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Optimalisasi Pemanfaatan QuillBot dalam Penulisan Karya Ilmiah pada Guru SMA Negeri 2 Parepare, Sulawesi Selatan

Optimization of Quillbot Utilization in The Preparation of Scientific Papers by Teachers at SMA Negeri 2 Parepare, South Sulawesi

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Abstrak

Menulis karya ilmiah sebagai indikator penting dalam pengembangan pengetahuan dan pemikiran kritis. Namun masih banyak guru kesulitan dalam penulisan karya ilmiah termasuk dalam menghindari plagiasi. Pengabdian kepada Masyarakat (PkM) yang dilaksanakan oleh tim Institut Teknologi Bacharuddin Jusuf Habibie bertujuan untuk meningkatkan keterampilan guru SMA Negeri 2 Parepare dalam mengurangi risiko plagiarism dalam penulisan karya ilmiah melalui optimalisasi penggunaan QuillBot dan implementasi teknik parafrasa dalam menulis. Metode PkM yang digunakan ialah ABCD (Asset Based Community Development). Kegiatan PkM meliputi persiapan dengan identifikasi kebutuhan mitra, perencanaan berdasarkan analisis masalah, penyusunan buku bahan pelatihan, pelaksanaan pelatihan tentang teknik parafrasa dan penggunaan QuillBot, hingga evaluasi kualitas tulisan serta keefektifan pelatihan oleh peserta. Kegiatan pelatihan dilaksanakan pada tanggal 6 Juni 2024 diikuti oleh 26 peserta. Rata-rata nilai pretes persentase Similarity Index (SI) tulisan peserta adalah 54,62%, sedangkan rata-rata nilai postes persentase SI tulisan peserta adalah 37,85%, dengan rata-rata penurunan SI sebesar 16,77% menunjukkan pelatihan ini terbukti efektif dalam mengurangi tingkat plagiarisme di kalangan peserta. Sebanyak 21 dari 26 peserta atau 80,8% peserta berhasil menurunkan tingkat plagiarisme dalam tulisannya. Dengan demikian, program pengabdian ini berhasil membantu para guru meningkatkan keterampilan dalam penulisan karya ilmiah untuk menghindari plagiarisme.

Abstract

Writing scientific work is an important indicator of the development of knowledge and critical thinking. But still, many teachers have difficulty writing scientific papers, including avoiding plagiarism. The dedication to the society conducted by the Bacharuddin Institute of Technology team Jusuf Habibie aims to improve the skills of teachers at 2 Parepare State High School in reducing the risk of plagiarism in the writing of scientific works through optimization of the use of QuillBot and implementation of paraphrase techniques in writing. The method used is ABCD (asset-based community development). The activities include identification of needs, planning based on problem analysis, preparation of training material books, training on paraphrase techniques and QuillBot, and evaluation of writing quality as well as the effectiveness of training by participants. The training was held on June 6, 2024, followed by 26 participants. The average pretest for the Similarity Index (SI) writing percentage of participants was 54.62%, while the average posttest value for the participant's SI writing percent was 37.85%, with an average SI decrease of 16.77%, showing this training has proven to be effective in reducing the rate of plagiarism among participants. A total of 21 of the 26 participants, or 80.8% of the participants, succeeded in reducing the level of plagiarism in their writings. Thus, this dedication program succeeds in helping teachers improve their skills in writing scientific papers to avoid plagiarism.

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PENDAHULUAN

According to UU No.14 Tahun 2005 about Teachers and Lecturers, a teacher is a professional responsible for educating, teaching, guiding, directing, training, assessing, and evaluating students in formal education, including primary and secondary education. PermenpanRB No. 16 Tahun 2009, Pasal 1, states that the development of teacher competencies must be carried out gradually and continuously by the need to enhance teacher professionalism. (Noorjannah, 2014). In the context of professional development, teachers cannot detach themselves from academic research activities, as conducting academic research is a primary requirement for career advancement and professional development. (Haryati *et al.*, 2022; Noorjannah, 2014). One indicator of teacher professional development is writing scientific papers. (Muhammad Kristiawan, 2018).

