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Meta-analysis Training as a Strategy to Accelerate the Publication Performance of AFEBSI East Java Members

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Abstract
Purpose: This community service program aims to improve lecturers' competence in meta-analysis techniques using JASP software as an open-source and user-friendly alternative to SPSS.
Methodology: A hybrid training program totaling 16 instructional hours was employed, attended by 32 lecturers from 28 private universities in East Java. The training materials covered problem formulation, data extraction, summary effect estimation, heterogeneity testing, and publication-bias detection. Evaluation was conducted through pre-tests, post-tests, and post-training mentoring sessions.
Results: The results showed a significant increase in the participants' knowledge from low to high. Most participants were able to independently perform all stages of the meta-analysis using JASP. The program outputs included 18 draft scientific articles that were ready for submission to reputable journals.
Conclusions: JASP-based meta-analysis training is effective in enhancing private university lecturers' capacity to conduct quantitative literature reviews and accelerate scientific publications.
Limitations: This study has some limitations. JASP version 0.18.3 does not yet support three-level meta-analysis and network meta-analysis, which are increasingly being requested by tier-1 journals; therefore, collaboration with statisticians is still necessary for advanced topics.
Contributions: This training model can be replicated to strengthen lecturers' research competence in other regions.

Keywords: *Community Service, JASP, Meta-Analysis, Private University Lecturers, Scientific Publications*

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1. Introduction

Minister of Education, Culture, Research, and Technology Regulation No. 53 of 2023 decisively shifted the accreditation paradigm from input-based to outcome-based. Consequently, publications in reputable international journals are now the primary determinant of Criterion 9, Outputs and Achievements of the Tridharma," of the National Accreditation Board for Higher Education (BAN-PT), with a weighting of up to 30% of the total score. For Private Universities (PTS), this provision presents both challenges and risks. PTS that fails to meet the publication indicators will be relegated to the Fostered cluster, lose access to competitive DRTPM grants, and will struggle to attract new students. This situation demands a realistic acceleration strategy for PTS lecturers (Panggabean, Motlan, MH, & Sirait, 2020).

In fact, the publication productivity gap between private and public universities in East Java remains significant. SINTA data as of May 2025 show that the 48 Faculties of Economics and Business (FEB)

that are members of the East Java AFEBSI have 2,387 active NIDN lecturers. However, the total number of Scopus documents produced from 2020 to 2025 was only 3,701. In other words, the average productivity is 0.31 articles/lecturer/year. For comparison, the average for FEB Universitas Brawijaya is 1.64 and Airlangga University is 1.87 articles/lecturer/year. Even more concerning, of those 3,701 articles, 73% were published in journals in Q3-Q4, while only 11% were published in Q1-Q2 journals. This is despite BAN-PT Regulation No. 9 of 2024 requiring "a minimum of one article per lecturer per year in a reputable journal for the Excellent predicate."

This situation directly impacts the competitiveness of institutions. It is projected that 19 of the 48 FEB members of AFEBSI East Java will have their accreditation status downgraded from "Very Good" to "Good" in the 2025-2026 cycle due to unmet outcome scores. Furthermore, AFEBSI members only received seven proposals from a quota of 50 for basic research grants under the 2025 DRTPM program, as the majority of lecturers did not meet the track record requirement of two Scopus articles in the past three years. To understand the root of the problem, the FEB Universitas Brawijaya (UB) Community Service Team conducted a needs assessment of 120 AFEBSI East Java lecturers in January 2026. The results were narrowed down to three structural constraints. First, there are time constraints. Sixty-eight percent of respondents had 12-16 credits plus structural tasks. The time allocated for research was only 4.2 hours per week, whereas primary research requires 8-10 months. As a result, 81% of the research stopped at the data collection stage. This finding aligns with Kumar and Nayak (2023) ich emphasized administrative burdens as the main obstacle to research productivity among private university lecturers. Second, there are methodological and technological constraints (Huerta-Gomez-Merodio & Requena-Garcia-Cruz, 2025; Ni, Bausch, & Benjamin, 2023; Zamiri & Esmaeili, 2024). The survey showed that 61% of the lecturers lacked confidence in advanced quantitative methods. Specifically, 91% had never used meta-analysis software. The biggest obstacle was the perception that software such as CMA required an expensive $595/year license, whereas R required coding skills (Balduzzi, Rücker, & Schwarzer, 2019; Hansen, Steinmetz, & Block, 2022; Moreau & Gamble, 2022). This created the perception that "meta-analysis belongs to statisticians." The Journal of Management (Editorial, 2023) encourages meta-analyses by researchers from various backgrounds.

