *Leveraging the Kickpatrick model.* Retrieved from Training Journal Web site: http://www.trainingjournal.com/blog/articles-blogs-leveraging-the-kirkpatrick-model/

Noe, R. A. (1986). Trainees' attributes and attitudes: neglected influences on training effectiveness. *The Academy of Management Review, Vol. 11(4)*, 736-749.

Norris, N. (1998). Curriculum evaluation revisited. *Cambridge Journal od Education, Vol. 2 (2)*, 207-219.

Olson, S. L., & Kellum, S. (2008, October 28). *The impact of sustainable buildings on educational achievements in k-12 schools.* Retrieved from Cleaner and Greener Website: http://www.cleanerandgreener.org/download/sustainableschools.pdf

Piccoli, G., Ahmad, R., & Ives, B. (2001). Web-Based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training. *MIS Quarterly, Vol. 25 (4)*, 401-426.

Plaza, C. M., Draugalis, J. R., Slack, M. K., Skrepnek, G. H., & Sauer, K. K. (2007). Curriculum mapping in program assessment and evaluation. *American Journal of Pharmaceutical Education Vol. 71(2) Article 20*, 1-8.

Posner, G. J. (2004). *Analyzing the curriculum.* NewYork, NY: McGraw-Hill.

Pusbindiklat Peneliti LIPI. (2011, December 11). *Pusbindiklat Peneliti LIPI*. Retrieved 12 11, 2011, from Pusbindiklat LIPI Website: http://www.pusbindiklat.lipi.go.id/pendidikan-dan-pelatihan

Quiñones, M. A. (1997). Contextual influences on training effectiveness. In M. A. Quiñones, & A. Ehrenstein, *Training for a rapidly changing workplace: Applications of psychological research* (pp. 177-199). Washington D.C.: American Psychological Association.

Rabow, M. W., Gradie, G. E., Fair, J. M., & McPhee, S. J. (2000). End-oflLife care content in 50 textbooks from multiple specialties. *The Journal of the American Medical Association, Vol. 283(6)*, 771-778.

Remmen, R., Derese, A., Scherpbier, A., Denekens, J., Hermann, I., Vleuten, C. v., . . . Bossaert, L. (1999). Can medical schools rely on clerkships to train students in basic clinical skills? *Medical Education, Vol. 33*, 600-605.

Richards, J. C. (2012, April 7). *The role of textbooks in a language program.* Retrieved from Cambridge University Press Website: http://www.cambridge.org.br/authors-articles/articles?id=337

Ringwalt, C. L., Ennett, S., Johnson, R., Rohrbach, L. A., Simons-Rudolph, A., Vincus, A., & Thorne, J. (2003). Factors Associated With Fidelity to Substance Use Prevention Curriculum Guides in the Nation's Middle Schools. *Health Education & Behavior, Vol. 30(3)*, 375-391.

Rosti Jr., R. T., & Shipper, F. (1998). A study of theimpact of training in a management development program based on 360 feedback. *Journal of Managerial Psychology, Vol. 13(1/2)*, 77-89.

Sackett, P. R., & Mullen, E. J. (1993). Beyond formal experimental design: towards an expanded view of the training evaluation process. *Personnel Psychology, Vol. 46(3)*, 613-627.

Schneider, M. (2002). *Public school facilities and teaching: Washington, DC and Chicago.* New York: Stony Brook.

Schneider, M. (2003, August). *Linking School Facility Conditions to Teacher Satisfaction and Success.* Retrieved from National Clearinghouse for Educational Facilities: http://www.21csf.org

Sconce, C., & Howard, J. (1994). Curriculum evaluation - a new approach. *Nurse Education Today, Vol. 14*, 280-286.

Shields, L. (2003). The difference between quantitative and qualitative research. *Pediatric Nursing, Vol. 15(9)*, 24.

Sleezer, C. M. (1993). Training needs assessment at work: A dynamic process. *Human Resource Development Quarterly, Vol. 4(3)*, 247-263.

Stewart, D. (2001). Exploratory versus confirmatory factor analysis. *Journal of Consumer Psychology, Vol. 10(1/2)*, 76-78.

