RETHINKING CLASSROOM ACTION RESEARCH: A WORTHY EFFORT FOR QUALITY LEARNING?

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ABSTRACT

This study investigates if INOVASI’s Guru BAIK pilot, an adapted Classroom Action Research approach, works to improve teacher competencies to deliver quality learning and if the improvements generate better learning outcomes. The pilot aims to enable teachers to develop their teaching competency by helping teachers develop a willingness to learn, and to become aspirational, inclusive and contextual in administering their teaching and learning process. We investigate the performance by comparing baseline and endline results of the pilots in Sumbawa and Southwest Sumba. The end-line study results show that Guru BAIK has increased the students’ literacy and numeracy skills. The findings also demonstrate that it works better for less advantaged children, for instance due to gender and student’s socio-economic background. These positive outcomes may have been generated by better teaching practices. The teachers shifted their teaching practices to be more student-centered; they applied active learning, used learning media, improved the degree of student engagement, diversified types of student assignments, and reduced teacher absenteeism. To conclude, the adjusted CAR drives changes for teachers’ mindset and practices and was proven to improve learning outcomes. Nonetheless, technical inputs are still required to sustain the results, in particular at higher grades.

KEYWORDS

Classroom Action Research, literacy, numeracy

1. INTRODUCTION

Action research occurs in the workplace and is usually undertaken by the person directly concerned with the situation. Action research with the classroom as the workplace and undertaken by teachers as the person concerned with the situation, first originated in the USA in the 1950’s and became popular in the UK in the 1970’s by protagonists such as Stephen Kemmis and Robin McTaggart and John Elliot. Classroom Action Research (CAR) has now been perceived as a successful and legitimate research methodology for exploring, developing and sustaining educational change in classrooms and in educational organizations across the world (Hine and Lavery, 2014).

In 2005, the government of Indonesia passed a law stipulating that teachers in Indonesia have to hold a bachelor degree or equivalent and need to be certified (Sukmayadi et al., 2011). This led to implementation of nation-wide in-service teachers’ professional development including PKB and PPG. CAR became a mandatory part of these programs and a requirement for teacher certification and promotion (Wulandari, et al., n.d.). It is understandable then that most teachers in Indonesia perceived CAR as the compulsory work that they have to complete to achieve professional certification instead of a method to improve the quality of classroom learning. The Wulandari et al. (n.d.) survey on 143 high school teachers confirmed that the teachers perceived CAR as mandatory and this was the main reason for them in applying CAR.
Although CAR has been included as part of the Indonesian teacher certification program and conducted by various teacher training institutes, several studies have shown that it has not been as successful as planned. The CAR trainings were found to be too theoretical instead of giving teachers opportunities and support to design and implement it effectively. Consequently, teachers’ knowledge of CAR is more theoretical than practical (Afrahamiryano, 2016), which resulted in misconceptions in implementation, such as including additional courses after school time as CAR. The quality of CAR training in pre-service institutions is inadequate, resulting in difficulties for teachers to apply it (Sukmayadi et al., 2011).

INOVASI revived the CAR approach through its first pilot, called Guru BAIK. The Guru BAIK (Belajar, Aspiratif, Inklusif dan Kontekstual) pilot aims to improve the quality of classroom learning by supporting teachers to develop their teaching competencies. The pilot is based on the idea that effective teachers are those willing to learn, and are aspirational, inclusive and contextual in designing the teaching and learning process. Pilot activities were developed by adapting the idea of CAR in a three-stage cyclic process of planning action, taking action and evaluating the results of the action (Lewin, 2015).

The reasoning behind this revised CAR approach was that in Indonesia, CAR is perceived as compulsory work that teachers must complete; however, it is not considered as a method to improve the quality of classroom learning. Conducting Guru BAIK has political salience in Indonesia as CAR remains an integral part of the teacher certification program of the Ministry of Education and Culture (MoEC) – a program which aims to improve the quality of teaching and learning in the classroom.

