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Creative Thinking and Reflective Practice Training to Improve Teacher Competence

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ABSTRACT

Creative thinking and reflective practice both appear on the list of competencies a primary school teacher is expected to possess. However, training programs usually deliver them as separate topics, and teachers already in service receive less of that training than students still preparing for the profession. Very little of it is arranged across national borders. The community service activity reported here trained 33 primary school teachers in Klang, Selangor, Malaysia, using a single design that combined the two skills. It was conducted as a program evaluation using a mixed-methods approach informed by participatory action principles. The stages included preliminary discussions with the partner schools, delivery of the concepts, collaborative workshops on lesson design, reflective teaching exercises, and evaluation. Data were gathered through an understanding test, a lesson design rubric, a participant response questionnaire, reflection sheets, and observation. Quantitative data were summarized descriptively, and qualitative data were thematically summarized. The mean understanding and lesson design scores were both in the Very Good category. In their reflection sheets, the teachers began to distinguish between a quick check after a lesson and a planned reflective cycle. The model treats lesson creation and reflective evaluation as a single habit rather than two skills, and it was delivered through a collaboration between an Indonesian and a Malaysian university in support of Sustainable Development Goal 4.

ARTICLE INFORMATION

Keywords:
creative thinking; quality education; reflective practice; teacher competence

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INTRODUCTION

Sustainable Development Goal 4 sets a target of inclusive and equitable quality education by 2030. One of its indicators counts the number of teachers who have received the minimum organized training for the level they teach, so teacher capacity is built into the target itself. Indonesia and Malaysia have both signed on. Delivering it is the harder part. Yaccob et al. (2022) show how far the SDG 4 agenda still has to travel before it reaches an ordinary Malaysian classroom. Wijaya and Suryani (2023) describe Indonesian teacher-quality policy as well written nationally and thinly resourced once it arrives in the districts. Hussin et al. (2022) report that professional development in Malaysia still primarily takes the form of short courses with no follow-up. Programs that work with teachers who are already in post are one response to this.

Teacher competence is the combination of knowledge, skills, and professional values that enables a teacher to plan, implement, and evaluate learning. Pedagogical and professional competence sit at the center of it, since they govern how a teacher manages a classroom, delivers content, and monitors student progress (Suryadi et al., 2022; Mohamed & Ismail, 2023). Content knowledge on its own does very little when a teacher cannot turn it into workable instruction, and instructional skill

fades when a teacher stops renewing it. The two develop together, and they do so best in training that ties theory to the problems teachers are dealing with now (Basma & Savage, 2023; Darling-Hammond, 2023). Creative thinking appears in almost every discussion of twenty-first-century teacher quality (Thornhill-Miller et al., 2023; Dilekçi & Karatay, 2023). For a teacher, it has little to do with making art. It means finding a different way through a classroom problem, varying the strategy when the usual one stops working, and building activities that hold young children's attention. Active and contextual learning depends on teachers who can depart from the textbook script when needed (Kocak et al., 2021; Park et al., 2021; Putra & Hidayat, 2023). Such teachers adapt the lesson to local conditions and link the material to what students already know from outside school. Critical thinking is part of this because weighing options is how a new idea becomes usable (Long & Long, 2023; Kusmaryono & Nizaruddin, 2023).

Reflective practice works on what creativity produces. A reflective teacher does not stop at the test scores. The teacher looks again at the decisions she made during the lesson and at the assumptions lying behind them, then adjusts her strategy in line with what she actually observed in the room (Li, 2025; Beauchamp, 2022; Henke et al., 2023). Teacher education has long relied on Schön's distinction between reflection-in-action and reflection-on-action, as it positions the teacher as someone who continues to learn while working (Mohamed et al., 2022). Continuous improvement is what the SDG 4 target on qualified teachers asks for, and reflection is the mechanism through which teachers produce it (Russell, 2022; Machost & Stains, 2023). Recognition of both skills is not the same thing as their presence in daily classroom management and lesson planning, and that difference was where we started.