Writing scientific papers plays a crucial role in knowledge development, fostering deep understanding through research and critical thinking processes. (PPSDM Aparatur ESDM, 2023). Authenticity and originality are key indicators of high-quality writing. Authentic work reflects the author's ability to present information uniquely and originally, while originality demonstrates the author's capacity to contribute new or innovative perspectives on the discussed topic. The combination of these aspects not only strengthens the author's credibility but also enhances the intellectual value of the scientific paper. Therefore, emphasizing authenticity and originality is essential to maintaining the quality and relevance of a scientific work. Paraphrasing is a crucial technique to master to avoid plagiarism in writing. (Nur *et al.*, 2019). According to the Indonesian Dictionary, paraphrasing is the re-expression of a statement by explaining its hidden meaning. (KBBI, 2016). Interviews conducted by the proposing team at UPT SMA Negeri 2 Parepare indicated that few teachers actively engage in research and scientific writing. However, in general, teachers or other people who rarely do research often do not understand paraphrasing techniques, which results in using other people's statements without authenticity, becoming a problem that hinders the process of writing their scientific papers. This difficulty arises because most people are still unfamiliar with paraphrasing techniques. In their professional development efforts, teachers also need training, including in scientific writing.

In today's advanced era, many AI technologies can be utilized for everyday problems, including scientific writing. The use of Artificial Intelligence (AI) in various studies has proven effective in scientific writing (Jenita *et al.*, 2023; Patty, Que, and Ilmiah, 2023; Suariqi Diantama, 2023). To facilitate and enhance teachers' writing skills, effective application of technology is essential. Quillbot is a natural language processing tool that can help teachers improve their writing skills by providing paraphrasing tools and offering automatic text improvement suggestions. (Patty *et al.*, 2023; Tempo Institute, 2023). Additionally, this application can perform summarization and grammar correction, and enhance writing to be more concise and professional. Features that can be utilized include the Paraphraser, Grammar-Checker, Quillbot Flow, Plagiarism Checker, Summarizer, Translator, and Citation Generator. Therefore, it is deemed necessary to conduct a community service activity titled Optimization of Quillbot Utilization in the Preparation of Scientific Papers for Teachers at SMAN 2 Parepare, South Sulawesi. This initiative aims to improve the scientific writing skills of teachers at SMA Negeri 2 Parepare through the utilization of Quillbot. Consequently, it is expected that teachers will understand and be able to effectively implement paraphrasing techniques, reduce the risk of plagiarism in scientific writing, and increase efficiency in the writing process, allowing them to focus on content and critical thinking aspects.

METODE

The method of this community service activity is Needs-Based Community Development (NBCD), where the main focus is on identifying and fulfilling deficiencies or needs in the community(TeachersCollegesj, 2020).
The steps in this service activity include:

1. Assessment: Conduct surveys, focus groups, and interviews to identify community needs.

Begins with identifying the needs of the partners, followed by gathering information on their issues, specifically related to paraphrasing skills and summarizing articles.

2. Planning: Develop strategic plans to address identified needs.
   This stage involves drafting the community service program based on the analysis of the issues faced by teachers at SMA Negeri 2 Parepare. In addition, we create a comprehensive guide for using QuillBot, containing step-by-step instructions on how to effectively utilize its features and also including tips and strategy of paraphrases in scientific writing. Below is the layout of the initial page of the Training Guide Books.

