

Evaluation of the Effectiveness of E-Training in Preparing Scientific Work Using the Kirkpatrick Model

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ABSTRAK

Penyusunan karya ilmiah merupakan keterampilan yang krusial, terutama bagi akademisi, peneliti, dan mahasiswa. Namun, tidak semua individu memiliki akses terhadap pelatihan langsung atau memiliki keterampilan yang memadai dalam penyusunan karya ilmiah. Penelitian ini bertujuan untuk mengevaluasi program pelatihan dalam mengembangkan karya ilmiah "best practice" bagi guru dan memberikan rekomendasi perbaikan program pelatihan. Metode yang digunakan dalam penelitian ini adalah evaluasi dengan menggunakan model Kirkpatrick yang meliputi evaluasi reaksi, pembelajaran, perilaku, dan hasil dengan menggunakan pendekatan metode campuran yaitu Concurrent Embedded Model. Data kuantitatif dikumpulkan dengan teknik tes, angket, dan tugas. Data kualitatif dikumpulkan dengan teknik wawancara, observasi, dan studi dokumen. Subyek penelitian meliputi guru, kepala sekolah, pelatih, dan anggota komite. Data kuantitatif dianalisis secara deskriptif dengan menghitung persentase, kategorisasi, dan uji T. Data kualitatif dianalisis dengan menggunakan model Miles dan Huberman. Hasil penelitian menunjukkan bahwa tahap reaksi berada pada tingkat kategori sangat puas; peningkatan ranah pengetahuan, sikap, dan keterampilan teridentifikasi pada tahap pembelajaran; sedangkan tahap perilaku dan hasil berada pada tingkat kategori baik. Penyelenggaraan e-training dapat memenuhi harapan dan kebutuhan peserta, mampu meningkatkan pengetahuan dan keterampilan peserta dalam menulis karya tulis ilmiah. Implikasi penelitian bagi lembaga pendidikan perlu merencanakan program pendampingan berkelanjutan bagi guru dalam penulisan karya ilmiah, dan sekolah perlu memberikan peluang kepada guru untuk ikut serta dalam berbagai pelatihan penyusunan karya ilmiah.

ABSTRACT

Preparing scientific work is a crucial skill, especially for academics, researchers and students. However, not all individuals have access to direct training or have sufficient skills in preparing scientific papers. This research aims to evaluate training programs in developing "best practice" scientific work for teachers and provide recommendations for improving training programs. The method used in this research is evaluation using the Kirkpatrick model which includes evaluating reactions, learning, behavior and results using a mixed method approach, namely the Concurrent Embedded Model. Quantitative data was collected using test, questionnaire and assignment techniques. Qualitative data was collected using interview techniques, observation and document study. Research subjects included teachers, principals, coaches and committee members. Quantitative data was analyzed descriptively by calculating percentages, categorization, and T test. Qualitative data was analyzed using the Miles and Huberman model. The results showed that the reaction stage was at the very satisfied category level; increasing the domains of knowledge, attitudes and skills identified at the learning stage; while the behavior and outcome stages are at the good category level. Organizing e-training can meet the expectations and needs of participants, mable to increase participants' knowledge and skills in writing scientific papers. The implications of the research for educational institutions need to plan ongoing mentoring programs for teachers in writing scientific papers, and schools need to provide opportunities for teachers to participate in various training courses in preparing scientific papers.

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1. INTRODUCTION

Scientific writing is an important part of teacher professional development to carry out reflective actions in learning activities (Bergmark, 2023; Mavric & Medic, 2022). One of the scientific works that can be written by teachers is good practice writing (Best Practice). Best practice scientific papers usually take the form of writing that refers to scientific work. Best practice contains the meaning of "best experience" regarding the success of a person or group in carrying out tasks, including in overcoming various problems in a particular environment (Hoogenboom & Manske, 2018; Kemendikbud, 2016). Best Practices is a paper that tells the best experiences in solving problems faced by educators and education personnel to improve the quality of education and learning services. Best practices are new ideas/steps that provide extraordinary, sustainable and innovative contributions to improving process development and school quality (Abouelenein, 2016; Boven & Morohashi, 2022; Dahl et al., 2023; Katamwatiningsih et al., 2022; Woerkom & Meyers, 2022). Teachers gain knowledge about writing best practices as experiences or ideas carried out by teachers in an effort or process to solve a learning problem efficiently and effectively, namely by developing superior performance to produce the best results and have an impact on the learning continuity process (Boven & Morohashi, 2022; Novitawati et al., 2021; Woerkom & Meyers, 2022). With training in writing best practice scientific papers, teachers really understand about writing best practices and can develop best practices for self-development (Rukmi et al., 2014; Rukminingsih et al., 2022; Trisanti et al., 2021).

