eISSN 2721-5016 | pISSN 2721-5024
Journal of Research on English and Language Learning (J-REaLL)
http://riset.unisma.ac.id/index.php/JREALL/user
DOI: https://doi.org/10.33474/j-reall.v5i1.21431
Volume 5 | Number 1 | p. 55-74
Published on April 25th, 2024

The effect of CAR on English language teachers' beliefs about action research

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ABSTRACT

This study examined the effect of collaborative action research (CAR) on secondary school English language teachers' beliefs about and perceived competency in conducting action research. A quasi-experimental design with pre- and post-test measures within a single group was employed. The intervention involved a one-day training workshop followed by 15 months of active CAR engagement. Data were collected via questionnaires from 37 English language teachers (21 in the experimental group and 16 in the control group) at two secondary schools in Mettu town, Ethiopia. The results revealed a positive transformative effect of CAR on teachers' beliefs about action research. Their perceived competency in conducting action research as part of their teaching duties also improved significantly. These findings suggest that CAR empowers teachers to become self-directed, collaborative problem solvers within their classrooms rather than passively waiting for external solutions. However, the study's limitations, including its single-group design and focus on two schools, necessitate further research. Future studies, particularly in-depth qualitative investigations, are recommended to explore the practical changes in teaching practices driven by CAR and to diversify the subject group and research methods for broader insights.

Keywords: action research; collaborative action research; teachers' beliefs

First Received:	Revised:	Accepted:	Published:
January 21st, 2024	April 9th, 2024	April 15th, 2024	April 25th, 2024

How to cite (in APA style):
Legesse, A., & Kitila, T. (2023). The effect of CAR on English language teachers' beliefs about action research. *Journal of Research on English and Language Learning (J-REaLL)*, *5*(1), 55–74. https://doi.org/10.33474/j-reall.v5i1.21431

INTRODUCTION

Research, the systematic search for knowledge and solutions (Kothari, 2004; Tomal, 2003), plays a crucial role in education. It sheds light on hidden truths, untangles complex relationships, and deepens our understanding of teaching, learning, and even student-parent-teacher dynamics (Creswell, 2012). Among various methods, action research (AR) shines as a powerful tool for teachers' development. Empowering professionals across fields, not only education, AR lets them assess and refine their practice through structured investigation (McNiff & Whitehead, 2001). Its accessibility empowers anyone within a profession, from teachers and principals to supervisors and even students, to tackle everyday challenges head-on (McNiff & Whitehead, 2001).

In education, AR becomes a model for professional growth. It encourages teachers to actively investigate and reflect on their practice. This cyclical journey, as Richards and Farrell (2005) describe, involves both "research" and "action". The "research" phase involves systematically gathering and analyzing information to identify and understand problems, while the "action" phase focuses on implementing and evaluating practical solutions to improve classroom practice. This ongoing cycle of inquiry, reflection, and action empowers teachers to continuously learn and

progress as professionals. AR allows teachers, as Prihadi (2022) advocates, to systematically explore, reflect on, and refine their approaches, aligning with the eclecticism encouraged in CLT (Kumar, 2013; Richards & Rodgers, 2014; Burns, 2010; Elliott, 1991; McNiff & Whitehead, 2012). AR empowers teachers to be dynamic and responsive in their practice, ultimately leading to improved students' outcomes. Recent studies by Prihadi (2022) have reaffirmed the effectiveness of action research in promoting teacher professional development and improving instructional practices.

The Ethiopian education system heavily emphasizes action research, integrating it into all levels of pre-service and in-service teacher training programs. This emphasis is reflected in the requirement for trainee teachers to complete mini-action research projects before graduating. Additionally, the post graduate diploma program (PGDT) and continuous professional development (CPD) programs incorporate action research into their curricula. While the Ethiopian ministry of education (MoE) actively promotes AR through policies like the 1994 education policy advocating for critical reflection and the Ministry of Civil Services's (MoCS) teachers' career ladder guidelines mandates AR involvement as a requirement for teachers'promotion (MoCS, 2012), research reveals a disparity between policy and practice. English language teachers in Ethiopia often resort to informal discussions or blaming past teachers instead of utilizing systematic AR approaches to address classroom challenges, mirroring similar observations in Turkey (Kutaly, 2012).

In dynamic EFL classrooms with diverse student needs and limited resources, swift teacher-led solutions are crucial. Relying on external researchers is simply not enough. As Tanjung and Ashadi (2019) argued, EFL teachers must diversify their methods to cater to individual backgrounds, proficiencies, and learning styles. This is especially true in Ethiopia, where intricate challenges like large classes, inadequate materials, and limited training necessitate immediate intervention (Desta, 2018). Despite these facts, English teachers in the schools selected were not observed conducting AR to solve their students' problems.

This study investigated the effect of collaborative action research (CAR) on Ethiopian English language teachers' beliefs about AR, their perceived competency in conducting it, and their actual AR practices. CAR is assumed to CAP (Community of Academic Practice) enables teachers to come together and share their experiences and discuss problems, facilitating collective problem-solving activities that individual teachers might not be motivated to undertake on their own (Littleton & Belikov, 2019). In contexts like Ethiopia, where teachers often lack motivation, training, and administrative support, CAR can be a powerful tool for improving teacher morale and effectiveness. Given the lack of research on CAR in Ethiopia, this study aims to assess its potential for improving teacher engagement with AR.

CAR is one of the ways by which action research can be practised by professionals with similar or common problems and collaboratively seeking solutions. According to Fullan and Agrevas (2018) CAR is defined as a collective effort of researchers within school environments collaborating to investigate educational issues. The aim is to leverage collective knowledge and encourage ongoing communication among various educational stakeholders across different contexts.

CAR is a collective effort by teachers or professionals in various settings to address the challenges encountered in their daily practical activities. CAR involves systematic inquiry conducted by teachers, educational practitioners, researchers, supervisors, parents, or students to find solutions to issues affecting student learning. Specifically, in English language classrooms, CAR involves teachers engaging in self-reflective practices to evaluate their language teaching methods, assess language learning outcomes, and gauge the language competency achieved by students.

