ENHANCING RESEARCH CAPACITIES OF EDUCATORS IN UNDERSERVED REGIONS: EVALUATING PROJECT C.A.R.E. THROUGH A PARTICIPATORY ACTION RESEARCH FRAMEWORK

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Abstract

This study evaluates the effectiveness of Project C.A.R.E. (Capacitating Action Research for Educators) in enhancing the research capacities of educators in underserved regions of Zamboanga del Norte. Guided by the Participatory Action Research (PAR) framework, the program aimed to develop competencies in action research, foster collaboration, and address systemic barriers faced by educators in low-resource contexts. Results revealed significant improvements in participants' action research competencies, with an overall mean increase of 42.53% in pre-test and post-test scores. Participants rated the program highly in clarity of objectives (5.00) and facilitator theme expertise (4.90). Thematic analysis highlighted empowerment, mentorship, and collaboration as key strengths, while challenges in resources and time management were noted. The findings underscore Project C.A.R.E.'s potential as a scalable model for enhancing research-driven professional development in underserved areas. Recommendations include addressing resource constraints, sustaining mentorship, and expanding the program to other regions. This study contributes to the discourse on equitable education, aligning with national and global priorities such as the Philippine Research Agenda and Sustainable Development Goal 4 (SDG 4).

Keywords*: Action Research, Teacher Training, Participatory Action Research, Underserved Regions, Professional Development, Research Capacity Building*

Introduction

Education is a cornerstone of sustainable development, and teachers play a pivotal role in shaping its quality and equity. Globally, efforts to achieve Sustainable Development Goal 4 (SDG 4) emphasize the importance of inclusive and equitable education for all. However, significant disparities persist, particularly in underserved regions where educators face challenges such as limited access to professional development, overwhelming workloads, and insufficient resources. According to the OECD (2021), only 44% of teachers worldwide feel adequately prepared to conduct research, with this percentage dropping even further in low-income regions. The lack of training in research-driven methodologies hinders teachers' ability to innovate and address localized educational challenges.

In the Philippines, these challenges are particularly pronounced. Teachers often manage class sizes of 45–60 students, far exceeding the global average, while also juggling administrative responsibilities and co-curricular activities (Vincent et al., 2024). This heavy workload leaves little time for professional development or engagement in research activities. Furthermore, research capacity among Filipino educators remains underdeveloped. Studies by Manila et al. (2022) and Almonicar (2022) reveal that many teachers are only slightly capable of conducting research and often require extensive mentorship to complete research-related tasks. The Department of Education (DepEd) has initiated professional development programs, but these primarily focus on pedagogy, with limited emphasis on equipping educators with research skills (PIDS, 2022).

Action research has emerged as a practical and empowering approach to bridging this gap. Defined as a collaborative, problem-solving methodology, action research enables teachers to identify and address real-world challenges through systematic inquiry (Stringer, 2014). It fosters a sense of ownership and agency among educators, empowering them to implement evidence-based solutions tailored to their specific contexts (Smith et al., 2021). In the Philippine context, participatory action research has shown promise in promoting social justice and improving teacher capacities in underserved areas (Anito & Baguinat, 2021).

Project C.A.R.E. capacitated educators through a Participatory Action Research (PAR) framework, combining structured training, mentorship, and hands-on application. Educators first underwent a pre-test to assess baseline research skills, followed by interactive workshops covering action research methodologies, proposal writing, and data collection. Mentorship and peer collaboration were integrated to refine research projects, leading to a post-test that measured competency gains. After evaluating the results, the project introduced a Personalized Research Mentorship Program (PRMP), offering specialized coaching, peer-learning clusters, mini-grants for research implementation, and research dissemination opportunities. This targeted intervention ensured that educators not only acquired theoretical knowledge but also developed practical, sustainable research skills applicable to classroom and institutional improvement.

This paper focuses on the early implementation of Project C.A.R.E., examining its objectives, methodologies, and initial outcomes over its first six months. It seeks to document the program's progress in building educators' research capacities and engaging communities in educational innovation. By analyzing its preliminary achievements and challenges, this

study provides insights into how similar initiatives can be adapted and improved to meet the unique needs of underserved regions.

Methods

This study employed a sequential explanatory mixed-methods research design to evaluate the effectiveness of Project C.A.R.E. (Capacitating Action Research for Educators) in enhancing the research capacities of educators in underserved regions of Zamboanga del Norte. Quantitative data were collected first through pre-test and post-test evaluations and feedback surveys, followed by qualitative data obtained from open-ended survey responses and semi-structured interviews. The integration of quantitative and qualitative methods allowed for a comprehensive evaluation of the program, capturing both measurable outcomes and in-depth participant experiences.