E-training was chosen as one of the best practice scientific writing training modes because the invited participants are spread from various regions in Indonesia and have the advantage that it can be implemented anytime and anywhere with a more flexible schedule so that it does not interfere with the work process. teacher's work. E-training is also considered effective for developing human resources. E-training can overcome the obstacles of traditional training which has limitations in its implementation (Alhila, 2017; Wolor et al., 2020), reducing travel costs, accommodation and trainer costs, easy access, flexible training materials and facilitating the process learning. and also has the potential to improve performance (Alkali & Mansor, 2017; Forbes et al., 2021; Garg & Sharma, 2020; Kamal et al., 2016; Rathee & Bhuntel, 2018; Zainab et al., 2017), are increasing. Assignments can be enriched with the latest knowledge obtained on the internet (Bali & Liu, 2018; Thanji & Vasantha, 2018). The application of the E-Training model has an impact on increasing professional competence (Belaya, 2018; Rathee & Bhuntel, 2018; Sahni, 2018). Another advantage is increasing access, but also increasing involvement, expanding experiences in exploring, and empowering participants, responsible for scheduling and managing the learning process, learning can be accessed from any site using appropriate and effective technology, cost-effective, improving learning services.

E-training is online distance training that utilizes computer technology, computer networks, multimedia applications, and the Internet (Luckyardi & Rahman, 2021; Zuhir et al., 2021). E-Training utilizes various face-to-face virtual facilities, and social media such as WhatsApp groups, Google forms, email, and Google Drive S (Dhawan, 2020; Husain et al., 2021). Chen defines E-training as a combination of technology in learning that uses telecommunications and information technology, and the type of training delivered via computers that supports learning and organizational goals. Online training or e-training is a long-distance training process using internet or intranet facilities so that training participants obtain the required knowledge (Ben Amara & Atia, 2021; Kamal et al., 2016; Putranto, 2018).

The implementation of e-training has several obstacles. Initial studies conducted by researchers showed that e-training had obstacles due to lack of internet network stability, lack of interaction between participants and facilitators, and lack of understanding of the material, as well as wasting internet quota. Some of the obstacles are internet access problems, some participants cannot follow quickly, communication is not smooth, miscommunication often occurs during the training process, inadequate explanation of the material, and internet network problems (Arkorful & Abaidoo, 2016; Dhull & Sakshi, 2017). This causes e-training to have less impact on increasing participants' knowledge and skills. The success of e-training really depends on aspects of human resource readiness, technological facilities, organizational readiness, and so on (Luckyardi & Rahman, 2021; Salamatina, 2020). Apart from that, several teachers at schools that researchers met said that the training carried out so far had not had an impact on improving teacher performance because it tended to be temporary, then not implemented so it had little impact on teacher improvement. professionalism.

To overcome this problem, it is necessary to carry out a comprehensive evaluation of e-training. Training programs are evaluated to verify their effectiveness, assess their ability to achieve goals and identify areas requiring improvement. Therefore, the evaluator's goal is to develop an appropriate framework for evaluating training programs. The evaluation model used is Kirkpatrick evaluation. Evaluation research is important and interesting to carry out because it is very useful as feedback for organizers in improving higher quality training programs and for teachers to be able to improve their skills

in writing best practice scientific papers so that it has an impact on increasing their professionalism. It is hoped that the results of the research will be input for both participants in improving their skills in writing best practice scientific papers and for training organizers to improve the management of training programs in the future. The aim of this research is to analyze the effectiveness of teacher skills training programs in writing best practice online scientific papers. Kirkpatrick emphasizes that evaluation must be more than just the immediate reactions of participants. This research can be carried out at four different levels, i.e. reaction; Study; behavior; The first level of outcomes is the participant's reaction to the training and its related aspects (Alsalamah & Callinan, 2016; Jain et al., 2020; Kirkpatrick & Kirkpatrick, 2018).