Coordination meetings and informal group interviews were held before the program with school representatives and with teachers from schools around Universiti Malaya in Kuala Lumpur. What they described was fairly consistent. Creative ideas circulate in staffroom conversations but are rarely written into lesson plans. Reflective evaluation is usually carried out in a few minutes at the end of the school day and follows no particular structure. The teachers also said they had little time and few opportunities to discuss their practice with colleagues from other schools, a complaint that Hussin et al. (2022) also record. Published research shows a comparable situation. Creativity and reflection are typically studied separately, and most existing work focuses on pre-service teachers or a single skill taken in isolation (Velasquez et al., 2023; Adank et al., 2025; Walkington, 2005). Community service programs that combine the two for teachers already in service are uncommon, and those organized across two countries are even less common.

The program reported here was arranged in response to that situation. Its objective was to improve the competence of teachers in Klang, Selangor, Malaysia by means of training in which creative thinking and reflective practice were placed within one design, so that participants would finish the session with a better understanding of creative pedagogy and with the ability to build a lesson plan that has reflection written into it. The implementation team was composed of lecturers and graduate students from Universitas Negeri Jakarta, together with academic staff from Universiti Malaya. Concepts were introduced through direct instruction, and cooperative learning was used during practice sessions. The activity offers an integrated training model that other teacher empowerment initiatives can adapt, and it is, at the same time, a working example of cooperation between an Indonesian and a Malaysian university in support of Sustainable Development Goal 4.

METHOD

The program was evaluated using a mixed-methods design. On the quantitative side, the instruments were an understanding test and a rubric for assessing lesson designs, while the qualitative material consisted of participants' reflection sheets and the facilitators' observation notes.

Participatory action principles were also drawn on, in that the partner teachers participated in deciding what the training would cover and did not simply receive an agenda prepared for them elsewhere (Filippou et al., 2022; Guo et al., 2025). Scores by themselves would have told us very little about how teachers' reflective awareness changed, but they were retained because they allow attainment to be compared across the whole group.

The activity was carried out in Selangor, Malaysia on 25 June 2026, in a single workshop lasting several hours. There were 33 participants, all teachers at schools in and around Klang District. Selection was purposive and was handled by the partner schools, which gave priority to teachers who had not attended any earlier training combining creative thinking with reflective practice. The implementation team consisted of three lecturers from the Faculty of Education at Universitas Negeri Jakarta, one collaborating lecturer from Universiti Malaya, and two postgraduate students who were responsible for documentation and technical support. The participants taught a range of subjects, and their teaching experience varied from early career to senior. This variation affected group work because the contributions of the newer teachers and the more experienced ones were not the same.

Preparation began with a series of discussions between the implementation team and the partner representatives concerning the professional needs of the teachers involved. We then wrote the materials, set the schedule, divided the facilitation roles, and prepared five instruments: observation sheets, reflection sheets, an understanding test, a lesson design rubric, and a participant response questionnaire. The understanding test had four indicators: creative thinking, reflective practice, active learning, and lesson improvement. The rubric for lesson design covered creativity, integration of reflection, feasibility in the primary classroom, and alignment with student needs. The questionnaire had six items covering relevance, clarity, usefulness, duration, interactivity and applicability in class. The facilitation team read through each instrument before use to check its content relevance and its fit with the training objectives. Scores were interpreted on a five-level interval scale, in which a mean of 81 to 100 on the test and rubric, or 4.21 to 5.00 on the questionnaire, counts as Very Good. The materials were written for Malaysian schools, and the worked examples came from situations these teachers were likely to encounter. Direct instruction was used for concept delivery, while group practice and lesson design used cooperative learning.