The study was guided by the Participatory Action Research (PAR) framework (Stringer, 2014), which emphasizes collaborative problem-solving and stakeholder involvement. The PAR approach positioned participants as active contributors to the research process, promoting a sense of ownership and contextual relevance. Through reflection, iteration, and teamwork, participants identified challenges, designed solutions, and implemented action research initiatives addressing real-world needs in their classrooms and communities.

The study involved 50 educators and students from Colegio de San Francisco Javier and Rizal Memorial Institute of Dapitan City, two underserved private schools in Zamboanga del Norte. These schools were selected based on socioeconomic challenges, geographic isolation, and low research productivity, as they serve communities with limited access to professional development and research training opportunities.

Respondents were selected based on specific criteria. All teachers from the selected schools were included through total enumeration sampling to comprehensively assess their research capacity. Meanwhile, students officially enrolled in research and thesis courses for the semester were selected, as they are directly engaged in research activities and are key beneficiaries of the capacity-building initiative.

The inclusion of both educators and students ensures a well-rounded evaluation of Project C.A.R.E., capturing insights from experienced teachers and emerging researchers. By targeting institutions with documented low research engagement, as evidenced by formal requests from school administrators, the study highlights the urgent need for research training and professional development in these underserved areas.

Empowering educators to develop strong research skills is a multifaceted process encompassing knowledge acquisition, hands-on practice, and critical thinking. This section of the study highlights the key activities undertaken by participants to demonstrate their improved research skills and presents qualitative findings derived from their experiences.

To assess improvements in educators' action research capacity, the study examined collaboration, stakeholder engagement, time management, and mentorship training over six months. The analysis focused on specific aspects, including the frequency of collaborative

meetings, types of stakeholder engagement activities, time logs, and mentorship feedback/evaluation sessions. These data provide both quantitative and qualitative evaluations of the impact of these interventions, offering a deeper understanding of how Project C.A.R.E. strengthened research skills among educators in underserved areas.

Both schools serve communities with limited economic resources, where professional development opportunities are scarce. Their rural locations further restrict access to mentorship and training programs, while documented low research productivity—evidenced by letters from school administrators requesting training—highlighted the critical need for capacity building. Participants included classroom teachers with varying levels of teaching experience, ensuring diverse perspectives on the program's impact.

Data collection involved three primary methods: pre-test and post-test evaluations, quantitative feedback surveys, and qualitative responses from open-ended surveys and interviews. These methods were designed to capture the program's outcomes from multiple angles and to triangulate findings for enhanced reliability.

Pre-test and post-test evaluations assessed participants' baseline and post-training competencies in action research. Using an adapted Action Research Competency Assessment Tool (Stringer, 2014), participants rated their confidence in four areas: problem identification, research design, data collection, and proposal writing. The tool employed a 5-point Likert scale, where 1 indicated "Not confident at all" and 5 indicated "Very confident." The pre-test was administered before the training to establish baseline competencies, while the post-test measured improvements immediately following the training. Mean scores and percentage improvements were calculated to quantify the program's impact.

Quantitative feedback surveys captured participants' perceptions of the program's clarity, relevance, facilitation, and logistical aspects. The surveys used a 5-point Likert scale to assess various dimensions, including objectives, facilitator expertise, time management, and materials. Descriptive statistics, such as mean scores and standard deviations, were computed to summarize participant feedback and highlight key strengths and areas for improvement.

Quantitative data from pre-test and post-test evaluations and feedback surveys were analyzed using descriptive statistics. Mean scores for each competency were calculated to measure participant improvement, and percentage increases were derived to highlight areas of significant growth. Feedback survey results were summarized in tabular format to provide a clear overview of participant satisfaction across various program components.

Qualitative data were gathered through open-ended survey questions and semi-structured interviews. Guided by the PAR framework, these methods encouraged participants to reflect on their experiences, challenges, and insights. Interviews were conducted with a subset of participants to capture in-depth narratives, while open-ended survey responses provided broader perspectives. Thematic analysis was used to identify recurring themes, including empowerment through research skills, collaboration and stakeholder engagement, resource constraints, time management, and mentorship. Representative quotes were selected to illustrate key findings and provide a richer understanding of participant experiences.

Qualitative data were analyzed using thematic analysis. Responses from open-ended surveys and interviews were coded and categorized into themes that reflected participants' experiences and challenges during the training. Recurring themes, such as empowerment, collaboration, and mentorship, were further explored through representative quotes, ensuring participants' voices were authentically represented.

The integration of quantitative and qualitative findings was achieved through triangulation, providing a comprehensive evaluation of Project C.A.R.E.'s effectiveness. Triangulation validated the findings across multiple data sources, ensuring the reliability and robustness of the results.