Learning level is carried out to evaluate cognitive, affective and psychomotor aspects (Dorri et al., 2016; Sahni, 2018). Behavioral level, carried out to assess the application of training material in the workplace and the transfer of experience to others. Behavioral grading is carried out at least 3 (three) months after attending the training. The outcome level is carried out to evaluate the impact of training at the organizational level and is related to the long-term results of whether organizational goals are achieved after training and have an impact on service to customers (Calvo et al., 2020; Zahro & Wu, 2018). Using the Kirk Patrick evaluation model has the advantage of being able to evaluate the implementation of training during the training activity process, and after completing the training when the training participants return to school whether there are changes in behavior and their impact on improving performance. The novelty of this research lies in the application of the Kirkpatrick evaluation model in the context of e-training for the preparation of scientific papers, which is still rarely integrated systematically in evaluative studies in this field. Many previous studies focused more on the effectiveness of e-learning in general without paying attention to specific aspects of preparing scientific work that require special skills. This research makes a new contribution by examining the effectiveness of e-training not only at the level of increasing knowledge (learning level), but also on how e-training impacts behavior changes in the practice of preparing scientific papers (behavior level) and the long-term impact on academic productivity (outcome level). The comprehensive use of Kirkpatrick's model in this context provides a more holistic view of the success of e-training programs, allowing for a more in-depth evaluation of various aspects of effectiveness that have often been overlooked in previous research.

This research aims to evaluate the effectiveness of e-training in preparing best-practice scientific work in terms of the aspects of reaction, learning, behavior and results. The results of this evaluation provide recommendations for the management of further training programs. What aspects must be maintained, improved and enhanced in order to improve the training program so that it is of higher quality both in the process of training activities and after completion of the training participants return to school to be able to implement and have an impact on teacher improvement, professionalism and quality of education.

2. METHOD

This research uses an evaluation research method with the Kirkpatrick model. The Kirkpatrick Model is an internationally recognized tool for evaluating and analyzing the results of education, training and learning programs. It consists of four levels of evaluation: Reaction, Learning, Behavior, and Outcomes (Arkorful & Abaidoo, 2016; Kirkpatrick & Kirkpatrick, 2016). Each successive level of the model represents a more precise measure of the effectiveness of the training program. The research approach used is a mixed method with a mixed method, namely the Concurrent Embedded Model. Concurrent Embedded Model is a research design that combines quantitative and qualitative, both in data collection and data analysis. In this research, researchers used quantitative methods as primary methods and qualitative as secondary methods. This is because quantitative research is used to measure the effectiveness of training, and qualitative methods to analyze the impact of training on the work environment.

The research subjects were all training participants, totaling 50 kindergarten, elementary, middle and high school teachers who had never taken part in scientific writing training, representing 10 educational foundations in Indonesia. Data sources include teachers, school principals, and committees. The research procedure uses the Kirkpatrick evaluation model which includes four stages of evaluating reactions, learning, behavior and results. Data collection techniques use questionnaires, interviews, assignments, observations and tests. The questionnaire technique was carried out in the aspect of evaluating reactions and behavior. Interview techniques were carried out on the aspects of evaluating behavior and results. Meanwhile, assignments, observations and tests are carried out on the learning aspect. An explanation of the stages and data collection techniques can be presented in Table 1.

Table 1. Data Collection Stages and Techniques

No	Aspects and Indicators	Approach	Data Collection Techniques	Data source
1	Reaction 1. Participants' satisfaction with the trainer's professionalism 2. Participant satisfaction with the facilities provided 3. Participant satisfaction with time management 4. Participant satisfaction with the media used 5. Participant satisfaction with training materials 6. Participant satisfaction with the tasks given	Quantitative	a list of questions Interview	Participants/teachers
2	Learning 1. Increasing aspects of knowledge 2. Improved skill aspects 3. Improvement of attitude aspects	Quantitative Qualitative	Pre-Test, Post-Test Uji-T Assignment Observation	Participants/teachers Committee Document (Best Practices Report) Classroom training process
3	Behavior 1. Increase participant motivation 2. Increase participants' self-development efforts 3. Improved participant performance	Quantitative Qualitative	a list of questions Interview	Participants/teachers Headmaster
4	Results 1. The impact on increasing the professionalism of participants 2. The impact on improving the quality of students 3. The impact on improving school quality	Quantitative Qualitative	a list of questions Interview	Participants/teachers Committee Headmaster