The Guru BAIK pilot was first implemented in North Lombok and Sumbawa districts of West Nusa Tenggara province (NTB) in 2017 in 25 schools in each district, with core activities implemented from January to May 2017. The other four INOVASI partner districts, Central Lombok, West Sumbawa, Bima and Dompu, then scaled out the approach using the local governments’ development funds, known as APBD (Anggaran Pendapatan Belanja Daerah). In 2018, INOVASI introduced the Guru BAIK pilot in Southwest Sumba, East Nusa Tenggara (NTT). This paper is based on endline study results from Sumbawa and Southwest Sumba, conducted in 2018 and 2019 respectively.

The rest of this paper is structured as follows: the second section elaborates on the Guru BAIK intervention approach. The third section is then on methodology, followed by section four on key findings from the endline results. The final section provides a summary of all findings, noting the study limitations and providing policy recommendations.

2. THE GURU BAIK APPROACH

In line with the concept of CAR, Guru BAIK was designed as a cyclical process for teachers to gather information about teaching and learning problems in the classroom and implement experimental activities to solve the problems and improve students’ learning outcomes (Mettetal, 2012). Fernandez (2017), using an experimental method for 3rd and 4th grade students in Singapore, found that the CAR increases student’s self-efficacy and interest in the subject matter in both low and high performing groups that ultimately improve their learning outcomes. Another case study from Bersh, et al. (2012) in the United States showed that CAR is able to improve at-risk student’s literacy skills by increasing teacher’s creativity, such as using a local context reading passage and utilizing podcasts as well as graphic organizers to preview content-rich text when helping second language students learn English.

In implementing Guru BAIK, teachers complete these main six steps: (a) diagnose a problem they are facing in the classroom related to students’ learning and explore the root causes (b) identify experimental activities to try and solve the problem (c) implement the experimental activities (d) monitor and evaluate their success in addressing the problem (e) modify the activities to produce better results (f) share the experience with other teachers. Implementing these six steps allows teachers to be self-reflective and think about whether their teaching and learning strategies develop
students’ understanding. In other words, the research process is carried out by teachers and for teachers.

The Guru BAIK pilot incorporated local capacity building approaches, training local facilitators to mentor and coach the teachers to implement the cyclical process of CAR and improve their teaching practices. They also worked with the teachers to reflect and learn from the process, which is a crucial part in assisting teachers to have self-reflective inquiry.

The trained local resources were heavily involved in implementing the pilot, running a series of workshops as follows:

Workshop 1: Explore: The session is about “growth-mindset” to make teachers feel more empowered and committed to understand what the Guru BAIK program is trying to achieve. Teachers learn to analyze knowledge and skills that students in their class are expected to learn, including the learning standards or learning objectives they are expected to meet. Teachers also need to identify classroom learning problems in their classrooms.

The growth mindset session showed that a student’s struggle to learn is an opportunity for growth instead of an incapability to learn (Paunesku et al., 2015). Dweck (2006, 2008) argues that a person’s growth mindset will allow them to keep working and continuing to strive regardless of any difficulties and challenges they face, in contrast to those who believe that their ability is fixed and static. This mindset will, directly or indirectly, shape how teachers perceive individual student growth potential, and shape what action they take in their teaching practice.

Workshop 2: Synthesis and Initial Design: The second workshop supports teachers to synthesize the evidence they have collected and use it to clarify and prioritize the specific problem they have identified in their classroom and determine which ones they want to initially solve through Guru BAIK. They then analyze the root cause and start identifying the potential solutions that can solve the problems.

Workshop 3: Finalise Design: During the third workshop, local facilitators support teachers to finalize the design of their context relevant solution to solve the specific problem in their classroom and to develop the action plan that they will implement. For quality assurance, each teacher is asked to present and justify their ideas to the rest of the group who then evaluate it against a predetermined criteria, which includes ideas such as: does the solution address the problem? Is it a solution within the power of the teacher to implement?

