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FIELD STUDY, ACTION PLAN AND E-COLLABORATION: TRANSFORMING EFFECTIVE INFORMATION SECURITY TRAINING PROGRAM FOR LOCAL GOVERNMENT IN INDONESIA

Kholif Faiz Ma'ruf
Education and Training Centre, National Cyber and Crypto Agency (BSSN), Jakarta, Indonesia
kholif.faiz@bssn.go.id

Anik Setyowati
Education and Training Centre, National Cyber and Crypto Agency (BSSN), Jakarta, Indonesia
anik.setyowati@bssn.go.id

Abstract

Changing the bad paradigm of information security in 514 local governments in Indonesia is very challenging. The root of the problem must be found, and with limited resources, the right solution should be found to allow the solution to run across 514 local governments. FGD method is used to find the root of the problem, and the result is found that the main problem lies in the lack of competence and motivation of Information Security HR working in the Local Government. Although education and training have been provided to improve their competence, the fact that once they return to their workplace, they can not implement the science in their workplace. The second root of the problem is the absence of a quick and inexpensive consultation container to solve various problems. The author tries to address the root of the first problem through changes in the basic information security training curriculum in the form of a field study approach and an action plan. The root of the second problem is solved with cheap

and effective online group collaboration, we call it a chain of hope. The training curriculum is being applied to 40 local governments by 2017 and the results are staggering. In the context of education, it is very difficult to see the outcome quickly, but based on our case study, just within 6 months after the training, the outcomes of the training can be seen in real terms. Now in every local government whose human resources have undergone basic information security training in the year 2017, will see the results of its work in the form of information security posters, antivirus already installed, awareness runs with innovative techniques, and the preparation of information security activities can already run. Based on these case studies, it can be assured that the information security in every local government in Indonesia has a good future if it starts with an appropriate Education Curriculum.

Keywords

Field Study, Action Plan, E-collaboration, Information Security, Training Program

1. Introduction

The paradigm of the poor implementation of information security in almost all local governments in Indonesia is already familiar. The facts we obtained based on interviews with 100 trainees representing 40 local governments stated that all respondents did not have document of information security risk management that became the basis for the operation of information security activities in local government. Even Fundamentals such as information security policies and antivirus usage obligations and original software are also not found in the workplace. In fact, education and training programs have been regularly organized by the National Crypto Agency (Lemsaneg) which is now renamed National Cyber and Crypto Agency (BSSN) as an information security establishment. The surprising fact that the results of post-training evaluation conducted by the National Crypto Agency states that they can't apply their learning outcomes to the workplace even after they have finished their education and training. From these facts indicate that the curriculum applied in the training felt less appropriate with their work competence.

Looking at these facts, we as a trainer and researcher at BSSN which is an agency that are responsible for fostering human resources of information security, try to change paradigm about weakness of information security application in 514 local government. Researchers use the Focus Group Discussion (FGD) method to find the root of the problem, find solutions to the root of the problem, test the application of the curriculum and assess the effectivity of the new curriculum of information security training in the workplace using Kirkpatrick's evaluation

model level 3 (behavior). The greatest challenge is to find one shoot solution that can work to resolve the root of the problem across 514 local governments in Indonesia.

2. Objective of the Study

This study aims to find the root of the problem of a poor paradigm about the application of information security in 514 local governments in Indonesia, find solutions to the root of the problem, implement the solution, and test the results. The limitations of the approach used in solving the problem here are from the curriculum side of education and training, in accordance with the researcher's authority and full support from the Education and Training Center, National Cyber and Crypto Agency (BSSN). The solution was then applied to test how successful it was using a level 3 circumcision evaluation model.