The interview and observation instruments have been validated by 2 expert validators. The evaluation results show suitability between questions and indicators. Advice from the validator, there are several sentences in the questions that need to be corrected to avoid misinterpretation. Testing the validity and reliability of the questionnaire was carried out through trials on 30 teachers. All items in the questionnaire are valid with the lowest correlation coefficient of $r_{count} 0.043 > p_{table} 0.361$ and Cronbach's Alpha reliability coefficient of $r_{count} 0.951 > p_{table} 0.361$

Quantitative data is processed descriptively by calculating percentages and making categorizations. Meanwhile, to test differences in pretest and posttest data, the t test was used. Qualitative data analysis techniques are carried out in three stages, namely: data reduction, data presentation, and drawing conclusions (Miles *et al.*, 2014). In the data reduction stage, the researcher codes the data obtained from the field. The code is intended to select which data to use and which patterns to discover. Then the researcher presents data, both quantitative and qualitative data. Then the researcher categorizes the data or groups the data into several classifications. The final stage in analyzing data is drawing conclusions and verifying. In this phase the researcher finds the meaning of each symptom and obtains data. Then, this data becomes valid and strong data for drawing conclusions. Kirkpatrick's assessment criteria for E-Training for writing best practice scientific papers are measured based on 5 (five) categories shown in the following table 2.

Table 2. Evaluation Criteria for E-Training in Writing Best Practice Scientific Papers

ScoreRate-rate	Reaction	Learning	Behavior	Results
86 - 100	Very satisfied	Very high	Very good	Very good
76 - 85	What?	High	Good	Good
66 - 75	Quite Satisfied	High enough	Adequate	Adequate
56 - 65	Less satisfied	Poor	Poor	Poor
<55	Not satisfied	Very bad	Bad	Bad

3. RESULT AND DISCUSSION

Result

The first level of evaluation, namely reaction, aims to measure the level of satisfaction of training participants regarding the application of e-training in the preparation of best practice scientific papers. The findings of the training participant satisfaction questionnaire in terms of trainer indicators, facilities, time management, media, materials and assignments obtained an average score of 86.88 with the "Satisfied" category presented in Figure 1.

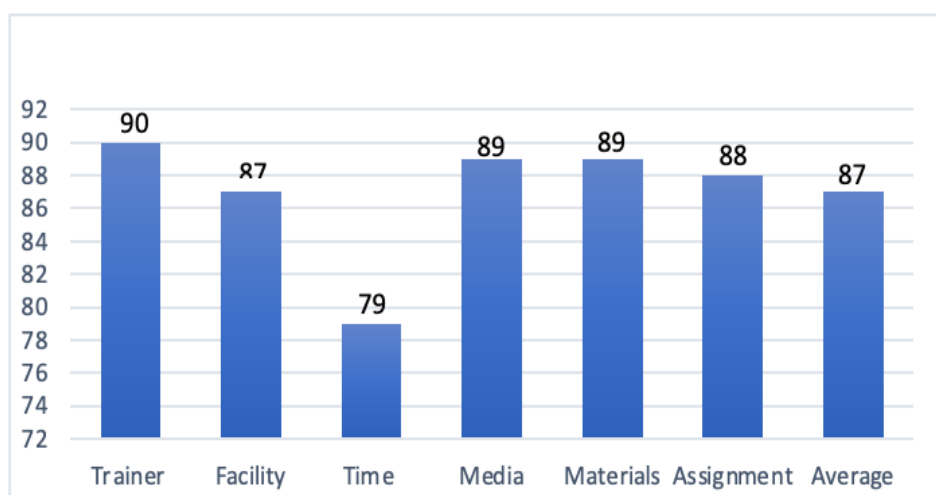


Figure 1. Evaluation Results on the Reaction Aspect

Based on the picture above, it can be seen that participant satisfaction with the professionalism of the trainer was 90, the facilities provided were 87, the media used was 89, the training materials were 89 and the tasks given were 87, all of which are included in the "very satisfied" category. Meanwhile, participant satisfaction with time management of 79 is included in the "satisfied" category. This finding is supported by the statement of one class A participant (SKO, interview 12 June 2022) who said:

"In this scientific paper writing training, I felt very satisfied with the material presented by the lecturer because it suited my needs and the lecturer delivered it professionally, according to his field of expertise and was supported by the use of online media which ensured that participants could take part in the training anywhere without having to come to campus..."