Nunan (1992) claims that AR is teachers' individualistic attempt to investigate their classroom in isolation from other teachers. However, Ann Burns strongly debates that the approach is only action research when it is collaborative, acknowledging Kemiss and McTaggart's (1988) position of collaboration. She asserts that the original goal of AR was to bring change in social situations based on group problem-solving, which is collaboration. Action research takes on a collaborative nature, emphasizing that collective effort is essential. However, it is crucial to acknowledge that the group's

action research is the result of each individual member critically examining their own actions (Burns, 2005).

There are two main benefits of collaboration as mentioned by (Wolhouse, 2005). The first one is time; collaboration helps participants get enough time to bring something new to their practice as change is not an immediate phenomenon. The second one is support from others; collaboration facilitates sharing experiences and perspectives of others, which has something to add to the existing knowledge and may ensure that improvement continues, which is not the case in individual AR. Collaboration also facilitates reflection on one's practices by others who work together. When teachers come together to solve a problem collaboratively, they develop their reflective practice, which in turn contributes to their continuous professional development. Banegas, another professional who is interested in issues of collaborative action research, argues that AR by an individual focus on individual reflection while CAR is more useful because it involves participation from all members of the educational community, starting with teachers' own reflection and expanding their knowledge for a bigger growth (Banegas, 2012).

Empirical studies conducted in various educational contexts have highlighted the effectiveness of CAR as a systematic approach to addressing daily challenges and promoting CPD among teachers. For example, research by Desta (2018) in Ethiopian primary schools demonstrated how CAR facilitated collaborative problem-solving among teachers, leading to improved instructional practices and enhanced student outcomes. Similarly, findings from a study by Tadesse and Firdissa (2022) underscored the role of CAR in promoting teacher professional development and fostering a culture of reflective practice within Ethiopian public universities. These empirical studies provide evidence that CAR can be a valuable tool for educators to address daily challenges and enhance education quality in the Ethiopian context. However, the current researchers believe that teachers' beliefs about AR contributed to less effort of Ethiopian teachers to engage in teachers' research. Therefore, the study aims at investigating the effect of CAR in improving teachers' beliefs about AR.

Investigating teachers' beliefs sheds light on their understanding of the teaching and learning process, their roles and students' roles, and their problem-solving strategies. Bryan (2012) defines teacher beliefs as personal constructs that guide practice, decision-making, classroom management, and interpretation of events. These beliefs encompass teachers' perceptions of their learners, the classroom (teaching-learning practices), and themselves (Khan, 2020). Understanding the connection between teachers' beliefs and their actual practices in daily teaching is crucial. Studies suggest that beliefs significantly influence practices. Richardson (2017) also argues that teachers' actions and decisions are shaped by their beliefs, ultimately impacting student learning outcomes. Zhao et al. (2023) further support this notion by demonstrating that teachers' beliefs about the effectiveness of specific learning strategies were the strongest predictors of their actual use of those strategies.

Korthagen and Wubbels (2023) propose a dynamic view of teacher development, highlighting the interconnectedness of beliefs, knowledge, and practices. They argue that beliefs influence teachers' decisions and actions, constantly influencing and being influenced by their knowledge and experience. Hoque (2016) adds that teachers tend to apply their philosophical assumptions in their classrooms, further solidifying the link between beliefs and practices. Rahmah and Hartono (2023) also emphasize the significant role of beliefs in shaping teaching practices.

Ultimately, teachers' classroom practices are directly influenced by their theoretical orientations and beliefs about language teaching and learning, classroom management, materials, and learning objectives. Richards and Rodgers (2001) suggest that teachers' assumptions about language and language learning shape their practical approach to teaching. Abebe and Desta (2023) found a significant correlation between English language teachers' beliefs and their classroom practices in Ethiopian secondary schools. Similarly, Rahmah and Hartono (2023) found a strong connection between English language teachers' beliefs and their practices in Indonesian secondary schools. As to the authors' experience, no research was conducted on investigating the effect of CAR in improving teachers' belief about action research which influences their practical experiences. Most of the local studies focus more on the practices of AR than on teachers' beliefs (Jabessa, 2015;

Rukiya, 2016). The current study investigates CAR's effect in improving secondary school English language teachers' beliefs of action research by attempting to answer the following research questions.

1. What are English language teachers' beliefs about action research?
2. What is the effect of CAR on English language teachers' beliefs about action research?
3. What is the effect of CAR on improving English language teachers' perceived competency in conducting AR?

METHOD

The case study design was employed to investigate the effect of CAR on the beliefs and practices of English language teachers in a secondary school setting. The study employed a case study design (Yin, 2023) as it investigated a specific context and a limited number of subjects. This approach allowed for an in-depth exploration of the phenomenon within its real-world setting. The study employs quantitative (e.g., pre-and post-test surveys) methods to explore the effect of participating in the training and CAR projects on teachers' beliefs about action research, their perceived competency in conducting it, and their actual implementation practices. A within-group pre- and post-test quasi-experimental design was used, with participants receiving training on CAR as the intervention. This design was chosen because it was impossible to randomly assign the experimental and control groups separately due to the limited number of teachers. To investigate the effect of CAR, a non-equivalent quasi-experimental method was applied in which an intact treatment and an intact control groups were formed through the nonrandom assignment.

Participants and sample size

As the research design is a case study, the researchers delimited the study to English teachers of two secondary schools. The researchers decided to conduct this study at Mettu Secondary School and Hachalu Memorial Secondary School. The schools are in the Oromia region, Ilubabor zone in Mettu town, Ethiopia. Mettu town is found to the West of Addis Ababa, the capital, at about 600 km. All 21 English language teachers from two schools were selected using the non-probability sampling technique. Other 16 English language teachers, who did not participate in the training and CAR project from other schools in the town, were selected as a matching or control group. The teachers were selected based on the fact that they were working in the public schools in the same town, and the same education office and directives governed them. Moreover, they have relatively closer years of experience, professional career levels, and qualifications, though not homogeneous.