3. Research Method

The Focus Group Discussion methodology is used to find the root cause and find a solution. Figure 1. Research Method illustrates that in order to conduct this research, we invite 50 information security experts and information security officials in government agencies to formulate the root causes and negotiate to formulate a common solution. The next step is to apply the solution to 40 local governments spread across 8 experimental training programs using the new curriculum results. The results of the curriculum trial are evaluated using Kirkpatrick's evaluation model level 3 to see how far the trainees can apply the training materials to their work.
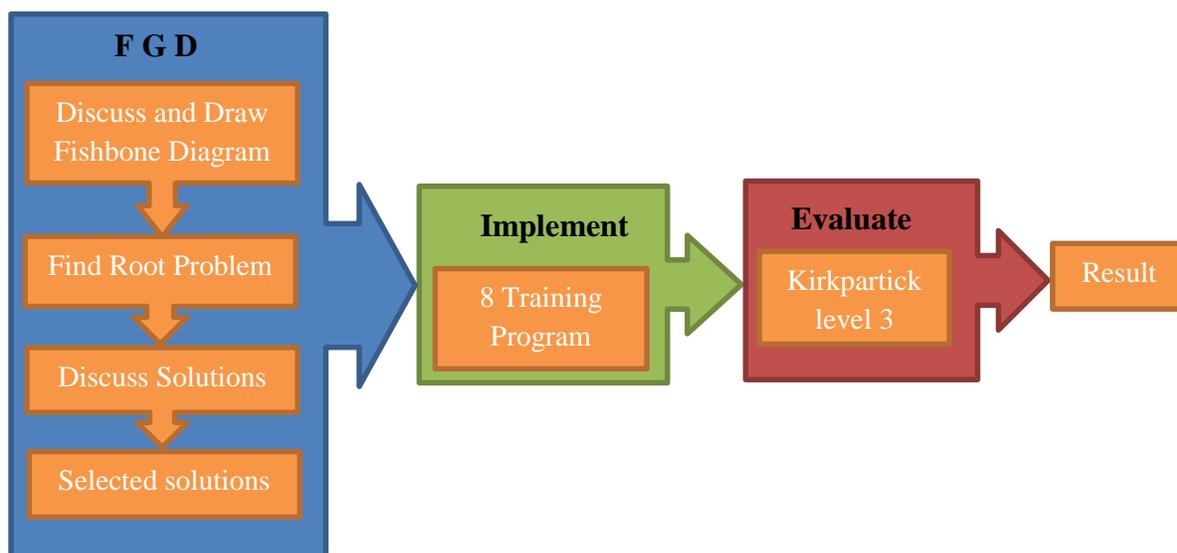

Figure 1: *Research Method*

Explanation of Figure 1. Research Method:

Population: 514 Local Government of the Republic of Indonesia

Sample: 40 trainees representing 40 local governments of the republic of Indonesia

Method: FGD to find the root of the problem and find the solution, Kirkpatrick's level 3 evaluation model (behavior) to measure the success rate.

4. Result and Discussion

4.1 The Root Problem from FGD Result

A total of 50 information security experts were invited to conduct FGD for 3 days in order to find the root of the problem and find a solution. The result found that there are two root problems in the field of Human Resources development which led to the application of information security in 514 local governments in Indonesia became poor. A set of problems can be seen on Figure 2. Fishbone Diagram of Root Problem.

Figure 2: *Fishbone Diagram of Root Problem*

From Figure 2. It can be seen that the root of the first problem is lack of competence and motivation. The root of the problem is based on the fact that although employees have attended

information security training programs, they can't apply the lessons that they have learned. Competence and motivation can be built during training through a good curriculum. The old curriculum was competency based, but out of date and not engage and motivate the trainee to implement the lessons in workplace. Since the basic competence has been out of date, the materials obtained at the training site can't describe the work process at the current workplace and are not implementation. As a result, once the trainee returns to the workplace, they can't act to apply the lessons learned. Trainees also can't create information security activities because they are unmotivated and untrained to take up actual issues in their workplace.

The second root of the problem is the absence of a quick and inexpensive consultation. They feels difficult to consult in an informal atmosphere. It has no innovation to design activities because it has no room to ask for innovations from other local governments. There is no efficient space to discuss and share experiences on information security practices in various government agencies in Indonesia.

From both the root of the problem, we together with FGD participants formulate solutions that can be applied in all 514 local governments in Indonesia. The solution is embodied in the new information security training curriculum. The new curriculum is designed to focus on solving both the root of the problem. A training syllabus that focuses on solving the root of the first problem is the addition of the Field Study and Action Plan. Meanwhile, to solve the second problem using E-Collaboration is very efficient to implement, namely Whatsapp Group.