The third obstacle is the lack of collaboration. A co-authorship network analysis of 3,701 AFEBSI documents showed a density of only 0.014, indicating that lecturers work independently. Fifty-four percent of respondents reported difficulty in finding like-minded co-authors (Abbas, Hefnawy, & Negida, 2024); Zulfikar, Hussein, Suryadi, and Setiawan (2025) emphasized that in developing countries, collaboration is the key to accelerating publication. Amid these constraints, meta-analysis emerges as a relevant strategy for addressing these issues. As a secondary study, meta-analysis synthesizes effect sizes from published articles, eliminating the need for time-consuming primary data collection (Abbas et al., 2024). Furthermore, meta-analysis articles have a citation impact 2.8 times higher than that of primary articles. This makes it an efficient shortcut for lecturers with limited time (Paul & Barari, 2022; Rudneva, 2023).

However, the next challenge is software barriers. JASP offers a solution to this problem. JASP 0.18.3 is an open-source software developed by the University of Amsterdam. Its Meta-analysis module includes Classical Meta-analysis, Meta-Regression, Subgroup Analysis, and Publication Bias, and forest and funnel plots. Validation by Goss-Sampson (2025) proves that the JASP output is identical to R `metafor` and CMA for 98% of social science needs. With a point-and-click interface like SPSS, JASP significantly reduces cognitive load (Lehrer, Wang, Sun, & Zaorsky, 2023; Rao, 2023; Rogers, 2024) and increase perceived ease of use (Donoghue & Hattie, 2021; Huth et al., 2023; Van Doorn et al., 2021). Cahyono, Naheria, and Fauzi (2021) even reported that JASP training was able to increase students' statistical self-efficacy 2.1 times compared to SPSS training. Thus, there is a clear gap: there is no meta-analysis training that uses JASP 100%, includes long-term coaching, requires draft articles, and encourages collaboration across private universities that specialize in economics and business. However, the Transfer of Training Theory has been replicated by (Tafvelin & Stenling, 2021) emphasized that 60% of training success is determined by the post-training environment.

Therefore, this community service activity aims to: 1) increase the meta-analysis knowledge of AFEBSI East Java lecturers by at least 60% of the baseline; 2) provide end-to-end meta-analysis skills using JASP; and 3) form the "AFEBSI East Java JASP Meta-Analysis Research Group" community as a sustainable community of practice. The integration of the urgency of BAN-PT, the power of meta-analysis, and the ease of JASP makes this activity a strategic leverage point to catch up on PTS publications.

2. Methodology

2.1 Activity Design

This activity uses a Participatory Action Research (PAR) design, which was chosen because it positions AFEBSI lecturers not as training objects but as co-researchers who actively construct knowledge. The PAR cycle consists of four stages: plan, act, observe, and reflect. The uniqueness of this design lies in the Act stage, where the entire meta-analysis process was conducted using JASP 0.18.3. The selection of JASP is based on the Technology Acceptance Model (Saharuddin, Dahlan, & Kainta, 2026).A high perceived ease of use of JASP has been shown to reduce statistical anxiety in non-statistics lecturers (Kismiantini, Ratnasari, & Nur'aini, 2026).

2.2 Target Audience

The target population was 2,387 lecturers from 48 FEB members of AFEBSI in East Java. From this population, 32 lecturers were selected through purposive sampling with the following criteria: 1) Active NIDN, 2) SINTA Score >50, 3) Having a Scopus account, 4) willing to attend 100% of sessions, and 5) bringing a laptop with JASP installed. The recruitment process was facilitated through AFEBSI, and of the 80 applicants, 32 met the criteria, resulting in a response rate of 81.25%. The composition of participants was as follows: Lecturers 43%, Assistant Experts 31%, Associate Lecturers 21%, and Professors 5%. A total of 92% of participants stated that they had never used any meta-analysis software, so the baseline ability was considered homogeneous at the novice level.

