

Strengthening of Learning Strategies on the PMG Ahli Training Course through Non Classical/Online Training Approach in BMKG

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Abstract: Online education and training in BMKG (Agency for Metrological Climatological and Geophysical) are so important to be implemented in nowadays training, especially PMG (*Pengamat meteorologi dan Geofisika*) Ahli Training Course in BMKG. This is because there are still many employees who have not accommodated in the training while the budget ability to organize the training more limited. And many countries with large populations, limited resources and remote and fragmented geographical areas such as Indonesia, e-learning holds as the key of better education and provides better access to knowledge resources. The desired competence in this online training is built through the provision of materials and tasks of observation, management, and field service in meteorology, climatology, and geophysics. The research method used in this study is using the extraction method from case studies of the application of online training methods in PMG Ahli Training Course. The tools in this training are online applications using WIZIQ or Webinar and online applications using Learning Management System (LMS) by using online class observation consist of learning process and learning evaluation. Implementation learning strategies in this course is the facilitator and teacher roles, the training curriculum, the learning methods and the training evaluation techniques. It can answer the needs of employee competencies that will be important before serving as operational employee in BMKG.

1 INTRODUCTION

Facing globalization era, competency is an unavoidable consequence. It needs the improvement and development of human resources quality. Competition in the global era has been filled with all sophisticated technology. In almost all areas, education should be able to empower and utilize technological advances to produce quality human resources ability in the global competition arena. The rapid growth of information makes learning needs intervention such as learning media, learning method and so on. In the United States alone, as much as \$200 billion is invested yearly by organizations into workplace learning and development programs (Donovan and Townsend, 2011). Meanwhile, the number of human resources to meet the needs of learning professionals encourages by adapting the new learning model. This challenge requires new thinking on how to acquire knowledge and skills, and also how to use learning resources that can follow the economic needs and development of knowledge.

PMG Ahli Online Training is one of training name provided by education and training Centre BMKG (Agency for Metrological Climatological and Geophysical). PMG (*Pengamat Meteorologi dan Geofisika*) Ahli Online Training is kind of a functional training for BMKG technical staff. As a PMG Ahli staff, their job can be as an observer or a forecaster weather/clime. Before PMG Ahli staff occupied, they have to join and finish PMG Ahli Online Training.

Online training in Agency for Metrological Climatological and Geophysical are so important to be implemented, especially for PMG Ahli Training Course. It is because of there are still many employees who have not been accommodated in the training, while the budget ability to organize training is getting limited. So this is the important factor why need to conduct the training fully online. PMG Ahli Training Course is the training as requirement for all employees' staff with bachelor graduates who want to be functional officer for operational duties in work place. In the PMG Ahli Training Course, the desire competencies is built through the comprehensive

materials, tasks of observation and forecast, socio cultural competencies, meteorology, climatology, and geophysics services, and also writing scientific paper. Based on these problems, then Education and Training Center held PMG Ahli Training Course 2017 until 2018 in several classes, totally there are seventeen classes have been implemented. After graduate from this training they become a reliable personnel for operational staff in BMKG.

Why e-learning in BMKG? The indispensable moment is not enough to introduce new technology for learning but it is also necessary to introduce new ways to think about learning. For many countries with large populations, limited resources or remote and fragmented geographical areas such as Indonesia, e-learning holds the key to better education and provides better access to knowledge resources. Distribution of employees who have not been accommodated in PMG Ahli Training Course are very random in the sense that employees are scattered to remote areas in the large and small island. Thus the challenge of online training will solve the problem of the number of uneducated employees and reduce it.

(Gold, 2001), his previous study Components of a Constructivist Class is "Each of the components was integrated within the course. This section outlines the course components across three areas the curriculum content of the course, the instructional method, and the assessment and feedback mechanism". Another previous study is (Jordan, 2016), told that the benefits their study are obtain recommendations for online training solutions that can be relied upon as a classical training teacher with all the problems. With success in the implementation of this online training can be used as a consideration for the implementation of any other training course.