Ethical Considerations

The study adhered to ethical research standards to protect participants' rights and ensure the validity of findings. Participants provided informed consent, acknowledging the study's objectives, procedures, and confidentiality measures. Participation was voluntary, with the option to withdraw at any time without repercussions. Data were anonymized to safeguard participants' identities, and findings were presented transparently to reflect their experiences accurately. Letters of request from school administrators further underscored the ethical and practical relevance of the program, as these documents highlighted the schools' need for training and capacity building in action research.

Results and Discussion

This section presents the findings from Project C.A.R.E. based on the triangulation of data sources: quantitative evaluation metrics, pre-test and post-test scores, and qualitative thematic analysis. Each data set is analyzed to provide a comprehensive understanding of the program's outcomes, with interpretations and connections to relevant literature.

Quantitative Evaluation Metrics

Quantitative evaluation metrics were analyzed using descriptive statistics, calculating mean scores for each category. Scores were aggregated to assess participant perceptions of the program's objectives, facilitation, materials, and session management. The overall mean score was 4.90, indicating high participant satisfaction. Standard deviations ranged between 0.10 and 0.25, reflecting consistent positive feedback across participants.

Table 1. Quantitative Evaluation Metrics

Category	Metric	Score (Mean)
Objectives	Clarity: How clear were the objectives?	5
	Relevance: How relevant were the objectives?	4.93
	Achievability: Were the objectives achievable?	4.92
	Time Bounded: Were the objectives time bounded?	4.81
	Measurable: Were the objectives measurable?	4.81

Facilitators/Lecturers	Demonstrates mastery of the subject matter	4.9
	Presents reliable facts and details about the subject	4.92
	Uses practical situations to explain concepts and principles	4.9
	Defines and presents the course objectives clearly	4.88
	Promotes positive relationships with participants	4.93
Time Management	Training sessions started and ended on time	4.83
	Each topic completed as scheduled	4.92
	Training conducted regularly according to the time frame	4.88
	Consultation time provided to ensure participants' understanding	4.98
	Sessions organized and well managed	5
Materials and Equipment	Instruction materials supported the training purpose	4.95
	Quality supplies and materials used	4.81
	Tools and equipment for the training were adequate	4.75
	Organization provided sufficient training materials	4.9
Assessment (Performance-Based)	Process-based performance	4.93
Overall Score		4.9

Participants rated the program highest in clarity of objectives (5.00) and session organization (5.00), indicating that the training effectively communicated its goals and maintained excellent logistical execution. Consultation time (4.98) and facilitator expertise (4.90) also scored highly, reflecting the value of mentorship and guidance provided. The relatively lower scores for resource adequacy (4.75) and time-boundedness (4.81) indicate room for improvement in providing materials and aligning the program timeline with participants' schedules.

These findings are consistent with Manila et al. (2022), who highlighted the importance of clarity and practical applicability in teacher training programs. The high ratings for facilitation align with the OECD TALIS Report (2021), which emphasizes that facilitator expertise is a key determinant of successful professional development. The challenges in resources echo Vincent et al. (2024) findings, which identified material constraints as a significant barrier in underserved areas.

Pre-Test and Post-Test Evaluation

Pre-test and post-test scores were analyzed to measure participants' improvement in research competencies. Mean scores for each component (problem identification, research design, data collection, and proposal writing) were calculated, and percentage increases were derived to quantify the impact of the training.

Table 2. Pre-Test and Post-Test Scores

Component	Pre-Test Score (Mean)	Post-Test Score (Mean)	Improvement
Problem Identification	3.15	4.6	1.45
Research Design	3.1	4.5	1.4
Data Collection Techniques	3.05	4.35	1.3
Proposal Writing	3	4.4	1.4
Overall Score	**3.08**	**4.46**	**1.38**

The post-test results demonstrated significant improvement across all components, with an overall increase of 1.38 points (42.53%). The most substantial gains were observed in problem identification (+1.45) and proposal writing (+1.40), reflecting the program's emphasis on these areas through mentorship and practical applications.

The improvements align with Stringer's (2014) assertion that participatory action research frameworks are effective in building educator capacity. The findings also corroborate Vincent et al. (2024), who identified targeted training as essential for developing practical research skills. The significant increase in proposal writing scores emphasizes the value of structured mentorship, as highlighted by Manila et al. (2022).

Qualitative Data

Qualitative data from open-ended surveys and interviews were analyzed using thematic analysis. Responses were coded to identify recurring themes, which were organized into five key categories: empowerment through research skills, collaboration and stakeholder engagement, resource constraints, time management, and mentorship.

