

THE STAR METHOD: SCIENTIFIC WRITING TRAINING TO ENHANCE THE SCIENTIFIC WRITING PROFESSIONALISM OF LABSCHOOL UNNES TEACHERS

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ABSTRAK

Kemampuan menulis karya ilmiah merupakan salah satu indikator profesionalisme guru yang mendukung pengembangan keprofesian berkelanjutan, namun masih banyak guru yang mengalami kendala dalam menyusun dan mempublikasikan artikel ilmiah. Kegiatan pengabdian ini bertujuan meningkatkan profesionalitas kepenulisan guru Labschool Universitas Negeri Semarang melalui pelatihan penulisan karya ilmiah menggunakan metode STAR (Situation, Challenge, Action, Reflection). Kegiatan dilaksanakan dengan pendekatan partisipatif terhadap 35 guru melalui empat tahapan, yaitu sosialisasi, pelatihan, pendampingan, dan evaluasi. Hasil kegiatan menunjukkan peningkatan pengetahuan dan keterampilan guru dalam menyusun artikel ilmiah secara sistematis. Sebanyak 90% peserta mampu menghasilkan draft artikel yang lebih baik, sedangkan hasil evaluasi menunjukkan peningkatan nilai rata-rata dari 61 menjadi 89,88 dengan nilai N-Gain sebesar 0,723 yang termasuk kategori tinggi. Selain itu, guru menjadi lebih memahami struktur artikel, penggunaan referensi ilmiah, etika publikasi, serta proses publikasi jurnal. Dengan demikian, pelatihan berbasis metode STAR terbukti efektif meningkatkan kompetensi dan profesionalitas kepenulisan guru serta memperkuat budaya akademik di lingkungan Labschool UNNES.

ABSTRACT

Scientific writing competence is an essential indicator of teacher professionalism that supports continuous professional development. However, many teachers still encounter difficulties in preparing and publishing scientific articles. This community service program aimed to improve the scientific writing professionalism of Labschool Universitas Negeri Semarang teachers through scientific writing training using the STAR (Situation, Challenge, Action, Reflection) method. The program employed a participatory approach involving 35 teachers through four stages: socialization, training, mentoring, and evaluation. Program effectiveness was measured using pre-test and post-test assessments. The results demonstrated significant improvements in teachers' knowledge and skills in preparing systematic scientific articles. Approximately 90% of participants successfully produced improved article drafts, while the average score increased from 61 to 89.88 with an N-Gain score of 0.723, indicating a high level of effectiveness. Furthermore, participants showed better understanding of article structure, reference management, publication ethics, and journal submission procedures. Therefore, the STAR-based training proved effective in enhancing teachers' scientific writing competence and professionalism while strengthening the academic culture at Labschool UNNES.

INTRODUCTION

Teachers are professional educators who are responsible not only for delivering the teaching and learning process but also for continuously developing their competencies through various forms of professional development. One of the key indicators of teacher professionalism is the ability to produce scientific publications as a reflection of classroom practice and research conducted in schools. Scientific writing serves as a medium for teachers to foster an academic culture, improve evidence-based teaching practices, and contribute to the advancement of educational knowledge (Rahim et al., 2023). However, this competency has not yet been evenly developed among teachers, highlighting the need for systematic training and mentoring programs in scientific writing (Wahyudin & Taufik, 2022).

The Laboratory School of Universitas Negeri Semarang (Labschool UNNES), as a laboratory school that supports education, research, and community service, plays a strategic role in promoting an academic culture within the school environment. As a partner institution for various educational innovation programs, teachers at Labschool UNNES are expected to document best practices, classroom action research, and instructional innovations in the form of publishable scientific articles. However, based on the initial needs assessment, the number of scientific publications produced by teachers remains relatively limited compared to the wide range of instructional innovations that have been implemented. This condition indicates that teachers' academic activities have not been adequately documented through scientific publications, thereby limiting their contribution to the advancement of educational research (Hasanah et al., 2020; Witjaksono et al., 2022).

The limited number of scientific publications produced by teachers is closely related to their insufficient knowledge and skills in preparing manuscripts that meet publication standards. Many teachers still encounter difficulties in identifying research topics, organizing article structures, analyzing research data, managing citations using reference management software, and selecting appropriate journals for publication. In addition, their understanding of the Open Journal System (OJS), publication ethics, and manuscript submission procedures remains limited. Previous studies have shown that the primary barriers preventing teachers from publishing scientific articles are not their teaching experience but rather their lack of technical writing skills and continuous mentoring throughout the writing and publication process (Astuti et al., 2024; Abdillah, 2024).