Likewise, one of the class B participants (EPA, interview 11 June 2022) said:

"The trainer lecturer is very professional in conducting training, the training material is delivered clearly, the lecturer masters the material and gives assignments that are relevant to practice so that I understand how to write best practice scientific articles, but I feel that the time spent in delivering material and discussions is still necessary. expanded..."

The second level of learning is measuring the level of training participants in capturing and understanding the material provided by the instructor or teacher, their skills in compiling best practice scientific work, and the attitudes shown in participating in the training activity process. The findings of the learning stage were that there were 3 (three) aspects assessed, namely the domains of knowledge, skills and attitudes. The evaluation results on the learning aspect are presented in Figure 2.

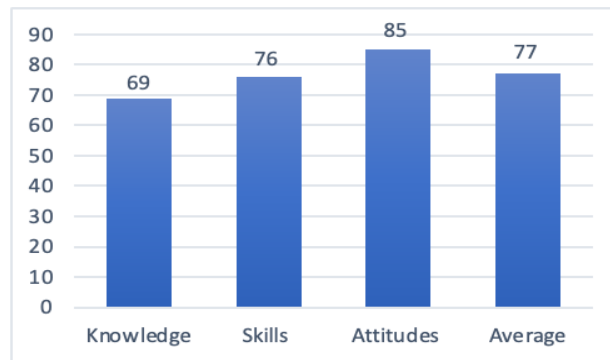


Figure 2. Evaluation Results on Learning Aspects

Based on the picture above, it can be seen that an increase in knowledge of 69 is included in the "quite high" category, skills of 76 are included in the "high" category, and attitudes of 85 are included in the "high" category. "high" category, the average learning stage evaluation of 77 is included in the high category. The evaluation results of each aspect are explained as follows.

Before the training is carried out, participants' knowledge and abilities regarding the preparation of scientific papers and best practice reports are assessed is still low, as evidenced by the average achievement of the pre-test score only reaching a score of 47.60. After training, the average post-test score was 80.36, resulting in an increase in the average score of 32.76 (68.82%) in the "sufficient" category. Achievement scores show a significant increase in knowledge and abilities before receiving training and after receiving training. The increase in pre-test and post-test scores can be presented in Figure 3.

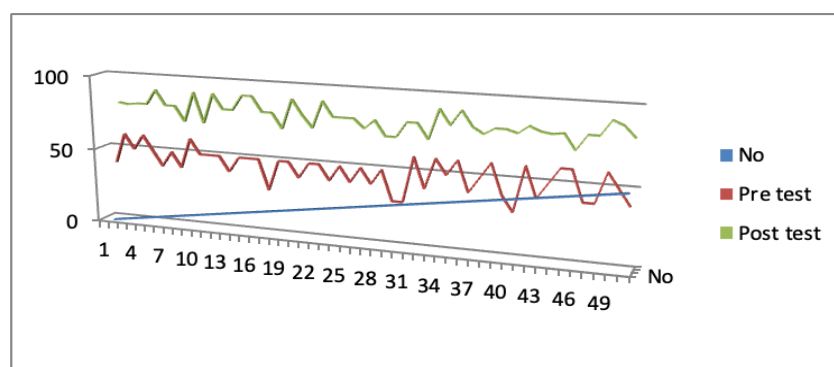


Figure 3. Average Score Improvement from Pre-test and Post test

The results of the t-test test assisted by the SPSS tool showed that there was a significant difference between the pre-test results and the post-test results of $0.00 < 0.05$. This shows that there is a significant difference between the abilities of the training participants before the training and after the training, which is presented in Table 3.

Table 3. Paired Sample Test

	Paired Sample Test						Meaning		
	Pair Differences				t	df	One Side thing	Two Sides p	
	Means	Std. Deviation	Std. Meaning of Error	95% Confidence Interval of the Difference					
				Lower	Top				
Pre Pair Test - 1 Post Test	-32.760	9.235	1.306	-35.385	-30.135	-25.083	49	0.000	0.000

Assessment of the skills of training participants is shown in 1) The percentage of student success in preparing best practice scientific papers, 2) The quality of the products resulting from writing Best Practice scientific papers.

This training product produces scientific work in the form of Best Practice Reports regarding the best experiences of participants in successfully solving problems faced when carrying out their main duties and functions as teachers in the classroom. Of the 50 participants, 38 participants had produced a Best Practice Report, and there were 12 participants who had not produced a Best Practice report. The achievement of the number of training products produced was 76.00% included in the "Good" category.