Workshop 4: Preparation for Testing: The fourth workshop takes place quite quickly after the third and works with teachers to see how they can assess whether their proposed solution works or not through formative assessment techniques. In particular, it helps teachers design student tests appropriate for formative assessment.

Workshop 5: Review, Evaluate and Document: The fifth workshop supports teachers to review and analyse the evidence they have collected to assess whether and how well the solution they designed and tested solves the specific learning problem they have identified. It also helps them to understand what worked, what did not and why, and reflect on what needs to be done differently to improve results. On the final day of the workshop, participants are also trained on some simple communications and sharing techniques so that they can document and share their ideas with other teachers in their school, local teacher working groups (KKG) and in the district.

The participants then developed action plans and applied them in their classrooms, receiving mentoring by the local facilitators. Local facilitators reviewed the implementation of the action plans, observed learning activities in their classrooms and provided feedback. Thus, throughout the whole sessions, the participants were able to practice their skills in identifying learning problems in their classrooms, finding the root causes, developing the solutions, executing them, evaluating effectiveness of their solutions and discussing the lessons with their professional peers.

3. METHODOLOGY

Guru BAIK’s main success indicators include improved student literacy and numeracy, student attitudes, teaching practices and improved teacher knowledge, attitude and skills. Achievement is measured through INOVASI’s school survey, i.e. SIPPI (Survey Inovasi Pendidikan dan
Student learning assessment and teacher tests for literacy and numeracy subjects, observation on teaching practices, and interviews with teachers, parents, students, principals and supervisors are key instruments.

As outlined above, this study compares baseline and endline surveys of Guru BAIK pilots in Sumbawa and Southwest Sumba. The baseline studies were administered in 2016 and 2018 for Sumbawa and Southwest Sumba respectively, followed with endline surveys in 2018 and 2019 consecutively. The endline studies involved panels of schools and the above respondents. 36 and 14 schools in Sumbawa and Southwest Sumba participated in the surveys respectively. In Southwest Sumba, following the completion of Guru BAIK, the participants were exposed to a short-course literacy pilot, together with other schools that only participated in the literacy short course. These schools were then treated as a control group of the Guru BAIK pilot. Below are the details of the endline studies’ data collection:

| Sample          | Sumbawa                     | Southwest Sumba            |
|-----------------|-----------------------------|-----------------------------|
| Schools         | 36 (21 Guru BAIK schools, 15 control schools) | 14 (7 Guru BAIK + literacy schools, 7 literacy schools) |
| Students        | 474 239 235                 | 401 196 205                 |
| Teachers        | 94 58 36                    | 38 38 0                     |
| Baseline        | October-November 2016       | January-March 2018          |
| Endline         | July-August 2018            | May-June 2019               |

INOVASI uses the Student Learning Assessment (SLA) tool to capture student’s learning outcomes. The SLA covers math and Indonesian language tests for primary schools. The instrument was developed by adapting national (Indonesia National Assessment Program and MoEC’s Electronic Books), and international frameworks (EGRA, TIMMS, and PIRLS). For teachers, the SIPPI instruments were used, conducting classroom observation and asking teachers to fulfill teacher’s questionnaire. Variables include teacher’s learning techniques (active/passive, teacher/student-centered), student-teacher engagement, the use of relevant learning media, teacher’s perception of teaching competency development, and the teacher absenteeism rate.