Scientific writing training has been recognized as an effective strategy for enhancing teachers' professional competencies. Through training programs that combine theoretical instruction with hands-on practice and mentoring, teachers develop a comprehensive understanding of scientific article structure, academic writing techniques, appropriate citation practices, and publication procedures for national and international journals. Such an approach not only improves teachers' technical writing skills but also strengthens their motivation and confidence to produce scientific publications on a sustainable basis. Previous community service programs have demonstrated that scientific writing training significantly improves teachers' knowledge, writing skills, and readiness to publish research findings and instructional innovations (Samsilayurni et al., 2024; Hutami & Pratiwi, 2024).

Based on these conditions, implementing scientific writing training for teachers at Labschool UNNES is highly relevant as an effort to enhance teachers' writing professionalism through the STAR Method. This community service program was designed not only to provide conceptual knowledge of scientific writing but also to include practical workshops on manuscript preparation, mentoring during the revision process, training in the use of scientific writing support applications, and strategies for publishing articles in academic journals. Through this program, teachers are expected to improve their

knowledge, writing skills, productivity, and motivation to produce high-quality scientific publications. Ultimately, the program is expected to strengthen the academic culture at Labschool UNNES while supporting teachers' continuous professional development. Furthermore, it is anticipated to contribute significantly to improving teacher professionalism through the sustainable practice of scientific writing and scholarly publication (Jati et al., 2025; Sehabuddin & Pitaloka, 2020).

METHOD

This community service program was conducted at Labschool Universitas Negeri Semarang (UNNES) using a participatory training approach, which emphasizes the active involvement of participants throughout every stage of the program. The participants consisted of 35 teachers from Labschool UNNES who sought to improve their competencies in scientific writing as part of their continuous professional development. The implementation method was designed in a progressive manner, beginning with conceptual instruction and followed by intensive mentoring in scientific writing practices. This approach enabled participants not only to acquire theoretical knowledge but also to produce draft manuscripts that could be further developed into publishable scientific articles. The community service program consisted of four sequential stages, as illustrated in Figure 1.



Figure 1. Community Service Implementation Method

1. Socialization Stage

The first stage of the program consisted of a socialization session aimed at providing participants with an understanding of the importance of cultivating a scientific writing culture as an integral component of teacher professionalism. During this session, the facilitators presented materials covering the significance of scientific publication in supporting Continuous Professional Development (CPD), various types of scientific papers that teachers can produce, the characteristics of high-quality scientific articles, manuscript organization based on journal templates, publication ethics, and techniques for searching scholarly references using academic databases. In addition to the presentations, interactive discussions were conducted to identify the challenges teachers had encountered in preparing scientific manuscripts. The information obtained was used to tailor the training materials to participants' specific needs.

2. Training Stage

The second stage focused on developing participants' technical skills in scientific writing. The facilitators provided a live demonstration of scientific article preparation using the STAR Method (Situation, Challenge, Action, and Reflection). This approach was selected because it enables teachers to organize scientific manuscripts based on their authentic teaching experiences and classroom innovations in a systematic and reflective manner.

3. Mentoring Stage

Following the training sessions, participants received intensive mentoring. During this stage, teachers directly applied the scientific writing techniques they had learned by preparing manuscripts based on their own instructional experiences. Each participant developed a draft article using the STAR framework introduced during the training.

The community service team provided both individual and group mentoring throughout the writing process, including assistance in selecting research topics, developing manuscript content, identifying relevant references, and improving academic writing quality. Mentoring was conducted through face-to-face consultations, allowing each participant to receive constructive feedback on their manuscript drafts. This stage was designed to ensure that participants not only understood the principles of scientific writing but also produced article drafts that met academic standards and were ready for submission to scholarly journals.

4. Evaluation Stage

The evaluation stage was conducted to assess the effectiveness of the community service program and measure participants' competency improvement after completing all training activities. Both quantitative and qualitative evaluation approaches were employed. The quantitative evaluation consisted of a pre-test administered before the training and a post-test conducted after all program activities had been completed. The assessment instrument measured participants' understanding of scientific writing concepts, article structure, the STAR Method, publication ethics, and the scientific journal publication process. The pre-test and post-test results were analyzed by comparing the mean scores and calculating the percentage of improvement.