Results of product quality assessments produced by participants in the "E-Training for Preparing Scientific Work Best Practice Report" training for Private Education Foundation Teachers" shows an average score of 77.80 which indicates the "High" category. A recapitulation of the quality of training products is presented in Table 4.

Table 4. Quality of Best Practice Scientific Writing Training Products

NO	Component	Indicator	Average Ideal Score	Average Earned Score
1	Initial Part	Title Approval Sheet Foreword List of contents Summary (Abstract)	10	8.20
2	Contents Section			
	Chapter I Introduction	The background Problem Statement Objective Meaning	15	11.50
	Chapter II Literature Review	Presentation of theories and policies that are used as a reference for solving problems	15	13.00
	Chapter III Troubleshooting	The method or method used to solve the problem along with the steps in detail	20	13.10
	Chapter IV Results and Discussion	Implementation exposure Exposure to the results achieved	20	15.00
3	Final Part			
	Chapter V	Conclusion Reflection Recommendation	10	8.50
	Bibliography		5	4.30
	Attachment	Data used to support scientific reviews or ideas	5	4.20
Amount			100	77.80

Observation findings during the training process showed that the average attitude score of participants was 85.00 with the "Good" category in independence, creativity, problem solving abilities, innovative and cooperative attitudes such as discussion skills, cooperation and solidarity. during the training obtained is presented in Figure 3.

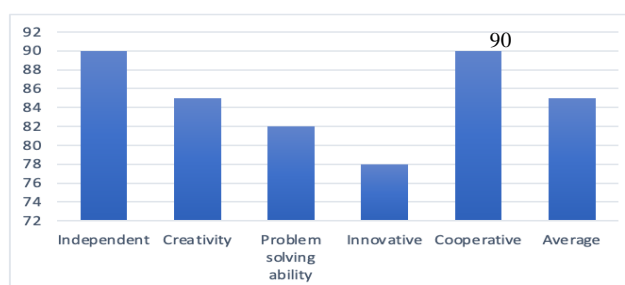


Figure 3. Evaluation Results on the Attitude Aspect

Based on the picture above, the observation findings show that an independent attitude of 90 is included in the "very high" category, creativity of 85 is included in the "high" category, problem solving ability of 82 is included in the "high" category. high category, innovativeness received a score of 78, including in the "high" category, and cooperative attitudes such as the ability to discuss, cooperate and solidarity with a score of 90, including in the "very high" category.

The third level of Behavioral Evaluation, namely assessing participant behavior, assesses the extent of the participant's behavior development after receiving the learning material in the training. Behavioral assessment of training participants through questionnaires is given after 3 (three) months of completion of E-Training. The findings from the questionnaire show an average increase in the behavioral aspects of increasing participant motivation, increasing participant self-development efforts, and increasing participant performance showing an average score of 82.67 in the Good category, presented in Figure 4.

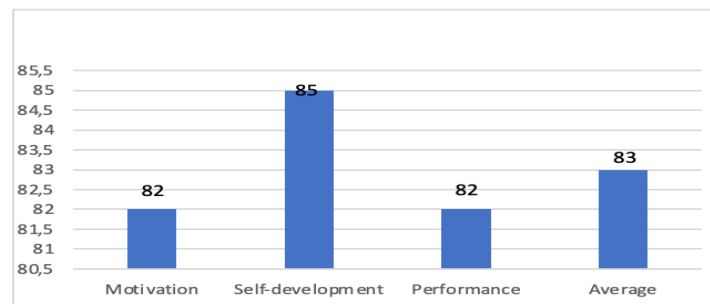


Figure 4. Results of Evaluation of Behavioral Aspects

Based on the picture above, it shows the development of participants' behavior after receiving training in the motivation aspect of 82, which is in the "good" category, the self-development aspect of 85, which is in the "good" category, the performance aspect of 82, which is in the "good" category.

This finding is supported by the principal's statement (DAN, interview on 3 November 2022):

"After more than three months of teachers taking training in writing scientific papers, I observed a change in behavior in schools, who initially never wrote scientific papers at all, now they are trying to create scientific papers based on their experience of solving the best problems in their field. "The teaching is in the form of writing best practices, meaning that the training is able to foster motivation and increase self-development efforts through writing scientific papers, so that performance increases."