The endline surveys assessed students’ performance in literacy and numeracy – those same students measured during the baseline studies. At the time of the surveys, the students had actually moved to higher grades. Thus, we conducted psychometric procedures to assure that the baseline and endline results were compatible, considering that different grades imply different levels of difficulties, number of test items, different domain structure and discrimination power of test items. The procedures involved analyzing the students’ responses using a two-parameter logistic item response theory (IRT) model examining items’ difficulty levels and discrimination power. The model gives information on students’ ability based on the two parameters. The test results were then equated to make them comparable, conducted by a psychometrician. Equating is the process of linking two or more tests that have a similar measurement target but different structures, compositions and psychometric parameters. The averages and standard deviations of the two tests’ scores may vary due to these differences. Anchor item parameters’ estimations were used as part of the equating process. Equating was necessary in our case because the time period between the baseline and endline surveys was one and two academic years.

Finally, a generalised analysis of co-variance (g-Ancova) takes the endline score as the dependent variable and the treatment group variable as the independent variable. Other variables such as baseline scores, gender and class are included as control variables. The use of g-Ancova...
provides more accurate results in experimental research using non-randomised and non-equivalent designs because the technique accommodates several limitations, including potential interactions and data heterogeneity (Widhiarso, 2018).

We did further analysis by disaggregating data by gender, students with special needs, the student’s socio-economic status (SES) index and their mother tongue language. Students with special needs were identified by teachers, using an instrument with 14 categories of special needs. The instrument is designed to capture certain conditions or behaviors that affect specific child ability, such as ability to see, hear, and move. The SES index was developed from several indicators, such as housing condition, household expenditure, availability of a toilet inside the house, and ownership of assets such as car or motorcycle.

In capturing the changes in teaching practice, a mix of quantitative and qualitative approaches were used. The difference-in-differences (DID) method was conducted to estimate the net treatment effect by comparing the pre- and post-treatment differences in outcomes of the treatment and control groups. Mathematically, this can be written as Δy_{net_effect} = Δy_{treated} − Δy_{control}, where y denotes the respective indicator. The qualitative approach was administered through our monitoring mechanism of spot check, using interviews, focus group discussions and classroom observations.

4. GURU BAIK RESULTS

This section describes the results of Guru BAIK, both for teachers and students.

4.1 Changes in students’ learning outcomes

In Sumbawa, by comparing the Guru BAIK and the control participants, the results show improvements in favour of the Guru BAIK group. First, student learning scores improved both for literacy and numeracy by 1.95 and 2.92 points higher respectively compared to the control group, although the effect size was small (0.21 and 0.25, respectively). In literacy, the percentage of students who increased their score was 67 per cent and 60 per cent respectively for boys and girls. While in numeracy, the percentage of students who increased their scores was 49 per cent and 41 per cent respectively.

As illustrated in the below tables, using the equated IRT score and g-Ancova procedure, the average increase in the literacy score due to the pilot intervention was statistically significant. When the sample was disaggregated into boys and girls, the effect of the intervention was higher for boys than for girls (scores increased by 2.32 and 1.61 per cent, respectively).

Table 2. Comparative effects on students’ average literacy score of the Guru BAIK by gender

| Category | Guru BAIK | SE  | SD  | p.value | Effect Size |
|----------|-----------|-----|-----|---------|-------------|
|          | Coefficient |     |     |         |             |
| All      | 1.95      | 0.77| 2.53| 0.006   | 0.2076      |
| Boys     | 2.32      | 1.09| 2.12| 0.017   | 0.2466      |
| Girls    | 1.61      | 1.09| 1.49| 0.069   | 0.1715      |

Based on a breakdown by grades, the intervention had the most positive effect among grade one students (2.28). The effect was progressively decreasing at higher grades, and the effect of the intervention was negative among grade four students. There is no sufficient data to explain the phenomenon. However, INOVASI’s internal Strategy Review revealed that Guru BAIK teachers, although experiencing mind-changing behaviour, were lacking in technical capacity. This may lead
to a lower effect of Guru BAIK at higher grades when subjects are more technically challenging to explain and student understanding is not as easy.