4.2 Solution 1: Field Study

The first root problem addressed through changes in the basic information security training curriculum in the form of a field study approach and an action plan. Field Study often implemented in formal tuition and adult education programs as part of the practical exercise undertaken by the students (Vassala, 2006). Thus, trainees in this adult learning could conduct practice in the field, feel, ask, and can take positive values for them to apply this values in their workplace. More particularly, it helps the students acquire new knowledge and skills and formulate interest attitudes towards the study subject; in other words, it contributes so as the changes through learning to take place on knowledge, skills and attitudes levels (Knapp, 2000)

Field studies are an effective way for training participants to be able to directly conduct the information security activities of organizations that are best assessed in implementing information security activities in the workplace. More specifically, in field study the students are offered ample opportunity for active participation since they are called upon either in groups or

individually to plan, implement, apply, replan and evaluate certain activities relating to the theoretical background of their studies (Vassala, 2006).

Our curriculum includes field study materials in information security training programs. Our training participants are divided into 4 groups to review and deepen the problems along with alternative solutions that can be drawn from the results of field studies. The four groups are divided based on four main competencies namely information security devices, information security governance, information security professional ethics and counter surveillance. Thus the trainee can focus on seeing positive things in the field study locus according to the competency domain they needs.

The trainees were also asked to report the results of field studies and present them to the class. In this way, each group can learn from other groups and can take positive values from other group field studies.

4.3 Solution 2: Action Plan

The action plan is used as a follow-up of the results of field studies. One of the main objectives of the action plan is to increase the motivation of the training participants to work on the information security activities at their workplace up to 6 months after the training. Trainees are also taught how to take the actual issues at work and make them the first priority to be worked on action plan sheet.

The lack of outcomes of Lemsaneg Security Awareness Program in some of local governments even encourages the research of Projection of model of scenario building and scenario planning in building awareness behavior in Local Government through Security Awareness Program to give projection to build security in the future (Suprijandoko, 2017). Therefore, the second priority in the action plan is security awareness. Basically, training participants are directed to develop action plans, but not limited to actual issues in the workplace and security awareness programs.

Number	Job / Activities Description	Purpose	Expected Result	Method	Time and Place	Person in charge	Indicator of Success
1. 2. 3.							

ACTION PLAN

Employment : ....

Action Plan : ....

Place and Date

Sign.

(Name)

Figure 3: *Action Plan Template*

Dari Figure 3. Action Plan Template, it appears that the trainee must arrange an action plan in accordance with the given format. Thus, reviewers can determine whether the action plan is feasible to continue or need to change. Each column entry in the action plan table will be discussed by the reviewer and must be approved by the reviewer. The trainees should also include the name of their boss and colleagues as information for us to conduct a 360 degree evaluation of the action plan's work achievements. Thus, the trainee has a written practical motivation agreement with the training provider that will implement information security in his workplace.

4.4 Solution 3: E-Collaboration

The root of the second problem is solved with cheap and effective online group collaboration. E-collaboration technologies assume user participation as well as socialization (Zascerinska & Ahrens, 2009). The popularity of Mobile Instant Messaging (MIM) has prompted educators to integrate it in teaching and learning (Klein, da Silva Freitas, da Silva, Barbosa, & Baldasso, 2018). The needs for informal socialization and collaboration among local governments can be solved with the MIM technology used by everyday participants, Whatsapp group. This solution is very efficient, since not all trainees have email, but have smart phones and active users of Whatsapp application.

Previous studies have found that class WhatsApp groups are used for communicating with students, nurturing a social atmosphere in class, forming a dialogue and collaboration between the students, and as a means of learning (Nitza & Roman, 2016). Reading the success, we divide the participants into several groups and through the group, they can freely ask, answer, consult, and provide feedback anytime and anywhere. We call it a chain of hope, in which

trainees can post questions, in the hope that they get answers from other trainees. As a result, in just a matter of minutes each of my questions can be addressed by other participants and any issues that occur at work can be solved through collaboration on the Whatsapp group.