In light of this, Creswell (2008) claims that "non-probability sampling techniques are used when there is no any base of selecting some from whole and the size is manageable for researcher and when they all are information-rich for a particular inquiry." Therefore, all English teachers working in the schools during study time were included as participants of the study. The teachers were considered "information rich" because of their qualifications and long-year experience of teaching English. However, very few teachers excluded themselves from the study due to maternity leave, their social issues, and less interest they exhibited during the first contact. The study took place in the 2022/2023 academic year for three semesters.

Data collection instruments

The instrument used to gather information was a questionnaire which was constructed based on the theoretical background of action research and the scale which was adapted from the teachers' collaboration assessment survey (Woodland et al., 2013), which is used to measure teachers' collaboration based on 4 key domains of teacher collaboration: dialogue, decision making, action, and evaluation. It was not directly applied here, but the authors consulted this source to frame the current questions based on the research questions.

The purpose of the questionnaire was to find out the beliefs English language teachers have about conducting AR as one of their teaching and learning activities and their practical experiences,

and eventually to know the effect of participating in AR-related training and CAR projects on their current beliefs. It was divided into three major categories derived from basic research questions. The first part encompassed questions that investigated respondents' beliefs about conducting action research as one of the English language teaching activities, the second one attempted to know teachers' perceived competency about conducting action research, and the third one was directed at eliciting their previous hands-on practices of conducting action research throughout their teaching practices.

The first and the second themes of the questionnaire were used as pre and post-test tools. The third theme was used to know teachers' practical action research experiences and research platforms in the schools mentioned and employed only before intervention. The same questionnaire was also used to gather data from the matching group after completion of the project. The control group are termed the matching group in this research, and they did not participate in CAR to enable researchers to compare the beliefs of the members in the Matching group to the changes that occurred to the intact group (treatment group) as a result of participating in the project.

Before administering the questionnaire to the participants, the researchers sought validation from experts in the field to ensure face validity, considering that the instruments were developed by the researchers. Two PhD holders in English language teaching (ELT), two PhD candidates in ELT, and one PhD candidate in educational leadership participated in the validation process. Based on their feedback, necessary amendments were made, followed by a pilot test involving 50 English teachers from five secondary schools. The reliability of the questionnaires was assessed using Cronbach's Alpha Coefficient, demonstrating high internal consistency. Part one, focusing on teachers' beliefs about action research, achieved a score of .878; part two, centred on teachers' self-perceived competence in action research, achieved .860; and finally, part three, investigating teachers' actual action research practices, attained a reliability measure of .830. These results confirmed the questionnaires' effectiveness for the subsequent survey. However, the small number of samples used for pilot study and the haphazard response given by few respondents might have affected the strength of the items.

The CAR took place after the one-day training was given to English Language teachers. Right after training, the teachers were asked if they wanted to solve current English language teaching and learning problems through CAR. Then based on their consent, they formed three CAR groups in the three schools; they prioritize one problem areas each and they conducted CAR. The data via questionnaire was collected before and after CAR project to know the changes gained due to the CAR. The project took place for three consecutive semesters. Their beliefs about AR and their perceived competency of conducting AR was measured before and after the CAR project to check the improvement.

Likert scale was also found to be the best technique to measure the extent of teachers' perceived competencies in teaching the target language (Cohen et al., 2005). Therefore, to know their belief about teachers' action research, in their response to 14 questions, a five-point-scale (strongly disagree, disagree, unable to decide, agree, and strongly agree), again to know their belief about their competency of conducting action research, through 8 questions, five-point-scale (very low, low, medium, high and very high) was used; and in the third part to know their practical experience of conducting action research via 10 questions, five –point-scale (strongly disagree, disagree, I don't know, agree and strongly agree) was used.

Data collection method

Before distributing the questionnaire to the respondents, the authors sent it to experts in the field to check the face validity, as the instruments were constructed by the researchers. Accordingly, two PhD holders in ELT, two PhD candidates in ELT, and one PhD candidate in educational leadership participated in validating the questionnaire. Based on the comments from the experts, the amendment was made, and then the questionnaire was pilot-tested. In the pilot test, 50 English teachers from five secondary schools responded to the questions and the authors checked their

reliability using the Cronbach Alpha coefficient. Based on the pilot test, some redundant and irrelevant items were excluded.

The internal consistency of the questionnaires, assessed using Cronbach's Alpha coefficient, demonstrated high reliability. Part one scored .878, which was about teachers' beliefs about AR; part two, focusing on teachers' self-perceived competence in AR, achieved a value of .860. Finally, part three, investigating teachers' actual AR practices, yielded a reliability measure of .830. These results confirmed the effectiveness of the questionnaires in proceeding with the survey. As stated before, the questionnaire was used as a pre and post-test tool before and after the intervention, except for the third theme, which was aimed at collecting baseline information about their practices of AR. A one-day training on AR was given to the participants of the study, and based on their willingness, the two CAR groups were formed at the end of the training. During the training, the participants listed out all the problems they had in teaching the English language and prioritized at least one problem to be solved through the CAR project. CAR group 1 conducted AR on "Solving grade 9 students' problem of reading", and CAR group 2 conducted AR on "Improving the English-speaking skills of grade 9 students". They carried out research based on the cyclic nature of AR, and accordingly, they first collected information to understand the problem, next proposed solutions, then applied the solution, and finally evaluated the result. The project, which was carried out as an intervention, lasted for 3 semesters.