Table 3. Comparative effects of students’ average literacy score of the Guru BAIK by grade

| Grade | Guru BAIK | SE  | SD   | p.value | Effect Size |
|-------|-----------|-----|------|---------|-------------|
| 1     | 2.28      | 0.17| 1.28 | 0.000   | 1.78        |
| 2     | 1.94      | 0.11| 0.93 | 0.000   | 2.09        |
| 3     | 1.07      | 0.15| 1.32 | 0.000   | 0.81        |
| 4     | -0.63     | 0.25| 1.9  | 0.010   | -0.33       |

Similar trends were identified in Southwest Sumba. The Guru BAIK pilot, when combined with the additional literacy short course intervention (referred to as Guru BAIK+), delivered better learning outcomes. The percentage of students that passed the basic literacy skills test, i.e. knowing letters, syllables, and words, increased significantly from 34 per cent to 65 per cent. In general, similar to Guru BAIK in Sumbawa, the improvements for boys was higher than for girls (i.e. 2.03 times more than the baseline versus 1.83 times). Regarding the comprehensive reading test, the average score increased from 53.3 in the baseline to 57.1 in the endline (please note that only those students who passed the basic literacy test were asked to complete the comprehension test).

The findings in Sumbawa and Southwest Sumba also revealed that the Guru BAIK pilot worked better for less advantaged children. In Sumbawa, Guru BAIK was found to have a greater effect on boys compared to girls, especially for numeracy (with effect sizes of 0.25 and 0.17 respectively for literacy; and 0.33 and 0.17 respectively for numeracy). Based on INOVASI’s baseline findings and other studies (Burusic, et al., 2012; Duckworth and Seligman, 2006), girls already outperformed boys. In this case, as the teachers in the Guru BAIK program were encouraged to understand teaching and learning problems in their classrooms by identifying the main issue and working with data (for example, identification during reflection sessions and data gained from formative assessments), then teachers ended up working more with children who had greater learning needs.

Secondly, the endline result for Guru BAIK in Southwest Sumba showed that schools which participated in the Guru BAIK pilot (in addition to the short-course literacy pilot) worked better at increasing disadvantaged students’ basic literacy scores (i.e. students with special needs, student with low socio-economic status and student who use local language as their mother tongue) compared to the schools who only joined the short-course literacy pilot (see table 5).
Table 5. Comparative effects on students’ basic literacy score by gender, special needs status, socio-economic status and mother tongue in Southwest Sumba.

| % of students who passed basic literacy test (letter, syllable, and word recognition): | INOVASI – Literacy Pilot | INOVASI – Literacy and Guru BAIK pilot |
|-----------------------------------------------|--------------------------|----------------------------------------|
| % Increase | % Increase |
| All students | 76% | 113% |
| Gender | | |
| Male | 81% | 135% |
| Female | 72% | 97% |
| Student with special needs | | |
| Student with special needs | 41% | 193% |
| Student without special needs | 84% | 100% |
| Socio-economic status index | | |
| Top | 88% | 49% |
| Middle | 53% | 58% |
| Bottom | 88% | 121% |
| Student's mother tongue | | |
| Indonesian | 41% | 59% |
| Local Language | 111% | 131% |

4.2 Changes in teachers’ knowledge and practice

The improved learning outcomes, as outlined above, can be explained by evidence showing an improvement in teaching practice. The bulk of the endline data shows that participating teachers improved their knowledge and skills and applied their new skills in teaching practices. This study assessed their teaching practices through a range of variables, including the use of active learning strategies and learning media, the degree of student engagement, the types of assignments they gave students and how often teachers missed their classes.

The Sumbawa survey found that the participants increasingly used active learning techniques in both the Guru BAIK and the control groups, with a net positive effect of 1 per cent for the Guru BAIK schools. In favour of Guru BAIK, the proportion of classes where students were engaged increased significantly (by 6 per cent) while this proportion decreased by more than 14 per cent in the control group resulting in a high net effect of up to 21 per cent. This positive net effect in students’ engagement might relate to the teachers increasingly using active instruction approaches. In Southwest Sumba, the study also found that the teachers who used student-centered approaches increased by 3 per cent.