4.5 Behavior Evaluation

We are using Kirkpatrick evaluation model to analyzing and evaluating the result of the training. This model composed of 4 levels: reaction, learning, behaviour and result (Kirkpatrick & Kirkpatrick, 2013). Behaviour evaluation occurs 3-6 months post training while. Level 1 is reaction, means to what degree participants react favorably to the learning event. Level 2 is learning, means to what degree participants acquire the intended knowledge, skills, and attitudes based on their participation in the learning event. Level 3 is behaviour, means To what degree participants apply what they learned during training when they are back on the job. And the last (level 4) is result means to what degree targeted outcomes occur, as a result of the learning event(s) and subsequent reinforcement. In this research, only behaviour level will be measured.

We are implementing this solution to 8 training programs, consisting of 200 trainees from 40 different local governments. Once the training program has been completed, the trainee returns to their workplace and should completing the action plan they have made. We evaluated the results of the training using kirkpatrick evaluation model level 3 (behavior), to answer how far participants apply what they learned during training when they are back on the job (Kirkpatrick & Kirkpatrick, 2013). Behaviour evaluation occurs 3-6 months post training while the trainee is performing the job (Kirkpatrick & Kirkpatrick, 2009).

In less than 6 months, we check the results of their work by contacting their supervisors, co-workers, subordinates and the training participants him/her self to assess the extent of the progress of the action plan. The result is very surprising, that as many as 60% of former trainees have successfully completed the action plan with a very high motivation. As many as 25% have not been able to finish completely due to the lack of budget, and the remaining 15% can not complete the action plan because of the constraints assigned assigned.

5. Conclusion

Based on the result of this research, there are 2 root causes causing bad paradigm of information security implementation in local government in Indonesia. First, lack of competence and motivation, and the second is the absence of a quick and inexpensive consultation. The root of the first problem can be solved using field study and action plan method. The root of the second problem can be solved using the e-collaboration method using the Whatsapp group.

Kirkpatrick evaluation model level 3 is also done with very satisfactory results. 60% of local governments, who have participated in an information security training program, could apply the lessons that they have learned in the information security training program to their workplace in less than 6 months after the training. Such case studies can convince us that information security in every local government in Indonesia has a good future if it starts with an appropriate Education Curriculum.

6. Acknowledgement

7. Future Works

Implementation of an information security training program with a new curriculum continues until 514 local governments can implement information security activities well. of the Kirkpatrick evaluation models in level 1, 2 and 3 still needs to be done to improve the training program. Further research that can be done is to test how effective this training curriculum when implemented in Central Government Agency.

References

Kirkpatrick, D., & Kirkpatrick, J. (2013). Kirkpatrick Four Levels Audio Recordings Study Guide. Newnan: Kirkpatrick Partnes, LCC.

Kirkpatrick, J., & Kirkpatrick, W. K. (2009). The Kirkpatrick Four Levels: A Fresh Look After 50 Years 1959-2009. Newnan: Kirkpatrick Partners, LLC.

Klein, A. Z., da Silva Freitas, J. C., da Silva, J. V., Barbosa, J. L., & Baldasso, L. (2018). The Educational Affordances of Mobile Instant Messaging (MIM): Results of Whatsapp® Used in Higher Education. International Journal of Distance Education Technologies, v16 n2 Article 4, 51-64. https://doi.org/10.4018/IJDET.2018040104

Knapp, D. (2000, February). Memorable Experiences of a Science Field Trip. School Science and Mathematics, 65-71. https://doi.org/10.1111/j.1949-8594.2000.tb17238.x

Nitza, D., & Roman, Y. (2016). WhatsApp Messaging: Achievements and Success in Academia. International Journal of Higher Education, v5 n4, 255-261. https://doi.org/10.5430/ijhe.v5n4p255

Suprijandoko, F. (2017). Transforming Lemsaneg into BSSN: Projection of scenario model in building awareness behavior in Local Government through Security Awareness Program. Jurnal Widyaiswara, 20-22.

Vassala, P. (2006). The Field Study as An Educational Technique in Open and Distance Learning. Turkish Online Journal of Distance Education - TOJDE, 10-11.

Zascerinska, J., & Ahrens, A. (2009). E-Collaboration Technologies in Teaching/Learning Activity. Estonia: ERIC ED529826.