Current research initiated the type of CAR, which is the "practical CAR model", that aims at the professional development of practitioners and transforming their understanding and consciousness about their practice. The role of the researchers (authors) would be encouraging teachers' participation and self-reflection. The relationship between the researcher and the participant will be cooperation and consultancy as suggested by scholars (Skerrit, 1996). After completing the CAR project, the same questionnaire was administered as a post-test tool. During the intervention, the authors played an advisory role in the group. The data from the control group was also collected to determine the difference between the test results of the experimental group and the control group after completion of the CAR project. As defined earlier, AR is cyclical in its nature and this project would continue, however, for this study, it was terminated at the end of the second cycle which was applying and evaluating the solutions made during the first cycle. CAR group 1 at Mettu Secondary School was attempting to solve the problem students had in reading, and CAR group 2 at Hachalu Secondary School was attempting to solve the problems their students had in speaking skills.

Data analysis

SPSS 26.0 was used to analyze data gathered through the questionnaire that has three themes. Each theme was analyzed separately and descriptive analysis was deployed. Subsequently, reliability and descriptive statistics, including mean, standard deviation, and skewness, were calculated for both pre-and post-test data to facilitate result interpretation and comparison. Due to the nature of the non-equivalent quasi-experimental design that aimed at rejecting or accepting the null hypothesis, a non-parametric test (Wilcoxon signed-rank) was utilized to assess the significance of intervention-induced changes. Wilcoxon Signed Rank was used as the data violated the assumptions of normality (Field, 2013). The Wilcoxon signed-rank test is a non-parametric statistical test that is used to determine if there is a significant difference between two related groups or conditions. It is commonly used when the data does not meet the assumptions of normality or when the dependent variable is measured on an ordinal scale. The current data was collected from the group which was not randomly assigned and it is an intact group which was set by the authors including all teachers based on availability sampling. The data was collected based on with-in group pre and post-test procedure.

RESULTS AND DISCUSSION

Results from pre and post-test

This research aimed to determine whether CAR significantly impacts English language teachers' beliefs and practices regarding AR. Two hypotheses were tested: the first examined whether CAR influences teachers' overall belief in AR, while the second focused specifically on their perceived AR competency. In essence, the researchers intended to see if engaging in CAR could positively shift teachers' attitudes and perceived abilities when it comes to utilizing AR in their classrooms. Accordingly, the result was analyzed using three themes drawn from the research questions.

Theme one: English language teachers' beliefs about action research

The first theme was identifying the general beliefs that teachers have about AR. To achieve this, respondents answered 14 items as a pre-test based on a 5-point Likert scale comprising strongly disagree, disagree, neutral, agree, and strongly agree. Accordingly, the response of 21 respondents was computed using SPSS, and the reliability of this theme was an Alpha coefficient of 0.808. The mean score for all data was found to be 3.42, the standard deviation was 1.08, and the data exhibited negative skewness, ranging from -4.583 to .735, which suggests that for most questions, the distribution of responses is skewed towards the lower end (disagreement).

After the intervention, the same questionnaire was distributed to the same respondents as a post-test to check the improvement gained due to participating in CAR. Like the pre-test, the data was computed using SPSS, and the total mean was 4.32, the total standard deviation was 0.65, and the total skewness was -0.43. Overall, the English language teachers tend to agree with the statements (mean of 4.32 on a 5-point scale). There is a moderate variability in the responses (standard deviation of 0.65). The distribution of the responses is slightly skewed to the left (skewness of -0.43), meaning that there are a few more teachers who disagree with the statements than those who strongly agree.

Table 1

Descriptive analysis of data on teachers' belief about AR

Items	Pre- Test					Post- Test				
	N	Mean	St. dev	skewness	St. error	N	Mean	St. dev	skewness	St. error
1	21	4.05	.921	-.526	.501	21	4.14	.793	-.272	.501
2	21	2.95	.218	-4.583	.501	21	4.67	.483	-.763	.501
3	21	4.29	.902	-1.087	.501	21	4.71	.561	-1.920	.501
4	21	3.00	1.612	.237	.501	21	4.52	.602	-.861	.501
5	21	2.95	1.499	.384	.501	21	4.05	.865	-.097	.501
6	21	3.14	1.352	-.151	.501	21	3.86	.793	-.394	.501
7	21	2.48	1.537	.735	.501	21	4.33	.577	-.128	.501
8	21	3.90	.831	-.389	.501	20	4.15	.745	-.257	.512
9	21	3.95	.921	-.324	.501	21	4.43	.598	-.476	.501
10	21	3.52	1.167	.041	.501	21	4.14	.727	-.229	.501
11	21	4.14	.854	-.827	.501	21	4.52	.602	-.861	.501
12	21	3.95	1.071	-1.246	.501	21	4.38	.498	.529	.501
13	21	3.33	1.017	.187	.501	21	4.10	.768	-.170	.501
14	21	3.43	.978	.043	.501	21	4.52	.512	-.103	.501

(See Appendix 1 for individual items)

The next step was to check the significance of the difference observed between pre and post-test due to the intervention. As stated before, because of the small size and non-random assignment of the respondents, the Wilcoxon Signed Rank test was used to check the significance of the differences observed. Teachers' general belief about AR significantly improved after the intervention, as indicated by a Wilcoxon signed-rank test ($Z = -3.740$, $p < 0.001$). The mean rank difference was 115, with the post-test scores having a higher median rank than the pre-test scores. This suggests that the training and collaborative project effectively promoted more positive attitudes

and acceptance of action research as a valuable tool for improving teaching practices. Therefore, the null hypothesis, "CAR does not improve English language teachers' belief about action research," was rejected. As shown in Table 1, the total mean of the post-test is slightly greater than the total mean of the pre-test, and this difference is proved significant by Wilcoxon signed rank, which focuses on the median rather than the mean.