Strother, J. (2002). An Assessment of the effectiveness of e-learning in corporate training programs. *International Review of Research in Open and Distance Learning, Vol. 3(1)*, 1-17.

Subejo. (2010, 02 07). *The Performance of Research in Indonesia.* Retrieved 04 24, 2012, from The Jakarta Post Website: http://www.thejakartapost.com/news/2010/07/02/the-performance-research-indonesia.html

Tennessee Advisory Commission on Intergovernmental Relations. (2003). *Do K-12 school facilities affect education outcomes?* Retrieved from http://www.tennessee.gov/tacir/PDF_FILES/Education/SchFac.pdf

Tomlinson-Clarke, S. (2000). Assessing outcomes in a multicultural training course: A qualitative study. *Counselling Psychology Qua rterly, Vol. 13(2)*, 221-231.

U.S. Department of Education, Office of Educational Research and Improvement. (1996). *High school seniors' instructional experiences in science and mathematics.* Washington, DC: U.S Government Printing Office.

Valverde, G. A. (2012, June 20). *International curriculum - Authority and function, curriculum and globalization, curriculum and learning.* Retrieved from State University Web site: http://education.stateuniversity.com/pages/1897/Curriculum-International.html

van Aken, J. E. (2004). Management research based on the paradigm of the design sciences: the quest for field-tested and grounded technological rules. *Journal of Management Studies, 41(2)*, 219-246.

van de Akker, J., & Verloop, N. (1994). Evaluation approaches and results in curriculum research and development in the Netherlands. *Studies in Educational Evaluation, Vol. 20*, 421-436.

Vandiver, B. (2011). *The impact of school facilities on the learning environment.* Minneapolis: Capella University.

Vaus, D. d. (2005). *Research design in social research.* London: Sage Publication Ltd.

Voogt, J., & Pelgrum, H. (2005). ICT and curriculum change. *An Interdisciplinary Journal on Humans in ICT Environments, Vol. 1(2)*, 157-175.

Welingsky, H. (2001). *Teacher classroom practices and student performance: How schools can make a difference.* New Jersey: Educational Testing Service (ETS).

Wetzel, J. N., Potter, W. J., & O'Toole, D. M. (1982). The influence of learning and teaching styles on student attitudes and achievement in the introductory economics course: A case study. *The Journal of Economic Education, Vol. 13(1)* , 33-39.

Whipp, J. L., & Chiarelli, S. (2004). Self-regulation in a web-based course: A case study. *Educational Technology Research and Development, Vol. 52(4)*, 5-21.

Yankuer, A. e. (1972). *The outcomes and service impact of a pediatric nurse practitioner training program.* Denver: Nurse Practitioner Training Outcomes.

Zemke, R., & Zemke, S. (1994). Partnering: a new slant on serving the internal customer. *Training, Vol. 31(10)*, 37-43.

Appendix 1.

Questionnaire about Diklat Fungsional Peneliti Tk. Pertama LIPI

Before you answer the questions, please fill in your personal information below. Any information given in this questionnaire will be kept secret and will not be hand down to the third party.

1.	Gender	:	F/M
2.	Age	:	
3.	Educational Background	:	Natural / Technical / Social Sciences
4.	Educational Degree	:	Bachelor / Master / Doctorate / Post-Doc
5.	Original Department/ Institution/ Ministry	:	
6.	Research experience before following training program	:	..... years
7.	Scientific Publication	:	Yes/No
			a. National : ... publication(s)
			b. International : ... publication(s)

Please read each question about DFP Tk. Pertama very carefully. Make sure you understand what is being asked. Use this scale and *circle the number* that is closest to your rating for that item:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Textbooks : The study materials in DFP Tk. Pertama match with the topic of course of the study and following the development of the recent research

1.	The study materials (handouts, text book, etc.) represent the content of the course studies	1	2	3	4	5
2.	The course materials (text book, participant guide, handouts, etc.) are well printed	1	2	3	4	5
3.	The study materials (text book, handouts, etc.) are appropriate and up to date with the development of recent research	1	2	3	4	5
4.	You are required to obtain additional materials (journals, report, etc.) to have a better understanding in the course studies	1	2	3	4	5