Likewise, the statement of one class A participant (FDF, interview on November 4 2023):

"Even though I do a lot of problem solving in class activities, I have never written it down in the form of a best practice scientific work. However, after attending the training, I understand how to write best practice scientific papers. I became motivated to write. I try my best to write. I am also motivated to solve class problems better. However, I still need the help of a trainer for the publication of my scientific work later..."

The fourth level of results is an assessment of results that have an impact on increasing the professionalism of students, improving the quality of students, improving human resource self-development programs in schools and improving the quality of schools when they return to their respective institutions. The assessment score findings show an average score of 84.25 with the "Good" category presented in Figure 5.

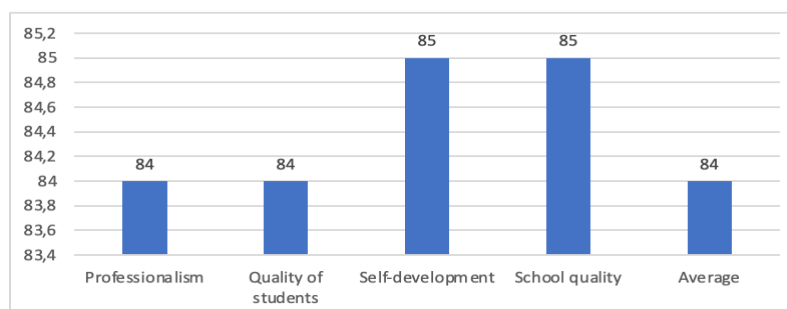


Figure 5. Evaluation Results in the Result Aspect

Based on the picture above, it can be seen that the best practice scientific work training had an impact on increasing the professionalism of participants by 84, increasing the quality of students by 84, increasing the self-development program of participants by 85, and school quality by 85, all of which are in the "high" category.

These findings are supported by the principal's statement (SS, Interview on 3 November 2023):
"The impact that I can observe in learning is an increase in teacher professionalism where teachers are more able to improve the quality of learning in the classroom, teachers show their best teaching efforts so that this has an impact on increasing student achievement..."

Likewise, the statement of one class B participant (LP interview on November 5 2022):
"After the training and I returned to class, I was motivated to improve the quality of learning in class, solve learning problems as best as possible and sharing best practice papers from training participants inspired me to apply their best experiences in learning in class. "It turns out that by improving the quality of learning in class, students become more enthusiastic and motivated to excel."

Discussion

The results of the reaction level evaluation in terms of aspects of trainer, facilities, time management, media, materials and tasks obtained the "satisfied" category. These findings indicate participant satisfaction with the overall implementation of the training. Reaction – measures how satisfied students are, measures how involved students are, how actively students contribute, and how students react to the training. These results are in line with the findings (Dewi & Kartowagiran, 2018; Effendi et al., 2018), that the success of training can be measured when participants feel happy and motivated to learn. Then research conducted (Bhatia et al., 2020; Wolor et al., 2020), shows that participant satisfaction with training is one of the factors for training success. Participants are motivated to improve their knowledge and skills. Therefore, training is effective in improving participant performance (Belaya, 2018; Park & Jo, 2021). Different things were expressed that training is less effective in improving performance because effective measurements are not available. Found that training was less effective because the instructor was the same, the training place was less than ideal for carrying out the training, and there was a lot of material with a short duration of training time (Charismi et al., 2016; A. Nurhayati & Atmaja, 2018; Rathee & Bhuntel, 2018). The ineffectiveness of training greatly influences the final results so that training has little impact on increasing participants' knowledge. The reaction here can also be said to be a measure of customer satisfaction. The future of a program depends on the reaction of the participants. If participants do not react positively, they will most likely not be motivated to learn. The reaction stage is able to measure student satisfaction with the program they are participating in (Brauckmann et al., 2020; Effendi et al., 2018; Jones et al., 2020; Salamatina, 2020).