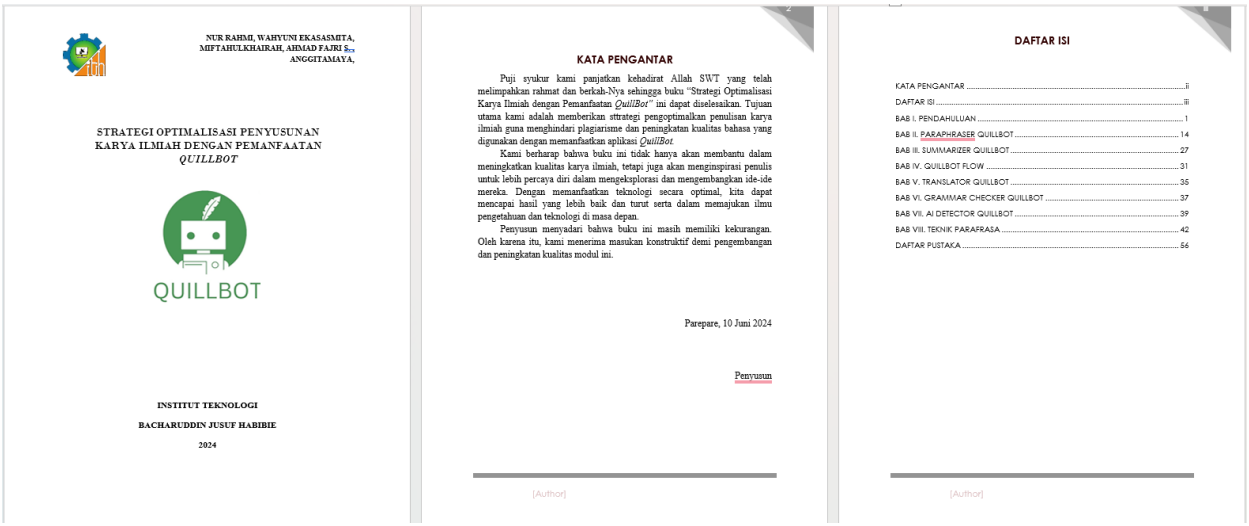

Figure 1. Training Guide Books.

3. Implementation: Carrying out the plan using resources, often external.
   Paraphrasing Technique Training
   In this session, the community service team will present material on paraphrasing techniques and their application in scientific writing. The paraphrasing techniques explained in the training include:
   a. Using synonyms,
   b. Changing parts of speech,
   c. Using idioms,
   d. Shortening or combining sentences,
   e. Changing direct quotes to indirect speech.
   f. Training on Quillbot Utilization

   In this session, teachers will be tasked with applying paraphrasing techniques and using various tools. Facilitators will provide direct feedback.

Figure 2. Training on Quillbot Utilization Session.

4. Evaluation: Monitoring and assessing the impact of the interventions carried out.
   The evaluation was conducted by assessing the Similarity Index Score of the participants' writing before and after the training. In this case, we used Turnitin as a tool for the assessment. Next, we gathered feedback from participants regarding the effectiveness of the training.

HASIL DAN PEMBAHASAN

The service activity program is aimed at improving the writing quality of the participants by reducing the level of plagiarism measured through the pre-test and post-test scores. Participants attending the training are 26 people, and they are tested before and after the training to assess the program's effectiveness.

Below is the display of the Similarity Index test results for one of the participants using Turnitin:

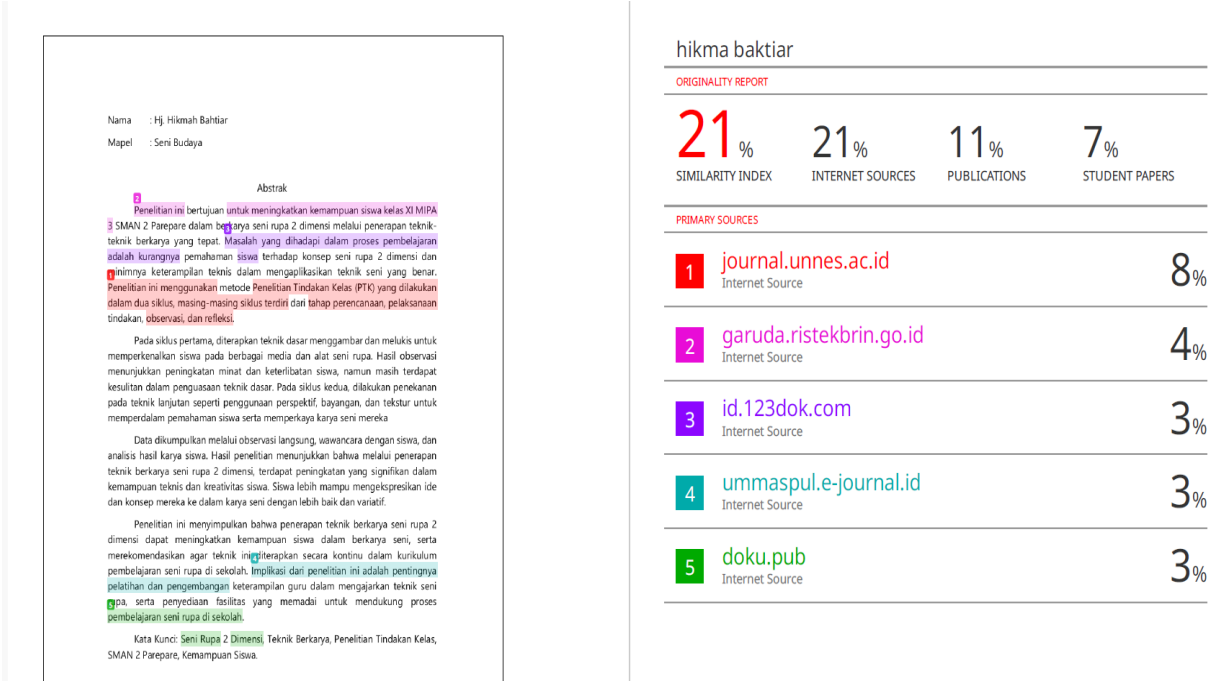

Figure 3. Similarity Index test results for one of the participants using Turnitin.

Figure 2 showcases the detailed report generated by Turnitin, highlighting the percentage of similarity in the participant's writing before and after the training. This visual representation helps in understanding the effectiveness of the training in reducing plagiarism by providing a clear comparison of the Similarity Index scores.

Further information regarding the training results can be seen in Table 1, which displays the pre-test, post-test, and decrease in the Similarity Index (SI) scores of the scientific writing participants, illustrating the effectiveness of the training in reducing plagiarism. The pre-test scores represent the participants' levels of plagiarism before the training, reflecting the initial plagiarism levels in their writing. In contrast, the post-test scores show the levels of plagiarism after the participants applied the training material. The final column indicates the reduction in SI percentage, which is the difference between the pre-test and post-test scores. This reduction demonstrates how effectively the participants reduced plagiarism in their writing after the training.

Table I. Pre-test, Post-test, and Decrease in the Similarity Index (SI) Score of Writing Participants

NO	% Similarity Index		
	Pre-test	**Post-test**	**Decreasing**
1	86	84	2
2	14	11	3
3	48	43	5
4	75	54	21
5	46	21	25
6	44	22	22
7	86	60	26
8	33	30	3
9	97	32	65
10	94	76	18
11	66	41	25
12	52	37	15
13	21	26	-5
14	19	22	-3
15	62	27	35
16	22	0	22
17	84	60	24
18	84	46	38
19	95	39	56
20	18	24	-6
21	11	19	-8
22	43	34	9
23	96	93	3
24	18	19	-1
25	40	23	17
26	66	41	25
Average	54,61538	37,84615	16,76923

The average pre-test score was 54.62%, while the average post-test score was 37.85%. The average reduction in plagiarism was 16.77%, indicating a significant improvement following the training. The most substantial reduction is a 65% decrease. The majority of participants, 21 out of 26 participants or 80.8% who collected their writing, managed to reduce the level of plagiarism in their writing. Nevertheless, some participants require further attention to better results. Continuous evaluation and improvement of training methods will be instrumental in improving the quality of the writings of the participants in the future.

Overall, the training effectively reduced plagiarism for most participants, but some required additional attention to address the increased plagiarism levels. Individual consultation sessions are recommended for participants who did not show significant reductions or experienced increased plagiarism. Moreover, enhancing the training methods by incorporating more practical exercises and detailed feedback is advised. Conducting follow-up training sessions would be highly beneficial to ensure better application of the learned material.

Previously, Jamaluddin et all published an article entitled "Improving Civic Skills Through Scientific Writing Training for Teachers at Olobaru Small Elementary School, Parigi Moutong Regency". This service activity aims to socialize and motivate elementary school teachers to create scientific work and publish it. This activity provides benefits including providing understanding to teachers about the concept and urgency of writing scientific papers and providing guidance and opportunities for teachers to facilitate teachers to publish their articles in ISSN journals. and accredited by SINTA (Jamaludin *et al*., 2023). Surely, the service activities that we carry out also have almost the same goal of building motivation and providing understanding in writing scientific papers to teachers.