Table 3. Qualitative Thematic Analysis

Theme	Description	Illustrative Quote	Interpretation
Empowerment Through Research Skills	Participants reported increased confidence in conducting action research.	*"The training empowered me to explore solutions to classroom issues systematically."*	The program successfully built participants' research capacities, addressing key professional development gaps (Manila et al., 2022).
Collaboration and Stakeholder Engagement	Emphasis on working with community stakeholders to ensure research relevance.	*"Collaborating with community leaders enriched the relevance of our research proposals."*	Collaborative research ensured alignment with local needs, consistent with participatory action research principles (Stringer, 2014).

Challenges in Resource Constraints	Difficulties accessing resources, such as materials and funding, for research implementation.	*"The lack of sufficient tools and time remains a challenge despite the excellent training."*	Limited access to resources remains a barrier to effective research engagement, as noted by Vincent et al. (2024).
Time Management and Workload	Balancing research activities with teaching responsibilities was a challenge for participants.	*"It was hard to find time for research while managing my teaching duties."*	Overburdened workloads hindered research engagement, consistent with findings from the OECD TALIS Report (2021).
Value of Mentorship	Continuous support from mentors was instrumental in refining research proposals.	*"The mentors provided valuable guidance that helped me refine my proposal and address challenges effectively."*	Mentorship bridges the gap between theoretical knowledge and practical application, fostering high-quality research outputs (Manila et al., 2022).

Participants consistently highlighted the program's transformative impact on their confidence and competence in action research. Collaboration with stakeholders and the mentorship component were viewed as key strengths, while resource and workload challenges were identified as barriers.

These findings align with Stringer's (2014) argument that participatory methodologies enhance contextual relevance and educator agency. The challenges reported are consistent with Vincent et al. (2024) observations on resource inequities in underserved areas.

Conclusions

The findings of this study demonstrate the initial success of Project C.A.R.E. (Capacitating Action Research for Educators) in enhancing the research capacities of educators in underserved regions of Zamboanga del Norte. The program effectively addressed the general objective of developing competencies in action research, fostering collaboration, and tackling systemic barriers, as evidenced by improvements across multiple dimensions of evaluation.

1. Enhanced Research Competencies
   The pre-test and post-test evaluations revealed significant improvements in participants' abilities to conduct action research. Competencies in problem identification, research design, data collection, and proposal writing showed marked increases, with an overall mean improvement of 42.53%. This highlights the program's success in equipping educators with the skills necessary to identify and address classroom and community challenges through systematic research. The mentorship and guided proposal development components played a pivotal role in achieving these outcomes, aligning with the first specific objective of the study.

2. Positive Participant Perceptions
   Quantitative evaluation metrics demonstrated high participant satisfaction, with mean scores for clarity of objectives (5.00), session organization (5.00), and consultation time (4.98) underscoring the program's strengths. Participants perceived the training as relevant and effectively facilitated, meeting the second specific objective of evaluating program clarity, relevance, and facilitation. These results affirm the program's design and implementation as responsive to the professional development needs of educators in underserved contexts.

3. Insights into Participant Experiences
   The qualitative thematic analysis provided valuable insights into participants' experiences, identifying key themes such as empowerment through research skills, collaboration and stakeholder engagement, resource constraints, time management, and the value of mentorship. These themes highlight both the transformative impact of the program and the persistent challenges faced by educators in low-resource settings. This aligns with the third specific objective, which sought to explore participants' experiences and challenges during the training.

Overall, the study underscores the potential of Project C.A.R.E. as a replicable and scalable model for enhancing research capacities among educators in underserved regions. By aligning with the Participatory Action Research framework, the program fostered collaboration, contextual relevance, and stakeholder engagement, empowering educators to become agents of change within their schools and communities. However, the findings also emphasize the need for sustained support to address resource and workload challenges, ensuring the long-term sustainability and impact of the program.

These conclusions provide actionable insights for refining and expanding Project C.A.R.E. while contributing to broader efforts to improve educational equity and quality through research-driven professional development.

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This work is dedicated to the educators striving to make a difference in their classrooms and communities through research and innovation.

Disclosure: Use of AI Tools

In compliance with Threshold's guidelines for the ethical use of artificial intelligence (AI) and automated tools in academic research, the authors disclose the use of OpenAI's ChatGPT for enhancing the quality and clarity of the manuscript. ChatGPT was utilized to assist in refining the language, structure, and formatting of the text, ensuring a high level of academic rigor and coherence. The authors confirm that all data analysis, critical interpretations, and conclusions presented in this manuscript were conducted independently by the research team. The AI tool was employed strictly for editorial assistance and did not influence the scientific content or ethical considerations of the study. All intellectual contributions from the AI tool are in accordance with the authors' original intentions and have been reviewed and approved by all co-authors. The use of ChatGPT complies with Threshold's ethical standards and guidelines for transparent reporting of AI involvement in research. The authors remain fully responsible for the integrity and accuracy of the content presented in this paper.

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