RESULTS AND DISCUSSION

The community service program entitled "Scientific Writing Training to Enhance the Writing Professionalism of Labschool UNNES Teachers" was implemented through four sequential stages: socialization, training, mentoring, and evaluation. These stages were systematically designed to provide participants with a comprehensive learning experience, beginning with the development of conceptual understanding and culminating in the production of scientific article drafts. The participatory approach adopted throughout the program encouraged active teacher engagement, resulting in a more effective learning process that addressed participants' actual needs.

1. Socialization Stage

The socialization stage began with presentations emphasizing the importance of developing a scientific writing culture as a key aspect of teacher professionalism. The topics covered included the importance of scientific publication in supporting Continuous Professional Development (CPD), the characteristics of high-quality scientific articles, manuscript organization based on journal templates, the application of the STAR Method in scientific writing, and strategies for searching scholarly references using various academic databases. The session was conducted interactively through discussions and question-and-answer activities, enabling participants to share their experiences as well as the challenges they had encountered in preparing scientific manuscripts.



Figure 2. Scientific Writing Socialization Session

The results indicated that 83% of the participating teachers had previously implemented instructional innovations or conducted Classroom Action Research (CAR). However, the outcomes of these activities had not been documented in the form of scientific articles. The major challenges identified included difficulties in writing the introduction, determining the focus of the discussion, using up-to-date references, and understanding the scientific journal publication process. These findings suggest that the primary obstacle lies not in implementing instructional innovations but in teachers' ability to document and communicate their teaching practices through scientific publications.

These findings are consistent with the study by Admiraal et al. (2021), which reported that teachers' professional development is more effective when they are encouraged to engage in systematic reflection on their instructional practices and disseminate the results through scholarly publications. Similarly, Philpott et al. (2023) emphasized that an academic culture within schools can be strengthened when teachers are provided with opportunities to engage in professional discussions, share experiences, and participate in learning communities that support research and publication activities.

2. Training Stage

The training stage focused on enhancing participants' technical skills in preparing scientific articles. During this session, the facilitator demonstrated the application of the STAR Method (Situation, Challenge, Action, and Reflection) in scientific writing. In the Situation component, teachers identified the initial instructional context and the background of classroom problems. During the Challenge stage, participants described the issues that motivated the implementation of instructional innovations. The Action stage was used to explain the strategies or interventions that had been implemented, while the Reflection stage documented the outcomes of the implementation, the evaluation process, and the lessons learned.



Figure 3. Facilitator Demonstrating the STAR Method for Scientific Writing

The implementation of the STAR Method proved effective in helping teachers organize their teaching experiences into logical and systematic scientific narratives. Rather than beginning with a blank page, participants used their classroom experiences as the primary source for developing their manuscripts. This finding is consistent with the study by Zhang et al. (2022), which concluded that experience-based professional learning enhances teachers' reflective abilities while strengthening their academic writing skills in documenting instructional practices. Likewise, Tondeur et al. (2021) reported that professional training integrating reflection, hands-on practice, and constructive feedback has a greater impact on improving teachers' professional competencies than training based solely on theoretical instruction.

3. Mentoring Stage

The mentoring stage represented the core component of the community service program, as participants directly applied the scientific writing techniques introduced during the training sessions. Each teacher prepared a draft article based on their own classroom experiences using the STAR framework.

The community service team provided both individual and group mentoring throughout the writing process, including guidance on topic selection, manuscript organization, discussion development, identification of relevant references, and academic language editing. Throughout the mentoring process, participants received immediate feedback on each section of their manuscripts, enabling them to revise and improve their work efficiently.



Figure 4. Teachers Practicing Scientific Writing Using the STAR Method

The mentoring results showed that 90% of the participants demonstrated significant improvement in their ability to prepare more systematic scientific articles. Most teachers were able to develop introductions based on authentic classroom problems, construct discussion sections grounded in instructional implementation, and incorporate more recent scholarly references. Furthermore, the quality of academic writing improved considerably following successive rounds of revision.