In the sessions, participants identified classroom problems, generated creative learning ideas, drafted lesson designs, and reflected on their own teaching in groups. We monitored through the observation sheets, the questionnaire, the reflection sheets, the lesson-design assessment, and the activity documentation. Questionnaire and product data were summarized with simple descriptive statistics. Reflection sheets and observation notes were coded and then grouped into themes. For trustworthiness, we triangulated across the instruments, maintained documentation as an audit trail, and discussed the emerging themes with the facilitators before settling on any conclusions (Ruffinelli et al., 2022). Participation was voluntary, and the teachers were informed of the program's purpose. Responses recorded for evaluation are reported in aggregate. Table 1 sets out the stages.

Table 1. Stages of Integrating Creative Thinking and Reflection to Advance Teaching and Learning

Stage	Activity
Preparation and coordination	Discuss needs with partner representatives in Kuala Lumpur; write training materials on creative thinking and reflective practice; finalize the schedule and the facilitation team; prepare evaluation instruments and a teacher handbook.
Program implementation	Introduce creative thinking and reflective practice through direct instruction; run collaborative workshops on creative lesson design using cooperative learning; guide the reflective teaching exercises and group discussion.
Participant practice and reflection	Identify classroom problems; generate creative learning ideas; develop reflective lesson designs; present the group results; complete the reflection sheets.
Monitoring and evaluation	Use the observation sheets, understanding test, lesson-design rubric, response questionnaire, and reflection sheets; analyze the data descriptively and thematically.

RESULTS AND DISCUSSION

The program opened with preparation and coordination. In a meeting with the partner representatives in Kuala Lumpur, we identified three priority needs: designing creative learning activities, conducting reflective evaluation, and connecting classroom problems to instructional strategies that teachers could actually use. Those discussions told us one further thing. Several of the teachers had attended earlier sessions on general pedagogy, but almost none had been in a program that combined creative thinking and reflective practice. We built the workshop materials and structure around that.

Thirty-three primary school teachers attended the training, all from schools around Universiti Malaya. The sequence consisted of a materials presentation, collaborative discussion, practice in creative lesson design, reflective teaching exercises, and group presentations. The first session focused on creative thinking and its role in lesson planning. In the second session, reflective practice was presented as a habit that continues over time and does not finish once a single evaluation form has been completed. Questions were asked at every stage of the day, and a large proportion of them concerned the same practical issue: how a broad concept could be translated into a small classroom routine that a teacher could repeat.

Teacher understanding was measured through a post-activity assessment covering four indicators: creative thinking, reflective practice, active learning, and lesson improvement. A qualification needs to be attached to these numbers. The assessment was given only after the program finished, and there was neither a pretest nor a comparison group, so the scores indicate the level participants reached by the end of the workshop and cannot be interpreted as a measure of gain. The mean score was 85.15, placing the group in the Very Good category. The four indicators did not differ greatly from one another, the highest being creative thinking in lesson planning at 86.20 and the lowest being lesson improvement based on reflection at 84.15. Figure 1 and Table 2 present the distribution.