The success of a training can be seen from three competency domains (knowledge, skills and attitudes). Evaluation of the level of learning in terms of understanding of the material, skills in compiling best practice scientific work, and the attitude shown in participating in the training activity process received an assessment in the good category. The training program can increase participants' knowledge and skills in writing best practice articles. This finding is in line with findings which reveal that online training can increase participants' knowledge and skills. Then previous research findings reveal that online training can encourage increased knowledge and skills of participants (Charismi et al., 2016; Damanik et al., 2019). Thus, the use of technology platforms in learning can motivate teachers in learning because it is more practical and efficient, can be accessed anytime and anywhere, and can be done at the same time. Increasing knowledge and skills through training is necessary to be able to carry out their duties well (Garg & Sharma, 2020; Heydari et al., 2021). Training participants are said to be learning if they experience a change in attitude, increase in knowledge, or increase in skills. Thus, training provides new knowledge, confidence and motivation for participants to implement the knowledge and skills received (Hoogenboom & Manske, 2018; Jones et al., 2020).

Evaluation of the level of behavior in terms of increasing motivation, increasing self-development efforts, and increasing participant performance shows success in the good category. Behavior, namely knowing the extent of knowledge and skills are applied on the job. This finding has similarities with (Luckyardi & Rahman, 2021; Prawanti & S, 2020), the training program on behavioral aspects was considered successful because participants had better work behavior at work. Behavioral changes are seen in the ability to transfer knowledge from the training learning environment to the workplace. Training participants can apply knowledge, skills and behavioral changes in the workplace (Mahmoodi et al., 2023; Mustabsyiroh et al., 2022). Training encourages positive and significant changes in performance behavior.

Thus, training must encourage desired behavioral changes, namely innovative behavior and effective organizational management (Y. Nurhayati, 2019; Salamatina, 2020).

Evaluation of the level of results in terms of increasing professionalism, improving the quality of students, improving human resource self-development programs in schools, and improving the quality of schools when they return to their respective institutions is considered successful. These results show that the training has an impact on the institutions where the participants work. These results correlate with research (Rosmayati et al., 2020; Soeltan & Hardianti, 2021), training programs have an impact on improving teacher performance. Training results can make a significant contribution to organizational expectations. Then research on training results has an impact on personal development, competence and communication skills (Thanji & Vasantha, 2018; Zainab et al., 2017). These results are relevant to the opinions expressed that training results can be measured in terms of improving quality, production, efficiency, compliance, employee satisfaction, safety, customer/market response, and customer satisfaction, but also examine behavioral changes and the long-term impact of the training program on participants' academic productivity.

The results of this research can serve as a basis for improving the design and implementation of e-training, ensuring that training is not only effective in increasing knowledge, but also able to create real changes in abilities. participants' writing and contributions to the academic world. Apart from that, the implications of this research can also encourage the use of more comprehensive evaluation models in assessing the effectiveness of other training programs in various fields, so that e-training developed in the future is more relevant, efficient and has a broad impact. The limitations of this research lie in the population coverage and sample which may not be widely representative of all e-training participants in the preparation of scientific work, so the results may not be generalizable to a wider context. Additionally, this research relies on Kirkpatrick's model which, although comprehensive, is not fully able to capture external factors such as individual motivation, environmental support, or technical constraints that may influence e-training outcomes. Data collection that may rely on questionnaires and interviews can also result in response bias from participants that can affect the objectivity of the results. As a recommendation, future research is expected to involve larger and more diverse samples to increase the external validity of the results. Follow-up research could also use additional evaluation methods, such as longitudinal analysis, to look at the long-term impact of e-training on participants' academic productivity. In addition, future development of e-training programs needs to consider the use of more sophisticated interactive technology and adapting materials to individual needs so that training is more effective. E-training organizers are also advised to carry out ongoing evaluations to ensure the program is always relevant and provides optimal impact for participants.

4. CONCLUSION

The aim of this research is to test the effectiveness of e-training in preparing scientific papers. The conclusion of this research is that the evaluation of the level of reaction in terms of the aspects of trainer, facilities, time management, media, materials and tasks received an assessment in the good category; evaluation of learning level in terms of understanding of the material, writing skills, and attitudes shown in participating in the training activity process received an assessment in the good category; behavioral evaluation in terms of increasing motivation, increasing self-development efforts, and increasing participant performance shows success in the good category; evaluation of results in terms of increasing professionalism, improving the quality of students, improving human resource self-development programs in schools and improving the quality of schools when returning to their respective institutions is considered successful. Thus, the application of e-training can increase participants' knowledge and skills in writing scientific papers so that it has an impact on increasing the professionalism of teachers in schools. The results of the research recommend that educational institutions need to plan sustainable programs for teacher training in compiling scientific papers, and schools need to provide opportunities for teachers to take part in various training courses in compiling scientific papers.

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