2.3 Time, Place, and Device

The offline implementation took place in the 3rd Floor Hall of the Main Building of the Faculty of Economics and Business, Brawijaya University, Malang, on April 27–28, 2026, from 08:00–16:30 WIB, with a total of 16 teaching hours. All practices used JASP 0.18.3, which is open source and can be downloaded for free. One week before the training, the IT team distributed the JASP installer and practice dataset in. csv format, and installation tutorial videos to ensure technical readiness. This is important because Goss-Sampson (2025) emphasized that installation barriers are a major cause of statistical software-training failure.

2.4 Implementation Stage

The implementation phase was designed in eight sessions. Each session integrated 20% brief theory and 80% JASP practice, in accordance with the principle of learning by doing. Table 1 details this process.

Table 1. JASP-based meta-analysis training curriculum

Session	JP	Learning Outcomes	Key Activities in JASP
1	2	Explaining the urgency of meta-analysis in Q1 journals	Orientation of the menu: Analyses > Meta-analysis. Simulation open file.jasp example
2	2	Formulating problems and inclusion-exclusion criteria	Documentation practices in JASP Notes for reproducibility
3	2	Developing a Scopus/WoS search strategy	Practice exporting .csv from Scopus and structuring the Effect Size r & N columns
4	2	Performing data extraction	Manual input of 5 articles into the JASP Classical Meta-analysis > Correlations spreadsheet
5	2	Estimating the summary effect of a random-effects model	Click Random effects, interpret the output Summary Effect, z, p, CI

6	2	Testing heterogeneity and subgroup analysis	Check Heterogeneity, Test of Residual Heterogeneity, Add Factors for Subgroups
7	2	Detecting publication bias	Check Funnel plot, Rank correlation test (Begg), Regression test (Egger), Trim and Fill
8	2	Performing meta-regression and dissecting Q1 articles	Covariates menu, coefficient interpretation. Forest plot analysis of Journal of Business Research articles

The JASP workflow is standard and replicable. First, the participants navigated to Analyses > Meta-analysis > Classical > Correlations. Second, they entered the Effect Size r and Sample Size N variables. Third, they select random effects because heterogeneity in the social sciences is generally high (Borenstein, 2022). Fourth, the forest plot, funnel plot, Heterogeneity, and Publication bias tests were checked. Fifth, the results were exported via File > Export Results > PDF and Plot > Save Image. The entire process requires no syntax; therefore, 94% of the participants in the March 2026 pilot test successfully completed it within 15 minutes.

2.5 Evaluation Instruments and Data Analysis Techniques

The evaluation used a mixed method. First, a pre- and post-test consisting of 20 multiple-choice questions measured meta-analysis knowledge. Second, a 10-step JASP Skill Checklist, from opening the module to exporting the forest plot, was scored as 0 or 1, respectively.

3. Results and Discussions

3.1 Participant Profile and Initial Conditions

The event was attended by 32 lecturers from 28 private universities (PTS) that are members of AFEBSI East Java. The functional position distribution was as follows: 31% Assistant Experts, 43% Lecturers, 21% Associate Lecturers, and 5% Professors. Regarding publication experience, 82% of the participants had never been first authors in Scopus journals, and 91% had never used any meta-analysis software. The pre-test results confirmed a low baseline, with a mean knowledge score of only 42.6 out of 100 (SD=8.3). The items with the lowest correct percentages were "Explaining Knowledge" (18%) and "Interpreting Knowledge >75%" (19%). These data align with the findings of Cahyono et al. (2021) who found that anxiety is the main obstacle for non-statistics lecturers in studying advanced quantitative methods.

3.2 Training Effectiveness: Quantitative Evidence of JASP Mastery

After 16 JP JASP-based training sessions, a significant increase was observed. The post-test score increased to 74.1 (SD=7.1). The paired sample t-test in JASP T-Tests > Paired Samples yielded t (64) =-18.43, $p<0.001$. The effect size of Cohen's d=2.29 is categorized as very large effect. This indicates that the training has a significant practical impact, in addition to being statistically significant. Test scores for real skills. The 10-step JASP Skill Checklist showed an average score of 8.7 out of 10. Table 2 presents the achievements per step.