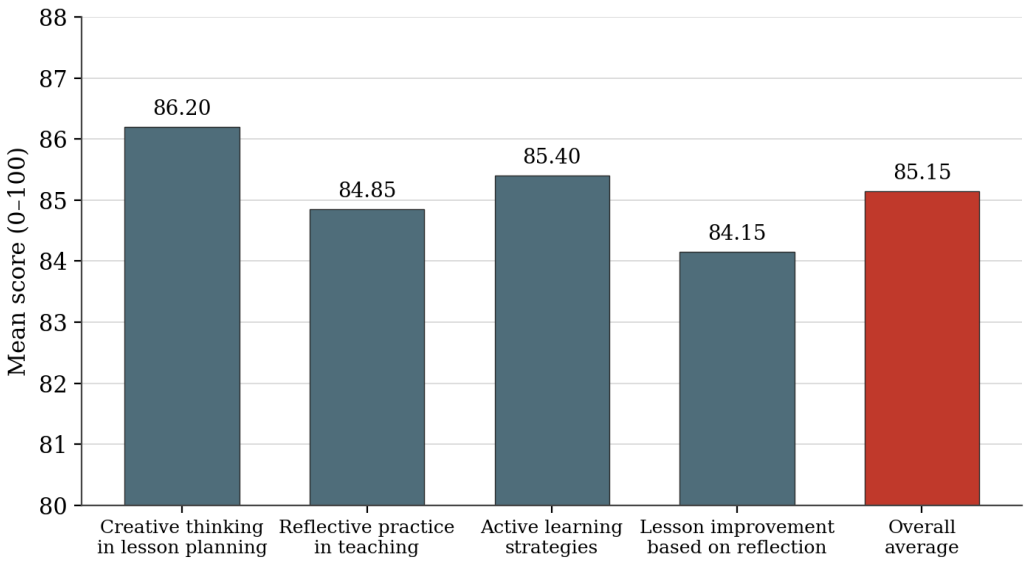

Figure 1. Participants' Understanding of Creative Thinking and Reflective Practice

Table 2. Participant Understanding by Indicator

Indicator	Mean score	Category
Creative thinking in lesson planning	86.20	Very Good
Reflective practice in teaching	84.85	Very Good
Active learning strategies	85.40	Very Good
Lesson improvement based on reflection	84.15	Very Good
Overall average	85.15	Very Good

Participants also produced lesson designs during the group work. The 33 teachers were divided into eight groups: seven with four members and one with five, and each group prepared one design. Assessment of these designs gave a mean of 86.42, again within the Very Good category. The component with the highest score was feasibility in the primary classroom at 87.85, which suggests that the designs were workable with young students. The complete breakdown is given in Table 3.

Table 3. Assessment of Creative and Reflective Lesson Designs

Component	Mean score	Category
Creativity of learning activities	86.75	Very Good
Integration of reflection	85.50	Very Good
Feasibility in primary classroom	87.85	Very Good
Alignment with student needs	85.60	Very Good
Overall average	86.42	Very Good

On the participant response questionnaire, the overall mean was 4.53 out of 5, equivalent to 90.51 percent, and was once again within the Very Good range. Among the six items, the relevance of the program theme to the teachers' needs received the highest rating at 4.61 (92.12 percent), while the lowest rating went to the suitability of the training duration at 4.42 (88.48 percent). The pattern across all items is shown in Figure 2 and Table 4.