Teachers’ use of learning media is equally important, but the practice in Sumbawa was still limited. Only around 14 per cent and 3 per cent of the observed classes used learning media in Guru BAIK and the control groups respectively. While there was still a positive trend in using learning media among the Guru BAIK schools, in the control schools this had declined by 3 per cent, leading to a positive net change of 13 per cent for the Guru BAIK group.

Another aspect of teachers’ mindset shift that the pilot examined was their awareness or perception of the need to develop their teaching competencies. Teachers were asked whether they were aware that their knowledge and quality of teaching should be improved. Both in the baseline and the endline surveys of Sumbawa, a higher proportion of teachers in the Guru BAIK group responded positively and the percentage increase was also significantly higher in this group relative to the control group.
Teachers’ attitudes were also captured by their absentee rates. Although in some cases teachers in the Sumbawa Guru BAIK group were absent due to training, the proportion of absent teachers was still lower in this group than in the control group in the endline. This led to a negative net change difference of almost 21 per cent.

In Southwest Sumba, we did a spot check in October 2018 in 16 schools (12 partner schools and 4 control schools) for INOVASI Guru BAIK. The findings indicated similar trends of improved teaching practices, such as more creative teaching by using learning media and better engagement with students. Unintended result was also identified, i.e. reduced practice of corporal punishment.

The Guru BAIK approach has received support from INOVASI local partner governments, who wish to scale out the intervention using government funds (APBD). The scale out of the Guru BAIK pilot (referred to as Guru BAIK APBD), took place in Central Lombok, West Sumbawa, Bima, Dompu and Southwest Sumba districts. In total there were 145 schools participating from NTB and NTT across the 2017/2018 period. In its monitoring scheme, INOVASI administered a spot-check, to monitor the scaled-out Guru BAIK implementation and its results. The NTB spot checks, carried out in August 2018, covered 2017 and 2018 implementation.

The spot checks were done in 16 schools observed across four districts, i.e. four schools per district. The sample was selected randomly while considering representation of urban/near urban and rural areas. Control schools, two per district, were selected from those who are close to the selected treatment groups, to get the best match with the characteristics of the treatment schools. Thus, in total there were 16 Guru BAIK ‘scale out’ schools and 8 control schools.

In general, from the spot checks it was found that scaled out Guru BAIK implementation was reasonably good. There was a positive response from teachers, students and principals involved in scaled out Guru BAIK activities. The scaled out pilot also helped participating teachers find various creative methods to make the classroom atmosphere more interactive and interesting for students. This is especially the case with the use of local-based learning aids that enhanced student enthusiasm during the literacy and numeracy learning process.

The scaled out Guru BAIK sequential workshops also produced a teaching scenario plan which included use of learning media and resources. This teaching scenario plan serves as an important basis for teachers to implement instructional strategies that are customized to the conditions in their class and the problems that will be solved. The district education office considered the workshop activities in the implementation of the Guru BAIK APBD to be very interesting and they were interested in developing similar activities in other schools.

“Before participating in the Guru BAIK APBD, the teacher practiced a teacher-oriented learning with a one-way learning model, such as lecture method that students looked bored ... after participating in the Guru BAIK APBD training, the teaching and learning process now always uses innovative learning media and makes students happy to take lessons” (Principal of SD Kalimati primary school)

Overall, the results of the Guru BAIK scaled out pilots were consistent with the findings for INOVASI Guru BAIK pilots, in that the participants experienced improved knowledge, attitudes and skills that helped them to improve their teaching practices.