Classroom practices: The learning activities is a student-centered learning process and encourage you to explore the subjects deeper

1.	There is a good balance between teacher presentation and student involvement during the learning process	1	2	3	4	5
2.	There is enough time to have discussion with other participants	1	2	3	4	5
3.	You are encouraged to participate in class discussions	1	2	3	4	5
4.	You are invited to share your ideas and knowledge with other participants during the learning process	1	2	3	4	5
5.	You are encouraged to ask questions, and the teachers are giving meaningful answers	1	2	3	4	5
6.	There is a good balance between theory and practice during the learning process	1	2	3	4	5
7.	The burden of the study of each course study is equal with the subject credit	1	2	3	4	5
8.	The teachers use language that is clear and easy to understand in presenting the course content	1	2	3	4	5
9.	Teaching-learning activities during the learning process help you to have a better understanding of the course studies	1	2	3	4	5

Course of the study: The course of the study is intellectually challenging and stimulating to be explored deeper, and provide the basic knowledge for the researchers

1.	The course studies are in line with the training program objectives	1	2	3	4	5
2.	The course studies are relevant with the basic needs of researchers	1	2	3	4	5
3.	The course studies are intellectually challenging and stimulating	1	2	3	4	5
4.	The course studies are well placed in the schedule (not overlapping)	1	2	3	4	5
5.	The course studies meet your personal needs as a researcher	1	2	3	4	5
6.	The course studies requires a deeper exploration	1	2	3	4	5
7.	You find the course studies are interesting and you are willing to spend extra time to obtain more information about them	1	2	3	4	5

Supporting facilities: The facilities (audio, visual, and other facilities) in the DFP Tk. Pertama support the learning process

1.	The classrooms are convenient and support the learning process	1	2	3	4	5
2.	Audiovisual facilities (tapes, microphone, LCD, videos, etc.) function properly	1	2	3	4	5
3.	Teachers use the audiovisual facilities (tapes, microphone, LCD, videos, etc.) optimally during the learning process	1	2	3	4	5
4.	The information provided in this course (reading list, course outline, etc.) is comprehensive and helpful	1	2	3	4	5
5.	You do not find any difficulties in communicating (complain, availability of training information, etc.) with the Administrator of DFP Tk. Pertama	1	2	3	4	5
6.	The training program sequence is effective	1	2	3	4	5

Training program effectiveness: DFP Tk. Pertama is effective to improve your knowledge and skills, and support your future job

1.	The course studies help you to improve your knowledge and skills as a researcher	1	2	3	4	5
2.	The course studies offer new knowledge and skills	1	2	3	4	5
3.	The course studies are relevant with your job as a researcher and support your future career	1	2	3	4	5
4.	Your interest in the research has increased as a consequence of studying some specific subjects related to research	1	2	3	4	5

Appendix 2.

Demographic Data of the Participants

Gender	Female: 14 people (46.7%)			Male: 16 people (53.3%)	
Age	20-25 years old: 13.3%			26 - 30 years old: 46.7%	
	31 - 35 years old: 33.3%			> 35 years old: 6.7%	
Educational Background	Social Sciences: 6.7%	Natural Sciences: 73.3%		Technical Sciences: 20%	
Educational Degree	Bachelor: 90%			Master: 10%	
Original Institution/Ministry	Ministry of Health: 56.7%	Ministry of Forestry: 6.7%		National Institute of Aeronautics and Space (LAPAN): 23.3%	Indonesian Research Institute of Estate Corps: 13.3%
Research Experience(s)	0 years: 23.3%	1-2 years: 43.4%	3-4 years: 23.3%	5-6 years: 6.7%	7-8 years: 3.3%

n = 30

Appendix 3.

Reliability value of the questionnaire sheet:

Questionnaire's Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.855	.857	30

Reliability value of the variables:

Independent and Dependent Variables' Reliability Statistics

Element	Cronbach's Alpha	N of Items
Textbooks	.518	4
Classroom Practices	.699	9
Course of the Study	.525	7
Supporting Facilities	.756	6
Training Program Effectiveness	.704	4