Jenita, et al also provided training entitled "The Utilization of Artificial Intelligence in Preparing Sinta Indxed Scientific Articles" which was attended by lecturers, students, and teachers via Zoom. The results of the activity showed an increase in participants' understanding of the use of AI in preparing scientific articles (Jenit *et al.,* 2023). Our community service activities also provide tutors in the use of AI, namely Quillbot.

Besides that, Marwah Ulwatunnisa and her team conducted a community service activity with a similar theme, focusing on paraphrasing training and the use of paraphrasing applications. However, in practice, they did not provide a similarity index test on the paraphrased results before and after the training. (Marwah Ulwatunnisa *et al.,* 2024). Therefore, we conducted a more in-depth analysis to determine the effectiveness of plagiarism reduction from this training activity.

The results of this training activity are also in line with the community service activities conducted by Arif Widodo and his team, who provided paraphrasing training to reduce plagiarism. However, the difference is that their training was conducted without the aid of paraphrasing applications or tools, and the evaluation was based on a comprehension test of paraphrasing techniques rather than the similarity index scores of the participants' writing. (Widodo *et al.,* 2022). Another team also held a community service activity entitled "Training on the Use of Artificial Intelligence (AI) in Writing Scientific Articles for Teachers at SMAN 11 Pangkep Regency". Some of the AI applications introduced in this training are Grammarly, Quillbot, and Turnitin. After the training was carried out, more than 80% of teachers had the knowledge and skills to write scientific articles and use several AI applications in the process of preparing scientific articles (Side *et al.,* 2024). The distinction between our service activities is that we not only use AI to write scientific papers, but also provide training in manual paraphrasing methods. Because the outcomes given by AI are not always ideal, the user must continue to exercise control.

Finally, the results of the evaluation of the satisfaction responses of the participants to the training activities can be seen in the following Figure 3. The survey results graph on the participants' satisfaction in the training conducted by the Service Team of the Bacharuddin Jusuf Habibie Institute of Technology shows a very high level of satisfaction. A total of 80% of participants gave the highest rating (5), indicating that most participants were delighted with the implementation of the activity. Additionally, 16% of participants gave a rating of 4, indicating a fairly high level of satisfaction. Only 4% of participants gave a rating of 3, and no participants gave ratings of 1 or 2, meaning no participants were dissatisfied or very dissatisfied. Overall, these survey results reflect that the implementation of the service activities by the team was highly successful and received positively by the participants. The high level of satisfaction indicates that the activities met or even exceeded the participants' expectations.

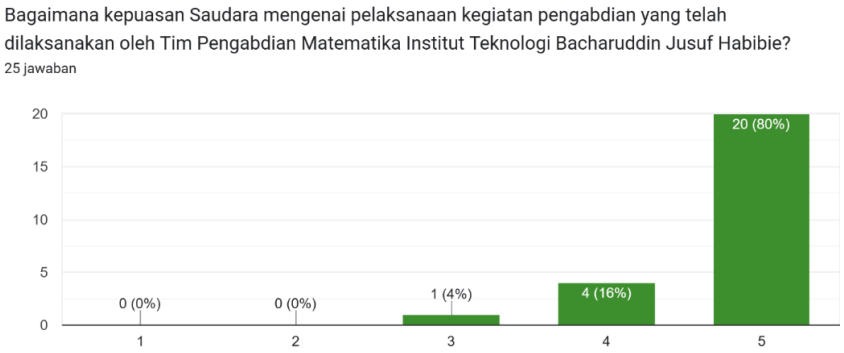

Figure 3. Satisfaction Responses of The Participants to The Training Activities.

KESIMPULAN

The Community Service Partnership Program (PkM-PK) conducted by the Mathematics Study Program, Science Department, Bacharuddin Jusuf Habibie Institute of Technology at SMA Negeri 2 Parepare, has yielded significant positive outcomes. The training effectively enhanced the teachers' writing abilities, particularly in paraphrasing, which subsequently reduced plagiarism in their work. The use of technology, such as Quillbot, was demonstrated to be an effective tool, increasing both the efficiency and quality of the teachers' academic activities. The high level of enthusiasm and active participation from the teachers underscored a strong need and interest in professional development. The follow-up to this service activity is providing further training in writing scientific papers, such as training in research methods and data analysis techniques.

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