4.3 Discussion

The logical construct of the INOVASI Guru BAIK explains how the pilot works to improve student learning outcomes. The pilot’s Theory of Change (ToC) outlines the pilot’s logic of changes as follows: by participating in Guru BAIK sessions, the participating teachers gained knowledge and skills to identify issues in their classrooms, understand the root causes, find potential solutions that fit within their authority and ability to implement, test them, reflect on the results and iterate. The findings show that the Guru BAIK pilot has generated its intended teacher outcomes. The data shows that there was a high level of awareness regarding the importance of understanding classroom problems, including specific issues faced by students with specific backgrounds. At this
stage, the teachers were aware that they could initiate different ways of teaching. Ultimately, these changes generated better learning outcomes.

How did the Guru BAIK pilot differ from the practice of classroom action research within the Indonesian context? First, the Guru BAIK pilot revived the CAR approach, consistently following the fundamental aim of action research. As Elliot (1993) stresses, this is to improve practice instead of generating new knowledge. The purpose is for teachers to improve pedagogical practices instead of testing theory or assumption. Thus, the method is contextual - based on real life situations and less rigorous than conventional research. The current practice, however, diverts the intention into a more academic exercise. For instance, a publication on theory and practice of CAR by Mu’Alimin (2014), illustrates what CAR is and how to conduct it. His book explains classroom action research more as an academic assignment resulting in heavy duties for teachers to apply. He then evaluated an implementation of CAR and the results showed that persistent problems exist, such as conventional teaching strategies of lecturing, giving assignments, lack of learning media used and low teacher motivation. This is in contrast to what has been generated through the Guru BAIK pilots.

Most of the Guru BAIK participants have been trained in CAR. They stated that the Guru BAIK approach helped them to better understand action research principles. The previous version of CAR training was considered too theoretical and difficult to be applied in classrooms. The Guru BAIK format was easier, with concrete examples of its application in teaching activities, and mentoring provided by professional peers.

Secondly, the Guru BAIK pilot helped the participants to understand problems and to identify the root causes, before determining solutions. Mu’Alimin’s documentation, however, describes that the participants made decisions on solutions without self-reflection on possible causes. Understanding root causes is a fundamental principle of PDIA – Problem Driven Iterative Adaption approach, which INOVASI adopts to facilitate identification of local solutions for locally identified problems. Below is field documentation of the process, as shared by the Southwest Sumba participants.

![Picture 1: The cycles of Guru BAIK action research](image)

Picture 1 illustrates the Guru BAIK steps, starting with identification of problems (Workshop 1), exploring the root causes (Workshop 2), determining possible solutions (Workshop 3), applying the selected solutions (Workshop 4) and conducting reflection (Workshop 5). The process is more practical rather than theoretical and in between, the participants applied the knowledge in their classrooms, assisted by the local facilitators.

Third is related to mindset change. Additional field documentation describes how the participants perceived and understood learning issues, as below. The documentation points to teachers’ self-reflection and inquiry that guided them to take actions to improve themselves, instead of blaming external factors and waiting for them to improve on their own. This process is associated with changes in mindset, given that teachers learnt they could improve areas of their teaching, for the benefit of students.
Fourth, the Guru BAIK pilots enabled the participants to find best-fit solutions for their local teaching context. This is in line with the fundamental principle of action research - to be locally contextual. Below are illustrations depicting how the teachers worked with different issues and solutions.

Picture 2: Identification of root causes for low learning outcomes in Southwest Sumba

Picture 3: Learning media using Bahasa Indonesia and Bima local language for addressing language barriers (SD Inpres Dihá)

Picture 4: Letter cards to help students who experienced difficulties in writing letters with no patterns (SDN Sari Kalampa Woha, Bima)
A mini library in Dompu was used for helping students in Grade 3 who had difficulties understanding passages in Bahasa Indonesia. The students were asked to re-write the stories, writing messages in Bahasa Indonesia.

In Central Lombok, the teachers addressed the issue of student difficulties in understanding values by developing a learning media, named *dekak-dekak*, to help students understand the right place for the right values.