Theme two: English language teachers' belief about their competency in conducting AR

The second theme of the questionnaire aimed to identify teachers' perceived competency in conducting AR as one of their teaching duties. To know their perceived competency in conducting AR (theme two), a questionnaire of 8 items was distributed, and the respondents answered based on a 5-point Likert scale (very low, low, medium, high and very high). The descriptive statistics result of the pre-test showed the reliability of the items to be .86, which was high reliability; the total mean was 3.23, the standard deviation was 0.85, and the skewness was 0.05. The mean of all the items is 3.23, which is slightly above the neutral point of 3. This indicates that the teachers generally have a slightly positive perception of their competency in conducting action research. The standard deviation of 0.85 suggests that there is a moderate spread in the data, meaning that some teachers have a higher perceived competency than others. The skewness of 0.05 is close to 0, indicating that the data is approximately symmetrical. This means that roughly the same number of teachers overestimate and underestimate their competency.

The post-test result from the descriptive statistics indicated that the mean of all the items is 3.81, which is significantly above the neutral point of 3. This indicates that the teachers' perceived competency in conducting AR has increased significantly after the intervention. The standard deviation of 0.707 has decreased compared to 0.851 in the pre-intervention data, suggesting that the variation in teachers' perceived competency has reduced after the training and participation in the CAR project. The skewness of 0.000 is close to 0, similar to the pre-intervention data, indicating that the data is still approximately symmetrical.

Table 2

Descriptive statistics on the perceived competency of the respondents about conducting AR

Items	**Pre- Test**					**Post- Test**				
	N	Mean	St. dev	skewness	St. error	N	Mean	St. dev	skewness	St. error
1	21	3.19	.928	.415	.501	21	4.00	.707	.000	.501
2	21	3.48	.750	.483	.501	21	4.24	.625	-.195	.501
3	21	3.05	.865	.929	.501	21	4.14	.854	-.827	.501
4	21	3.48	.814	.084	.501	21	4.19	.602	-.071	.501
5	21	3.24	.889	-.045	.501	21	3.81	.680	-.806	.501
6	21	3.29	.902	.267	.501	21	3.48	.814	.084	.501
7	21	3.24	.700	-1.334	.501	21	3.29	.463	1.023	.501
8	21	2.86	.964	-.431	.501	21	3.81	.602	.071	.501
valid	21					21				

(See Appendix 2 for individual items)

As can be seen, there is a difference of 0.53 between the total mean of the pre-test and the post-test. The standard deviation decreased after the intervention by -0.143, suggesting reduced variation in perceived competency. The skewness remained relatively unchanged, indicating no significant shift in the distribution of perceived competency. However, further analysis was required to check the significance of the difference, and therefore, the Wilcoxon signed Rank test was used, and the result indicated that the Z value was -3.625, the p-value was 0.000 (2-tailed), 0 negative ranks and 17 positive ranks.

The Z-value of -3.625 and the p-value of 0.000 (less than 0.05, the typical threshold for statistical significance) indicates a very strong statistically significant difference between the pre-and post-test scores on teachers' perceived competency in conducting action research. All 17 ranks were

assigned to the post-test scores, meaning every teacher perceived their competency to be higher after the intervention compared to before. There were no negative ranks and 4 ties, indicating that the teachers' perceived competency generally did not decrease or stay the same after the intervention. Therefore, the null hypothesis that "CAR does not improve the English language teachers' perceived competency of conducting AR" proved false and was rejected. The alternative hypothesis, which was stated as "CAR improves teachers' belief about their competency of conducting AR", was accepted.

Theme three: English language teachers' AR practice

The third theme area of this study was knowing the teachers' practical experiences of AR and the availability of enabling conditions and facilitations for AR in their respective schools. This data helped to know the actual practice before intervention, and it was not used as a post-test. The 10 items were constructed in a way that the respondents were able to reply to a 5-point Likert scale (never, rarely, sometimes, frequently, always), which was meant to indicate the frequency of occurrences. The reliability score of this theme was .822 and the descriptive statistics result showed that the total mean was 1.06, Standard dev. 0.38 and skewness 0.47.

The average score across all items is 1.06, which falls between "rarely occurs" and "sometimes occurs" on the scale. This indicates that respondents, on average, perceived the prevalence of action research practices to be somewhere between rarely happening and sometimes happening in their schools. The standard deviation of 0.38 is relatively small, suggesting that most responses were clustered around the mean. In other words, there was not a large spread in how respondents perceived the prevalence of action research practices. The skewness of 0.47 is slightly positive, which means that there might be a few outlier responses on the higher end of the scale (possibly indicating schools with more prevalent action research practices). However, the skewness is relatively small, so this effect is not very pronounced. The data indicated that the participants of this study experienced AR very rarely, and the practices of AR in their school and its platform were very low before intervention. The following table shows the practices of respondents about their experience of AR and the conducive AR environment in their respective schools. The response was collected using 10 items as attached to the appendix.

Table 3

Respondents' beliefs about AR practices and its platform in their respective schools

Items	**Pre- Test**					**Post- Test**				
	N	Mean	St. dev	skewness	St. error	N	Mean	St. dev	skewness	St. error
1	21	2.19	1.123	.524	.501	-	-	-	-	-
2	21	2.00	1.049	.862	.501	-	-	-	-	-
3	21	1.62	.805	1.481	.501	-	-	-	-	-
4	21	2.05	.921	1.174	.501	-	-	-	-	-
5	21	2.29	.956	.495	.501	-	-	-	-	-
6	21	2.90	1.221	-.166	.501	-	-	-	-	-
7	21	2.19	1.209	.911	.501	-	-	-	-	-
8	21	1.95	1.024	.721	.501	-	-	-	-	-
9	21	1.86	.964	1.051	.501	-	-	-	-	-
10	21	1.76	.831	1.074	.501	-	-	-	-	-

(See Appendix 3 for individual items)

The result from control group

The data gathered from the control group was aimed at checking the reliability of changes that occurred due to short training and CAR to the belief of respondents about AR and to their perceived competency of conducting AR. To this effect, the same test items (theme 1 and theme 2) were used to collect the data from 16 respondents who did not participate in the project. The

Cronbach Alpha coefficient of both theme 1 and theme 2 were .899 and .897, respectively, indicating reliability.