Individual mentoring allowed participants to receive personalized guidance tailored to their specific needs. These findings support the study by Korthagen (2021), which concluded that professional learning accompanied by coaching and continuous reflection has a greater impact on teacher competency development than one-way training. Similar findings were reported by Richter et al. (2022), who demonstrated that mentoring programs enhance teachers' confidence, academic writing skills, and readiness to publish research findings.

4. Evaluation Stage

The evaluation stage employed both quantitative and qualitative approaches. Quantitative evaluation was conducted through pre-tests and post-tests to measure participants' improvement in

understanding scientific writing concepts, article structure, the STAR Method, publication ethics, and the scientific journal publication process.

Table 1. Improvement in Participants' Scientific Writing Competency Based on N-Gain Analysis

Measured Aspect	Mean Pre-test Score	Mean Post-test Score	N-Gain Score	N-Gain Category	Interpretation
Scientific Writing Competency	61	89.88	0.723	High	Effective

The evaluation results presented in the table compare teachers' scientific writing competencies before and after participating in the training program. The pre-test results showed a mean score of 61, indicating that participants' initial understanding of scientific writing was at a moderate level and required further improvement, particularly in terms of scientific article structure, manuscript preparation techniques, and the publication process.

After completing the series of activities, which included socialization, training using the STAR Method (Situation, Challenge, Action, Reflection), intensive mentoring, and evaluation, the mean post-test score increased to 89.88. This improvement of 28.88 points demonstrates that the training program effectively enhanced participants' knowledge and skills in scientific writing.

The N-Gain analysis yielded a score of 0.723, which falls within the high category. This result indicates a substantial improvement in participants' competencies following the training program. Furthermore, the effectiveness analysis classified the program as effective, confirming that the training approach successfully enhanced teachers' scientific writing competencies.

These findings suggest that the integration of socialization, STAR-based training, intensive mentoring, and continuous evaluation had a positive impact on improving teachers' writing professionalism. Through this comprehensive approach, participants not only acquired a conceptual understanding of scientific writing but also developed the ability to apply these concepts by producing systematic manuscript drafts that complied with academic writing standards.

Overall, the evaluation results demonstrate that the training model was effective in improving the scientific writing competencies of teachers at Labschool UNNES. This conclusion is supported by the increase in the mean competency score from 61 to 89.88, accompanied by an N-Gain score of 0.723 (high category). These findings indicate that the community service program successfully achieved its primary objective of enhancing teachers' writing professionalism through the development of scientific writing competencies.

Overall, the program results indicate that the combination of socialization, training, mentoring, and evaluation constitutes an effective strategy for improving teachers' writing professionalism. The program not only enhanced participants' knowledge of scientific writing but also produced tangible outputs in the form of draft scientific articles with the potential for publication in national and international journals. These findings support the study by Cordingley et al. (2022), which concluded that teacher professional development programs are most effective when they are continuous, practice-oriented, reflective, and supported by intensive mentoring and constructive feedback.

CONCLUSION

This community service program, implemented through scientific writing training using the STAR Method (Situation, Challenge, Action, Reflection), successfully enhanced the writing professionalism of teachers at Labschool UNNES. The program, which consisted of socialization, training, mentoring, and evaluation stages, significantly improved teachers' knowledge and skills in preparing systematic scientific articles in accordance with academic writing standards. Intensive mentoring enabled participants to produce manuscript drafts based on their classroom experiences while strengthening their ability to develop discussion sections, incorporate up-to-date scholarly references, and understand the scientific journal publication process.

The success of the program was demonstrated by the increase in the mean scientific writing competency score from 61 in the pre-test to 89.88 in the post-test, with an N-Gain score of 0.723, categorized as high. These findings confirm that the STAR-based training model effectively achieved its primary objective of improving teachers' scientific writing competencies and writing professionalism as part of their continuous professional development while fostering a stronger culture of scholarly publication at Labschool UNNES.

RECOMMENDATIONS

Future community service programs on scientific writing should be implemented on a sustained basis through continuous mentoring that extends to the manuscript submission, peer-review, revision, and publication stages in national and international scientific journals. In addition, establishing a scientific writing community or mentoring group within Labschool UNNES is recommended to provide teachers with continuous support in producing scholarly publications.

Future training programs may also expand their scope by including more comprehensive sessions on selecting reputable journals, utilizing scientific writing support tools and reference management software, and navigating the publication process. Such initiatives are expected to further enhance teachers' scientific publication productivity in a sustainable manner.

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