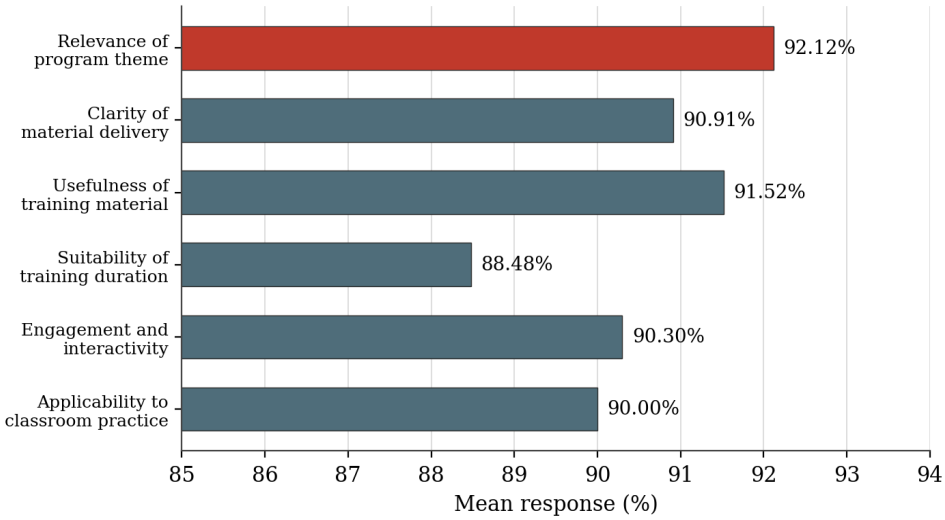

Figure 2. Participant Responses to Program Implementation

Table 4. Participant Response to Program Implementation

Item	Mean (1–5)	Percentage	Category
Relevance of program theme to teachers' needs	4.61	92.12%	Very Good
Clarity of material delivery	4.55	90.91%	Very Good
Usefulness of training material	4.58	91.52%	Very Good
Suitability of training duration	4.42	88.48%	Very Good
Engagement and interactivity of method	4.52	90.30%	Very Good
Applicability to classroom practice	4.50	90.00%	Very Good
Overall average	4.53	90.51%	Very Good

Material from the reflection sheets covers ground that the scores do not. Participants wrote that the training had made them more aware of the need to evaluate their own work, and several named specific changes they intended to make. Several teachers mentioned weak points in classroom management. Others wrote about how they posed questions to their students or about planning activities that would better hold their students' attention. One observation occurred often enough to warrant setting out on its own. Several participants had, until then, treated a quick check at the end of a lesson as reflection, and they wrote that they could now tell the difference between a quick check and a reflective cycle planned. Confidence was a further theme. Several teachers said they felt more willing to try creative strategies, particularly in subjects they had been teaching the same way for many years.

Several difficulties appeared while the program was running. At the beginning of the session, a few participants found it hard to distinguish ordinary teaching evaluation from structured reflective practice. The short duration left no room for the more demanding instructional models, and project-based and inquiry-based learning in particular had to be set aside. A handful of teachers had never worked in a group drawn from several schools, so the early discussion moved slowly. We responded with guided reflection questions and feedback from the facilitators while the groups were working, with group mentoring, and with short prompts that moved teachers from a broad idea to specific lesson steps. The results suggest that a short program combining the two skills can support primary teachers' competence in the dimensions it aims to address. Understanding averaged 85.15, lesson design 86.42, and the participant response 90.51 percent. Read against the objective, those three

figures say that the teachers understood the material, could turn it into a workable lesson design, and found the training relevant to their own work.

The understanding result probably comes down to the fit between the content and the need. In discussion, the teachers used the vocabulary of reflection and could explain why they had made particular choices in their designs, which is a better sign of absorption than a score. Similar findings on short professional development have been reported by Basma and Savage (2023) and Gore et al. (2023), who both note that real gains do occur when the content addresses problems teachers are facing at the time. In the present case, the needs assessment was carried out before the materials were finalized, which is the most probable reason for the result. The same factor is likely to explain why the theme's relevance received the highest rating on the questionnaire.

A stronger claim can be made based on the lesson design result. Creative thinking operated here as a working part of instructional design. The groups began with real classroom problems and turned them into learning ideas, then built activities around those ideas that were both feasible and interesting. Several designs tied the topic to local culture, to daily routine, or to something the children were already interested in. Park et al. (2021) and Thornhill-Miller et al. (2023) report the same contextual move in cross-cultural work on creativity and critical thinking. The cooperative format also fits what Segundo-Marcos et al. (2023) and Puiggali et al. (2023) found about cooperative learning and creative output in primary education. Moreover, since a few hours of structured practice produced this spread of scores, the result aligns with those who treat creativity as something teachable (Long & Long, 2023).

The clearest shift was in reflective practice, and it does not appear in any of the tables. Several teachers moved from a mental note at the end of the day to a cycle of observation, analysis, and revision. Larrivee (2008) and Orakçı (2021) describe this progression in their levels of reflection, from surface description to a more critical examination of one's own assumptions. It is also Schön's reflective practitioner as teacher education has taken it up (Mohamed et al., 2022; Li, 2025; Russell, 2022). What makes the shift worth reporting is where it puts the source of improvement. A teacher who reflects in this way locates that source in her own examined practice, instead of waiting for an instruction issued from above. Cigala et al. (2019) also link sustained reflection over time to teachers' professional well-being.