Theme one: Respondents' belief about AR

The same test, which was applied to the experimental pre- and post-test groups, was distributed to 16 respondents, and the descriptive analysis was executed to know the average mean, standard deviation, and skewness of the data. Overall, the mean scores for most statements range from 3.25 to 3.81, with an average mean of 3.442, indicating agreement with the statements on average. This suggests that teachers generally acknowledge the benefits of action research and its potential to improve teaching practices. Most statements have standard deviations above 1, indicating a wide range of responses. This suggests considerable variation in teachers' opinions on these issues. Many statements show negative skewness values, ranging from -0.440 to -1.169. This indicates that the distribution of responses is skewed towards agreement. In other words, more teachers agreed with the statement than disagreed. Table 4 shows the data gathered from the control group about teachers' beliefs about action research via 14 items.

Table 4

Respondents' beliefs about AR (from the control group)

	Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
1	16	1	5	2.56	1.315	.147	.564
2	16	1	5	3.75	1.291	-1.169	.564
3	16	1	5	3.75	1.342	-.994	.564
4	16	1	5	3.81	1.167	-1.025	.564
5	16	1	5	3.50	1.549	-.615	.564
6	16	1	5	3.50	1.461	-.440	.564
7	16	1	5	3.50	1.506	-.603	.564
8	16	1	5	3.19	1.559	-.354	.564
9	16	1	5	3.75	1.125	-1.042	.564
10	16	1	5	3.31	1.448	-.627	.564
11	16	1	5	3.63	1.258	-.552	.564
12	16	1	5	3.25	1.438	-.038	.564
13	16	1	5	3.13	1.310	-.057	.564
14	16	1	5	3.56	1.590	-.755	.564
Valid N	16						

Table 5 summarizes the average mean, standard deviation, and skewness of the data gathered from the experimental group before and after intervention and data gathered from the control group. Table 5 displays the summarized descriptive statistics by comparing the average mean, standard deviation, and skewness of the results from the experimental group and the control group, which were gathered via the three themes of the questionnaire.

Table 5

Summary of descriptive statistics of the data gathered from the experimental and the control group concerning teachers' beliefs about AR

No	Descriptive Statistics	Pre-test	Post-test	Control Group
1	Average Mean	3.42	4.32	3.442
2	Std. deviation	1.08	0.65	0.3365
3	Skewness	-4.583	-0.43	-0.580

The data indicated that due to the intervention, differences were observed between the average mean of the pre-test and post-test for theme one, which is about English language teachers' beliefs about AR (3.41 and 4.32, respectively). To check the reliability of this improvement in their beliefs,

data was again collected from the control group, and the average mean is 3.442, slightly closer to the pre-test but lesser than the post-test. These tables show a positive mean difference between the intervention group and the control group, suggesting that the intervention positively affected the scores. Items like "Action research provides teachers with the opportunity to improve their practices" and "Action research can bring changes to English language teaching practices of teachers" had some of the highest mean differences, suggesting significant improvement in these areas.

The standard deviations are lower for the post-test and control groups than for the pre-test. This suggests there may have been less variability in the scores after the intervention and in the control group. The skewness values are negative for the pre-test, indicating that the distributions of the scores were skewed to the left. This means that there were more scores in the lower range. The skewness values are closer to zero for the post-test and the control group, suggesting that the distributions of the scores became more symmetrical after the intervention and in the control group. These results suggest that the intervention positively affected the scores for both themes.

A statistical test was considered necessary to verify the difference observed. To this effect, as the sample was a non-random sample, the Wilcoxon Signed Rank test was again used to test whether the differences between the pot-test result and control group results described above were significant or not. Accordingly, the test indicated the z-value for Wilcoxon signed-rank test is approximately 5.75 and the p-value is 0.017, which indicates the intervention group generally had higher overall post-test scores than the control group. The p-value of 0.017 is statistically significant at the 5% level, meaning that the observed difference in overall scores is unlikely to be due to chance. This suggests that the intervention had a positive impact on participants' beliefs about action research compared to the control group.

Theme two: Respondents' perceived competency in conducting AR

Similar to the previous pre-test and post-test, the matching data was collected from 16 respondents who were assigned to the control group. The objective of gathering data from the control group was to check the significance of the differences observed between pre and post-test by comparing the average mean, standard deviation, and the skewness. The average mean of the data is 2.77, which is slightly below the middle of the 5-point Likert scale. The standard deviation is 1.12, meaning there is moderate variability in the data. The skewness is 0.14, meaning the data is slightly positively skewed. This suggests that a few teachers rate their competency very highly, but most teachers rate their competency in the middle of the scale. Overall, the data suggests that the teachers in this group have a moderate level of perceived competency in conducting AR. The following table shows the data collected from the control group about respondents' perceived competency in conducting AR.

Table 6

Descriptive analysis of data about respondents' perceived competency in conducting AR

	Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
1	16	1	5	2.94	.998	.138	.564
2	16	1	5	3.13	1.147	.028	.564
3	16	1	5	2.87	1.204	.270	.564
4	16	1	5	2.69	1.250	.213	.564
5	16	1	4	2.50	1.211	.129	.564
6	16	1	5	3.06	1.124	-.459	.564
7	16	1	5	2.44	1.153	.770	.564
8	16	1	4	2.50	.894	.000	.564
Valid N.	16						

Table 7 summarizes the average mean, standard deviation, and the skewness of the data gathered on the perceived competency of respondents to conduct AR. It summarizes the descriptive statistics results such as mean, standard deviation, and skewness of data collected through three themes of the questionnaire. It also shows the comparison between the pre-test, post-test, and the control group results.

Table 7
Summary of descriptive statistics of the data gathered from the experimental and control group concerning teachers' perceived competency in conducting AR

No	Descriptive Statistics	Pre-test	Post Test	Control Group
1	Average Mean	3.23	3.81	2.87
2	Std. deviation	.86	0.707	0.44
3	Skewness	.05	0.000	0.14

As can be observed from the data, the mean value of the pre-test is 3.23, which was slightly above neutral (or medium competency), and the mean of the post-test is 3.81, which was significantly above medium, indicating that there was an improvement in teachers' perceived competency of conducting AR. However, since this test was within a quasi-experimental group, it was essential to compare it with the control group that did not receive the intervention. Hence, the average mean of data from the control group was 2.87, significantly less than the medium.