(Pribadi, 2014), explanation for external changes, companies can adapt to avoid being crushed by the change. One of the efforts needed to deal with external change is the improvement and development of human resources. Training is one strategy that can be used by a company to face external changes. Rapid technological changes and changes in customer demands on service standards need to be anticipated by preparing human resources in accordance with the required qualifications.

(Widodo, 2018) from the research said that strategies and methods are an integral part in building learning in both classical and non-classical learning. Classical learning means that learning goes in the class, but for non classical training, learning run in a virtual class (online). In the classical training, the learning strategies are developed independently by the instructor, but in non-classical training known as

an online training, learning strategies and methods are developed jointly between instructors/teacher and instructional designers.

The research problem are how to build a comprehensive online training and also how can answer the problem solution of some limitations in the implementation of classical training. Usually classical training is an ideal training, but with the spread of BMKG employees to the remote areas until many small islands in Indonesia and also budget constraints, it is necessary to find a strategy for the implementation of the training without leaving the essence of the actual training objectives.

Some researcher doing their research about online training, and have implemented in the technical training. So this research try to implemented the learning method through the online training/non classical training in BMKG named PMG Ahli Training Course. Based on the underlying problems above and because there have been no previous studies in our institution, it is necessary to conduct detail research detail about online education and learning strategy that affects the effectiveness and successful conduct of PMG Ahli Training Course in BMKG.



Figure 1: Implementation in PMG Ahli Training Course at BMKG.

2 METHOD

This study used qualitative research methodology with non-experimental research design. Researcher do the observation on comprehensive online learning in the PMG Ahli Training Course. Investigation is also done by observing the synchronous learning and asynchronous leaning. Learning activities in online training carried out both the use of WIZIQ or Webinar for the synchronous learning and Learning Management System (LMS) for the asynchronous learning. LMS is a free and open source product that appropriate to modify and develop a learning management. All learning activities in this training are fully recorded in the LMS, based on this recording

then obtained the data that can be used in the assessment of participants.

At the end session of this training, then need to conduct training evaluation. Some instrument evaluation are applied in this training, include an evaluation of assignment of each chapter, doing the effective presentation base on summary of international journal, video recorded of effective presentation, online evaluation about resume of international journal by using Whatsapp media, the final (summative) evaluation are comprehensive test using LMS. All data collected from all assessment parameters then be processed by using Microsoft Excel data processing. The three group's assessments for participants are assessment in each chapter by the teacher, the professional development assessment and the final exam assessment. By using the weighting of the assessment, one score is finally obtained as the basis for the participants' graduation.

3 RESULT AND DISCUSSION

Through the online learning process in each chapter of learning and through the overall assessment process so that the qualifications for participant graduation can be drawn a four basic learning strategies. So that the learning process in the online based PMG Expert Training Course training can run well until the end of training. Learning strategies usually can divide into internal strategies and external strategies. Internal strategies usually came from the participant such as the motivation, creativity, honest and discipline. Our discussion is focus on the external learning strategies that can be affect on the successful conduct this training. Learning strategies in this training consist of four important thing, those are strengthening on teacher and training facilitator, strengthening on the online training curriculum, strengthening on the variety leaning method and strengthening on the evaluation aspect. By implementing this online learning strategies the improvement of competencies as expected in the objective of this training can be built successfully. The four external learning strategies are.

3.1 Strengthen on the Teacher and Training facilitator

PMG Ahli Training Course facilitator can be taken from a technical staff of deputy BMKG or Education and Training Centre staff. The training facilitator is a person who in charge of managing the class during

the training progress from the beginning until the end. In this case, training facilitator are came from education and Training centre staff that called "Widyaiswara". The main task of facilitator is bridge between the teacher and training participants. In addition, the facilitator also facilitates the interaction between trainees start from the beginning of training. Facilitator initiate pre course, introduction participants and communication in the learning sessions of each training agenda. Every task of each chapter taken from technical training material. Teachers also state the period of time which the participants must collect for the teacher assessment. In the learning process, participants will usually meet some problem related to lack of understanding of knowledge as well as task assigned by the teacher. In this case, the participants can ask the facilitator or ask directly to the teacher to get an explanation and completion. Teacher assignment can be essay/case question or multiple choice question.