The collaborative format also contributed to the result. Through cooperative learning, the participants were able to exchange classroom experiences, compare the strategies they used, and assist one another in designing activities. Management techniques came mostly from the senior teachers, while ideas about student-centered and digital learning tended to come from the younger ones. Benefits of this kind, arising from teacher collaboration and from professional learning communities, have been documented by Hargreaves (2019), Filippou et al. (2022) and Wilson et al. (2022). In our sessions, it meant that participants themselves did most of the talking. Salleh and Tan (2022) observe the same pattern in reflective lesson study in this region, where improvement arises from planning and review carried out together.

The difficulties encountered deserve a report of their own. Confusion between administrative evaluation and genuine reflection, which several teachers experienced, has been widely documented and is not particularly surprising, since the two appear similar from the outside and many teachers have encountered evaluation only in its bureaucratic form (Derinalp, 2022; Henke et al., 2023). Guided questions and modeled examples reduced confusion during the session, indicating that the distinction can be taught when scaffolded. The time constraint proved harder to deal with, as it limited what could be attempted with project-based and inquiry-based models, and it is a familiar limitation of short courses in this region (Hussin et al., 2022). A longer follow-up activity would be the obvious place to address it. In theoretical terms, the contribution of the activity lies in bringing together two processes

that the literature usually examines separately. Professional development ordinarily trains teachers in either teaching strategy or evaluation. In this program, creative design and reflective evaluation were taught as a single cycle, so that the act of inventing a lesson and the act of judging its effect belonged to a single habit. Training that supports the whole professional cycle instead of isolated skills has been called for by Velasquez et al. (2023) and Adank et al. (2025), and what is described here is one answer to that call. A further element came from the cross-border format itself, since Indonesian and Malaysian practices were in the same room and could be compared directly.

Some practical implications follow. For schools and teacher educators, creativity and reflection are best timetabled together, preceded by a needs assessment, run cooperatively, and followed by mentoring once the initial sessions are over. At the level of the wider goal, creative and reflective pedagogy contributes to the quality of primary learning and the kind of continuous professional development described in SDG 4 (Wijaya & Suryani, 2023; Mohamed & Ismail, 2023; Mohamed et al., 2023). The partnership between Universitas Negeri Jakarta and Universiti Malaya is also evidence that community service work can carry academic cooperation across Southeast Asia. There is a cost to leaving things as they are. When creativity and reflection stay separate and remain within pre-service training, in-service primary teachers keep producing good ideas that never reach a lesson plan and continue evaluating in ways that never change what they do. A modest program of this kind closes part of that gap, at a scale schools and university partners can repeat.

CONCLUSION

Training that combined creative thinking with reflective practice produced positive post-training outcomes for the 33 primary school teachers in Klang, Selangor, Malaysia. Understanding scored 85.15, lesson design 86.42, and the participant response 90.51 percent, all in the Very Good band. Measured against the objective, the teachers came away with a firmer grasp of creative and reflective pedagogy, lesson designs that were both inventive and workable, and the view that the training was relevant to their daily work. The clearest single change was in what they took reflection to mean. It went from an end-of-day mental note to a deliberate cycle of observation, analysis and revision. What is new here is the treatment of lesson creation and reflective evaluation as one professional habit, delivered to in-service primary teachers inside an Indonesia-Malaysia partnership. The limits are plain enough. The design was evaluative, and the training was short, so neither longer-term retention nor more advanced instructional models could be tested, and the evidence comes from a single cohort at a single site. Later work should extend the training cycle, measure classroom practice afterward, and build teacher learning communities so that creative and reflective pedagogy remains in use after the sessions end. On those terms, the program contributes to Sustainable Development Goal 4 by strengthening teacher professionalism and the quality of primary learning through international collaboration.

DECLARATION OF GENERATIVE AI

The authors declare that no generative AI or AI-assisted technologies were used in the writing process of this manuscript.

CONFLICTING INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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