Overall, the Guru BAIK pilot has resulted in changes in teacher mindset and practice. Active learning, as a method that engages students in the learning process (Prince, 2004), became more widely used by participants. The endline studies show that there were more students engaged, linked to increased use of active teaching instruction. Apart from the active instruction, the teachers applied more group work and more effective seating arrangements – that were conducive to active student engagement. The classrooms had more displays of the students’ work and learning media. The feature of top-down teacher student engagement in the learning process shifted to student-centered teaching. These practices were quite different from the situation in the control schools. The empirical evidence of the benefit of active learning to foster learning outcomes has been extensively documented (Prince, 2004). While the Guru BAIK pilot itself is not about active learning, the teachers’ self-awareness has led them to use such practices.

The second prominent positive result was an improvement in teachers’ ability to better assist less advantaged children. Sumbawa and Southwest Sumba pilot data indicates that the Guru BAIK pilots worked better to assist boys, and in Southwest Sumba, the Guru BAIK+ pilot combination better helped students with low socio-economic backgrounds, students with special needs and students using mother tongue language – more so than the pilot focused on only technical skills. This is likely due to improved teacher skills in identifying specific problems and individual work with students who need more assistance in the classroom.

Active learning is not a new practice in Indonesia. The Indonesian government has promoted the learning strategy for more than three decades through initiatives such as PAKEM (an active, creative, effective and joyful learning) and CBSA (the way for student’s active learning). However, as SIPPI baseline surveys show, the teacher-centered approach is still dominant, leading to more passive student engagement. Bjork (2013) suggests that difficulties in applying the active learning approach is linked to the top-down nature of Indonesian culture. A study by Syah et.al (2011) assessing the impact of a project on CAR found that teachers who were trained to deliver active learning appeared to practice it at artificial level. The active learning was applied, for instance via group activities, but, it did not necessarily change teacher-student relations.
To sum up, this study demonstrates that CAR is a useful method. However, it should be noted that this study has its own limitation, due to limited sampling. It indicates that action research is not sufficient; however, the evidence that combined mindset changes, generated from action research and technical skills interventions, works better, is based on smaller sample sizes. This study recommends that the Indonesian government revisit the application of PTK (Penelitian Tindakan Kelas) to focus on how teachers use the CAR method to improve quality teaching in their classrooms. Implementing the current program of teacher professional development through Kelompok Kerja Guru or KKG (Teacher Working Groups), will create greater opportunity for local governments to replicate the approach and at the same time improve KKG performance and functionality.

5. CONCLUSION

This study found that Guru BAIK, an adjusted CAR pilot led by the INOVASI program, generated improved teaching practices that ultimately led to better student learning outcomes. Key pilot findings included an increase in students’ literacy and numeracy scores in the Guru BAIK group compared to the control group. Through the application of CAR to focus on addressing classroom issues, the teachers better understood what issues they had to deal with, the causes, potential solutions, and were then able to test them; in the end, they experienced a shift in mindset and focused on finding effective solutions. Student-centered teaching became more prominent than the traditional teacher-centered approach. In addition to positive changes in teaching mindset and behavior, teachers were also encouraged to understand how local context helps to identify better fit solutions to improve learning outcomes. However, the findings in Sumbawa indicated that the effect decreased for students in higher grades.

Similarly, in comparing the results of Guru BAIK with the control group (in Sumbawa) and Guru BAIK+ (combined with the literacy short course) with just literacy short course (in Southwest Sumba), the study concluded that Guru BAIK has resulted in better quality student learning. Apart from improved teaching practices and learning outcomes, the program worked better for less advantaged children, including students with special needs, students with lower socio-economic status and students speaking a mother tongue language at home. The pilot also worked better based on gender factors, with boys’ learning outcomes increasing more than girls. Nevertheless, there is rooms for improvement, including space to improve teachers’ technical capacities, to deliver even greater quality of teaching and learning in basic literacy and numeracy, and to sustain the effect of the pilot for higher grades.

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