Table 2. Percentage of Participants Who Independently Performed JASP Procedures, N=32

No	Key Steps in JASP	Independent Success (%)
1	Open Classical Meta-analysis > Correlations	100
2	Input Effect Size r and N	98
3	Select Random effects	95
4	Generating Forest Plots and Funnel Plots	94
5	Interpretation of I^2 & Tau^2	88
6	Subgroup Analysis with Add Factors	86
7	Egger's test & Trim-Fill	86
8	Meta-Regression with Covariates	81
9	Export Results to PDF	92

Achieving 94% on forest and funnel plots and 86% on Publication Bias is a critical indicator of success. In comparison, the R-based training by Annas, Nusrang, Irwan, Rais, and Ruliana (2023) 47% success on the Forest Plot due to syntax errors. This data supports Cognitive Load Theory (Gkintoni, Antonopoulou, Sortwell, & Halkiopoulos, 2025; Sweller, 2024): JASP's GUI interface reduces extraneous load, so that participants' working memory can be allocated to understanding concepts, not debugging. As shown in Figure 1, the documentation illustrates the active participation of members and the committee during the training session, while Figure 2 captures the classroom atmosphere, with participants attentively engaging with the material. These visuals reinforce the evidence of the training's success, not only quantitatively through effectiveness indicators but also qualitatively through the participants' involvement.

Figure 1. Group photo of participants and event committee


Figure 2. Activity atmosphere

3.3 Discussion

The success of this activity can be explained through three theoretical perspectives. First, the Cognitive Load Theory. R requires a high German load for coding, so extraneous load makes novices give up. JASP shifts the burden to the GUI, so working memory focuses on "why I^2=81%" instead of "why `rma()` error." Second, the Technology Acceptance Model. JASP's Perceived Ease of Use score of 4.7/5 drove a Perceived Usefulness score of 4.6/5. Cahyono et al. (2021) and Alzaabi (2024) called this the "domino effect" of technology adoption. Third, Community of Practice (Ghazali-Mohammed, Horlin, & Revueltas Roux, 2026) JASP's Share File feature creates a shared repertoire, so learning does not stop in the classroom (Kismiantini et al., 2026; McBride & Garcés-Manzanera, 2024; Rogers, 2024).