It is important for every facilitator monitor the class continuously and build participant's motivation to attend each learning forum, as well as on time in collecting teacher assignments. Sometimes the facilitator needs to remind the participants if any participants are late in collecting their task. With the presence of facilitator, participants will feel not alone and there is always an opportunity to communicate any case to other participants and facilitator. Participants also have to monitor during the training both deal with learning tools such as PC computer or mobile devices.

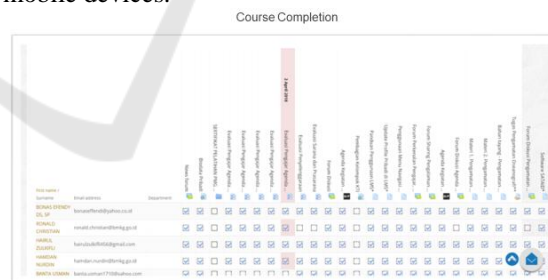


Figure 2: Table of course completion, class of PMG Ahli training course.

3.2 Strengthen on Online Training Curriculum

This education and training curriculum contains two types of competencies that must be met by participants, namely technical competencies and socio-cultural competencies coupled with writing competence. Technical competencies are arranged sequentially in accordance with their respective fields

including aspects of observation, management, processing and service. (Kaliher, 2010), explain that base on WebCT module evaluation demonstrated that an online training approach would be effective in

delivering content knowledge but several problems with the current online training module approach were revealed. The curriculum scheme of the PMG ahli Training Course can be explained in the Table 1.

Table 1. PMG ahli training course climate curriculum for climatology.

Week	Module	Material	Hours
I	Pre Course	Program Direction	3
	Professional development of PMG	Professional development of PMG	5
Observation chapter			
II	Synoptic Encoding and Me48 Encoding	Synoptic Encoding and Me48 Encoding	9
	Basic Law of Synoptic Observation	The basics of synoptic surface rules	9
	Air Quality Observations	Rain Water Chemical Analysis, GHG Sampling Technique, KU Data Analysis	
Data management chapter			
III	Forecast Analysis and Methods	Forecast Analysis and Methods, Seasonal Predictions Forecast and Rain Opportunities	9
	Fundamentals of Climate Change	Fundamentals of Climate Change	9
	Verification Method	Verification Method	
Services chapter			
IV	Public service	Concept and Policy of PP, Pattern of PP Implementation, Standard of PP and Public Satisfaction Index (IKM)	3
	General and Special Climate Services	General and Special Climate Services	3
	HTH Monitoring	HTH Monitoring	3
	Dissemination Climate information	Dissemination Climate information	9
Management and socio-cultural chapter			
V	Effective Communication	Effective Communication	3
	Time Management	Time Management	5
	Mental Revolution	Mental Revolution	3
Professional development centre			
VI	Scientific Research Paper	Presentation, Peer-Group Discussion, Review and Feedback	10
	Assessment of Credit Score	Assessment of Credit Score for Climatology Field	5
Course evaluation	Training feedback	Questionnaire	

In this training, there are two importance aspects of the curriculum those are knowledge, skill, and also behaviour in the field of technical and socio-cultural aspects. The aspects of technical curriculum consist of a technical field of meteorology, climatology geophysics and air quality. Base on Table 1, the structure of curriculum PMG Ahli Training Course describe in Table 2.