The standard deviation of the pre-test (.86) was moderately spread, but at post-test (0.707) had a reduced spread, and for the control group (1.12), that was a moderate amount of variability, which means the standard deviation in the quasi-experimental group decreased after the intervention, suggesting a reduction in the variation of perceived competency levels among participants. The skewness of the pre-test (0.05), which was approximately symmetrical, and post-test (0.00), which was again approximately symmetrical, and the control group (0.14), which was slightly positive skewed indicate that both the pre-test and post-test data for the quasi-experimental group and the data for the control group exhibit near-symmetrical distributions, meaning there is roughly a balance between those who overestimate and underestimate their competency. The results suggest that the intervention seems to have effectively increased the quasi-experimental group's perceived competency in conducting AR. This is evidenced by the significant increase in the mean score that now exceeds the neutral point. The reduction in standard deviation further indicates that the intervention helped consolidate participants' confidence levels, making their perceived competency more consistent.

As stated earlier, the significance of the difference observed between the post-test and control group using descriptive statistics needs to be tested. As the data was gathered from the non-randomly assigned sample, the non-parametric test Wilcoxon Signed Rank test was used again, and accordingly, the z-value was found to be (Z-statistic- 0.00), and the p-value was found to be (p-value-0.0078). Therefore, the test indicated that there is a statistically significant difference between the two groups ($p < 0.05$). In other words, the teachers in the post-test group rated their own skills and knowledge higher than those in the control group.

To summarize, the case study was conducted to know whether CAR improves beliefs that secondary school English language teachers have about AR and the change CAR can bring to their perceived competency of conducting AR. To achieve this, two hypotheses were formulated:

1. Hypothesis 1: H_0- CAR does not improve English language teachers' beliefs about AR
   H_1- CAR improves English language teachers' beliefs about AR
2. Hypothesis 2: H_0- CAR does not improve English language teachers' perceived competency of conducting AR
   H_1- CAR improves English language teachers' perceived competency of conducting AR

Based on the hypotheses, two themes of questionnaires were prepared to be used as pre and post-tests. The first theme was about teachers' belief about AR and the second theme was about teachers' perceived competency of conducting AR. The test was conducted within groups pre and post-tests, while the control group was also formed to confirm the changes observed due to intervention. Accordingly, the result from the post-test indicated an increase in the average mean compared to the pre-test average mean of both themes. As the design was quasi-experimental, it was paramount to use statistical tests to validate the improvement experienced through quantitative data. To meet this requirement, Wilcoxon signed a rank test was executed, and the difference was proved significant for both themes. Therefore, in both cases, the null hypotheses were rejected, and the CAR was found to bring about positive changes.

DISCUSSION

The present study explored the transformative effect of CAR on English language teachers' beliefs regarding AR. By engaging in collaborative cycles of inquiry and reflection, participants demonstrated notable shifts in their beliefs of AR, aligning with previous research in the field (Cochran-Smith & Lytle, 1993; Kemmis & McTaggart, 2005). Cochran-Smith and Lytle (1993) explored the dynamics of teacher research and knowledge generation, highlighting the importance of teachers' active involvement in research endeavors. Similarly, Kemmis and McTaggart (2005) emphasized the significance of participatory action research (PAR) in fostering collaborative inquiry and transformative change within educational contexts. Both studies underscored the value of practitioner involvement in research processes, advocating for a democratized approach to knowledge production in education.

Pre-intervention data revealed skepticism and a limited understanding of action research, echoing findings in other contexts by Darling-Hammond (2006) and Ponte and Chapman (2014). Post-intervention, a significant increase in positive beliefs towards AR was observed, evidenced by statistical analysis utilizing the Wilcoxon signed-rank test ($p < 0.05$), similar to results obtained by Mills and O'Toole (2009). Participants emphasized the value of CAR as a collaborative and empowering tool for classroom improvement, aligning with Kemmis and McTaggart's (2005) conceptualization of AR as a cyclical process of questioning, experimentation, and reflection. Darling-Hammond (2006) and Ponte and Chapman (2014) observed similar trends, indicating that these challenges are not unique to the current study's context but are rather widespread phenomena in educational settings globally. This suggests a common need for interventions to address these barriers to effective engagement with AR.

Regarding their perceived competency, they initially demonstrated limited confidence in conducting AR, but after the intervention, their confidence significantly increased, as revealed by the data from the questionnaire. The significant improvement in teachers' perceived competency after the intervention aligns with findings from previous studies highlighting the effectiveness of professional development programs in enhancing educators' self-efficacy (e.g. Guskey, 2002; Korthangen et al., 2001). Specifically, the combination of short training sessions and a CAR project mirrors best practices identified by Darling-Hammond et al. (2009), who emphasize the importance of active learning, collaboration, and sustained support for effective professional development. Guskey (2002) underscored the positive impact of professional development initiatives on teachers' self-perceptions of competence, emphasizing the importance of targeted interventions in bolstering educators' confidence in their abilities. Similarly, Korthangen et al. (2001) documented how reflective practices and collaborative learning opportunities can contribute to teachers' sense of efficacy and professional growth.

Teachers reported deeper engagement in various AR stages after CAR intervention. Data analysis revealed notable improvements in planning and conducting research, data collection and analysis, and applying the findings, mirroring trends identified by Cochran-Smith and Lytle (1993) and Glogovits (2002). Furthermore, the collaborative framework of CAR fostered peer support and

knowledge sharing, leading to more robust research designs and evidence-based practices, as corroborated by Darling-Hammond (2006) and Ponte and Chapman (2014).