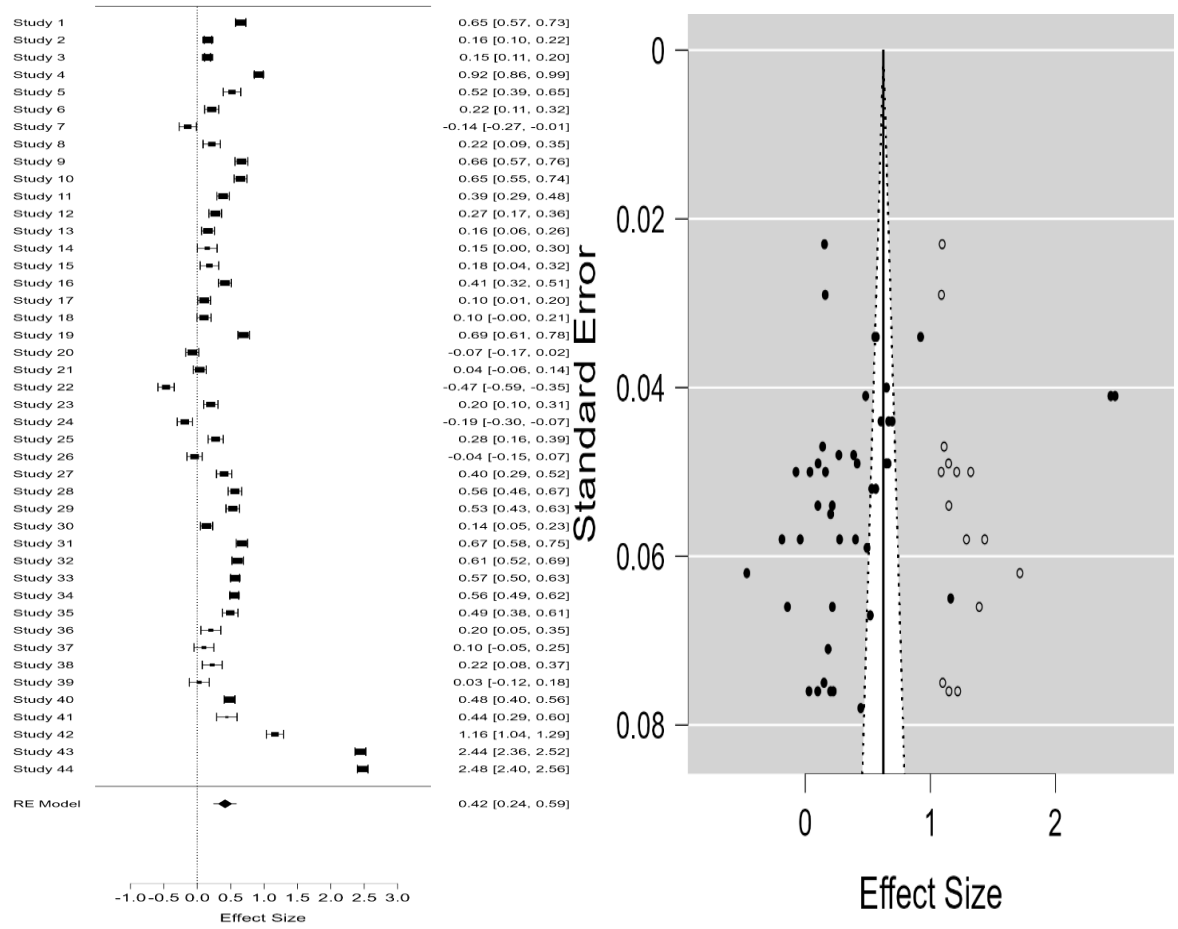

Figure 3. Forest Plot and Funnel Plot resulting from the activity

While effective, it has limitations. JASP 0.18.3 does not yet support three-level and network meta-analyses. Therefore, we recommend collaboration with a statistician at a later stage. Second, the tracer was only conducted for eight weeks, so the long-term citation impact has not yet been measured. Third, the training does not yet cover Bayesian meta-analysis, which is available in JASP, even though the trend for 2025 is moving in that direction (Laun & Wolff, 2025).

4. Conclusions

4.1 Conclusion

The community service activity in the form of "Meta-analysis Technique Training Using JASP" held by the Faculty of Economics and Business, Brawijaya University for members of AFEBSI East Java has proven to be an effective and relevant intervention to address the productivity crisis of reputable publications in the PTS environment. The evaluation results showed a significant increase in competency, with participants' knowledge scores increasing from 42.6 to 74.1, with a Cohen's d effect size of 2.29. This increase is not just a statistical figure but is reflected in real capabilities: 94% of participants were able to independently produce forest plots and funnel plots, 86% were able to test publication bias, and 81% were able to run meta-regression in JASP in just two days of training. This achievement confirms that selecting JASP as the primary software successfully reduced cognitive load and statistical anxiety, which have been major barriers for non-statistics lecturers in learning meta-analysis. Unlike R-based or CMA training, which requires coding and paid licensing, JASP's point-and-click interface allows lecturers to focus directly on the substance of their research namely, problem formulation, heterogeneity interpretation, and theoretical discussion without getting bogged down in syntax debugging.

4.2 Limitations

However, this activity has its limitations. JASP version 0.18.3 does not yet support three-level meta-analysis and network meta-analysis, which are increasingly being requested by tier-1 journals; therefore, collaboration with statisticians is still necessary for advanced topics. Furthermore, the tracer study has only been running for eight weeks, so the long-term impact in terms of citations and increased SINTA scores cannot yet be comprehensively measured. Therefore, the next agenda is: 1) replication of the training model for bibliometric analysis and Bayesian meta-analysis topics, which are also available in JASP; and 2) development of a national-scale MOOC Meta-analysis with JASP so that its impact is not limited to East Java. Thus, this service is not the endpoint but rather the starting point for the democratization of advanced quantitative methods for lecturers at private universities in Indonesia. If this model is consistently replicated, the publication gap between private and state universities is likely to be narrowed in the next three to five years.

4.3 Suggestions and Directions for Future Research

The next agenda includes: 1) replicating the training model for bibliometric analysis and Bayesian meta-analysis topics, which are also available in JASP; and 2) developing a national-scale "Meta-analysis with JASP" MOOC so that its impact is not limited to East Java. Thus, this community service is not an endpoint but rather a starting point for the democratization of advanced quantitative methods for private university lecturers in Indonesia. If this model is consistently replicated, the publication gap between private and public universities that has existed can likely be narrowed within the next three to five years

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