Table 2: Course component of PMG Ahli training course

No.	Course component	Percentage
1	Technic material	58%
2	Socio-cultural	14%
3	Professional development	14%
4	Evaluation aspect	14%

3.3 Strengthen on Learning Method

Tabel 2: Variety of learning method on the PMG Ahli Training Course

Sessions	Learning methods
Pre Training Introduction with PADLET	PADLET is an online post-it board that student/teacher can share with like experience, idea or mind expression. This is like an engagement forum for facilitators-participants, Training Guide Synchronous sessions and Asynchronous session
Observation Chapter	Synchronous sessions and Asynchronous session, teacher-participant discussion forums, task downloads, submit tasks, games
Management Chapter	Synchronous sessions and Asynchronous session, teacher-participant discussion forums, task downloads, submit tasks, games
Services Chapter	Synchronous sessions and Asynchronous session, teacher-participant discussion forums, task downloads, submit tasks, games
Socio Cultural Chapter	Synchronous sessions and Asynchronous session, teacher-participant discussion forums, task downloads, submit tasks, games, tasks to create presentation materials, presentations, make a presentation video
Professional Development Chapter	Synchronous sessions and Asynchronous session, job forum to make a summary international journal, international peer-to-peer review exams online, the final exam (summative) online
Evaluation	Organize questionnaire and participant feedback

The use of technology in the learning system leads to electronic-based learning as a result of technology, such as information and communication technology. Information and communication technology-based learning has changed the classical into online training that use a media pattern, such as computer media and internet support. So in this learning, by using LMS learners can choose any learning materials based on their own interests, that's why learning has to be fun,

without boring, full of motivation, passion and attract attention.

(Kaliher, 2010), told in their research, one method of delivery the module is a learning management system called Sakai. LMS was the appropriate system with which to deliver online training module. LMS is a free and open source product that allow educator more freedom to modify and develop a learning management system that meet their goals and needs. Learning Methods in PMG Ahli Training Course use two types of methods, these are synchronous and asynchronous. Synchronous method of learning is done using WIZIQ or Webinar application in real time day and time specified, in this case, the participants are asked to login in an online class and follow learning. The learning duration of synchronous session is generally 1-2 hour and continued with a discussion session. While asynchronous learning method that is done by utilizing Learning Management System (LMS). All training materials have been uploaded to the LMS, so participants are required to download the materials and tasks that have been available in it.

3.4 Strengthen on Evaluation Technique

Table 3: Percentage of evaluation aspects.

Assessment	Aspects	Percentage
Effective Presentation Assessment	Create summary journal	30 %
	Live video presentation	35 %
	Online evaluation of resume of research paper international journal	35 %
Graduation assessment	Each Chapter task	40 %
	Understanding international journal contain	30 %
	Summative final test	30 %

An instrument evaluation conducted in this training consists of an evaluation of assignment in all technical agenda. The online training strategy implementation in this training has succeeded in graduating the participants until all participants get the graduation mark. From this mark will be used as a requirement to obtain functional staff positions in BMKG. Furthermore, participants who have passed this training can apply all the knowledge gained

during the training and ready to become a reliable operational staff. Table 3 describes the technique evaluation.

The graduation criteria are determined based on the compilation of all values with the following graduation criteria:

- Very satisfactory : > 90,1
- Satisfactory : 80.1-90
- Quite Satisfying : 70.1-80,
- Less than satisfactory : 60,1-70,
- Fail : < 60

Based on the graduation level, there were 17 classes of PMG Ahli training participants with a total number of participants totaling 653 participants, but only 7 participants who fail graduate. Thus the overall the percentage of participants graduate about 98.9 percent, this can be concluded that the participant graduation still very high, considering the many constraints experienced by participants in this online training. It can be said that the implementation of PMG Expert Training Course online training in BMKG 2017-2018 (17 classes) is very effective to increase the number of significant quality operational staff needs. Participants learning activities with existing methods were responded well by participants so online learning can be well received.

4 CONCLUSIONS

Learning strategies in the PMG Ahli Training Course emphasis on strengthen on facilitator and teacher roles, strengthen on curriculum, strengthen on learning methods and strengthen evaluation aspects are able to answer the needs of employee competencies that will be important for participants before serving the functional position of PMG. With the four of evaluation aspects above, overall can drive the percentage of participants graduates about 98.9 percent (646 participants from totally 653), this can be concluded that the participant graduation still very high. On the other hand, it can be said online learning activities with existing methods were responded well and also well received by the participants.

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