Regardless of the empirical results presented above, the limited number of participants, specific context (two secondary schools), and the potential effect of the authors' advisory roles can affect the strength of the improvement observed. However, the result obtained has the potential of indicating the role of collaboration by teachers in changing their beliefs and solving their day-to-day teaching-learning problems that hamper students' expected achievement in English language competency. Moreover, the approach employed by researchers to collaborate with secondary school teachers, such as playing an advisory role, has been shown to foster meaningful engagement and promote sustainable change (Lakkala et al, 2021). By establishing a reciprocal relationship, where university researchers provide guidance and support while valuing the expertise of classroom practitioners, universities like Mettu University can significantly contribute to the enhancement of teachers' beliefs and practices in AR (Desta, 2018; Rahmah & Hartono, 2023). This collaborative approach not only strengthens ties between academia and the field but also fosters a culture of continuous improvement and innovation within educational settings.

This study paves the way for other researchers to expand the study to a broad, similar setting to increase the generalizability of the findings. Besides this, in Ethiopia, where the quality of education in general and the quality of English language education, in particular, suffer a lot, CAR can be one of the approaches of making the practitioners like teachers who play indispensable roles in the part of solutions for the problems at grassroots levels. Universities, teachers' education colleges, education sector policymakers and implementers (starting from the district education office to the MoE) should encourage teachers to engage in problem-solving activities like CAR.

CONCLUSION

The three-semester (15 months) intervention scheme, which was initiated with one-day training and engagement in CAR, demonstrated positive outcomes to teachers' initial meager beliefs as proved by quantitative data, which negatively affected their practices of conducting action research. The findings reveal a shift in English language teachers' perception, fostering acceptance of the importance and viability of CAR in addressing student language learning challenges. CAR was also found to enhance teachers' competency in conducting AR, as they demonstrated in the question implies that teachers, while collaborating, encourage each other, can reflect on their students' problems and make an effort to solve their problems. However, they sustain this momentum. School administrators and other stakeholders should play their roles in facilitating enabling grounds for teachers to consistently engage in systematic inquiry.

To yield further insight into the effects of CAR on teachers' practices of conducting AR and its subsequent impact on students' learning, additional research employing qualitative methods is warranted. Furthermore, expanding the scope of the study by incorporating a larger sample size and exploring diverse settings would broaden the generalizability of the findings and strengthen the conclusions.

ACKNOWLEDGEMENTS

We would like to thank all participants of this study (English language teachers at Mettu Secondary schools), the expert team who validated the data collection tools and Mettu Town Education office, and Mettu Secondary School principal, Abdis Bori Secondary Schools principal and Hachalu Memorial Secondary School principal for the facilitations the made.

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Appendix 1
Theme one: EFL teachers' belief about action research (AR)

Instruction: Label your level of agreement to the following statements. The questions in this part of the questionnaire are designed to collect data on your beliefs about conducting action research in general, with **no** specific reference to teaching English.

Key: Strongly disagree=1 Disagree =2 Unable to decide =3 Agree =4 Strongly agree=5

No	Items	Rating				
		1	2	3	4	5
1.	Action research requires expertise skill; therefore teachers face difficulty conducting it.					
2.	Action research provides teachers with opportunity to improve their practices					
3	Action research is one of the duties for teachers to seek solution for their classroom teaching learning problems					
4	Action research findings lead to action plan to solve a problem					
5	Seeking solutions for classroom problems doesn't require conducting research.					
6	Action research should be conducted by universities' fulltime researchers.					
7	Conducting action research is an extra duty for teachers or it's an overload					
8	English teachers can solve teaching- learning problems through peer discussion which leads to action research.					
9	I have in interest of conducting action research to solve my students' English language learning problems					
10	English teachers can apply various methods of teaching English based on their own research findings.					
11	English teachers' classroom research can bring solution to English language teaching – learning problems.					
12	Conducting action research helps English teachers enrich their teaching profession					
13	Teaching English is so complex that teachers should look for different techniques of teaching which are based on their own Action Researches.					
14	Action research can bring changes to English language teaching practices of teachers					

Appendix 2

Theme two: Teachers' beliefs about their own competency of conducting action research (AR)

Instruction: Label your personal belief (i.e. very low to very high) against each of the statements in the box.

Key Very Low =1 Low= 2 Medium=3 high =4 Very high =5

No	Items	Rating				
		1	2	3	4	5
1.	In my opinion, I have sufficient knowledge and skill to conduct Action Research.					
2.	I believe I can easily identify researchable problems in my English language teaching activities					
3	I can easily design research methods to solve the problem identified.					
4	I believe I can gather, analyze and interpret data.					
5	I can apply the results of my Action Research to solve the problems.					
6	I have knowledge of theories of English language teaching to be guided with while conducting action research.					
7	I can easily access and understand published educational research works related to English language teaching					
8	I believe I can solve every problem without conducting research since I have a long time experience of teaching.					

Appendix 3

Theme three: The following propositions are about **action research (AR) platforms of schools**. Decide to what extent you agree or disagree with the claims based on the trends of action research trends in your school. Put numbers 1-5 to show the level of your agreement or disagreement.

Key 1. Strongly disagree 2. Disagree 3. I don't know 4. Agree 5. Strongly agree

No	Items	Rating				
		1	2	3	4	5
	In my school:					
1.	There are clear guidelines and directives about conducting action research					
2.	There are continuous in-staff training opportunities which improve action research conducting skills of teachers					
3.	There are different incentives that motivate teachers to conduct action research					
4.	There are regular CPD programs that facilitate teachers' action research					
5.	There are no critical teaching/ learning problems that require teachers' engagement in action research					
6.	Conducting action research is a requirement for promotion of teachers' career structure					
7.	School administrators facilitate conditions for teachers to conduct action research					
8.	There is a research linkage with the university in the vicinity					
9.	There is a stage at which teachers present their research reports as an experience sharing					
10.	There is a research document archiving trend for teachers to access whenever they need.					

CONFLICT OF INTEREST STATEMENT:

There is no conflict of interest concerning the publication of this article