



Regular Article

Cultivating teacher-inquirer identity through action research design: A study of in-service teachers in Spain

Rocío García-Carrión^{a,b}, Alba García-Cid^{c,*} , Lourdes Villardón-Gallego^a, Isabel Muñoz-San Roque^d, Belén Urosa^d

^a Faculty of Education and Sport, University of Deusto, Bilbao, Spain

^b Ikerbasque. Basque Foundation for Science, Spain

^c Faculty of Health Science, University of Deusto, Bilbao, Spain

^d Faculty of Faculty of Humanities and Social Sciences, Comillas Pontifical University, Madrid, Spain

ARTICLE INFO

Keywords:

Teacher training
Teacher beliefs
Action research
Teacher identity
Teacher reflections

ABSTRACT

Action research enables teachers to critically reflect on their teaching practices while generating insights that promote improvement. However, in Spain, teacher training programs often underemphasize research skills, which has significant implications for teacher identity development. This qualitative study seeks to extend our understanding of how action research design can facilitate the development of a teacher-inquirer identity among in-service educators. Eighteen in-service teachers participated in a Master's course on Educational Research, where they designed an action research project as part of their training and produced reflective journals, fourteen of which were subsequently analyzed through content analysis. Employing the motivational model as a conceptual framework, this study highlights how engagement with structured action research design supports the transformation of teachers' professional identities by challenging existing beliefs about research, reshaping perceptions, and providing new insights into classroom practices. The findings have important implications for teacher training programs, practitioners, and researchers seeking to enhance teaching quality and student learning outcomes.

1. Introduction

Teachers' professional identity has been subject to ongoing transformation, influenced by global changes in epistemological perspectives and the shifting demands placed on the teaching profession. Historically, being a "good" teacher was primarily associated with having extensive subject knowledge, a perspective grounded in Shulman's (1986) research on teacher knowledge. However, contemporary educational inquiry has broadened this standpoint by acknowledging the significance of both professional identity and the quality of teacher education in sculpting effective pedagogy (Brooks & Scott, 2000; Day & Leitch, 2001).

In the current educational milieu, teaching is recognized as a complex and multifaceted vocation that encompasses cognitive, emotional, and ethical dimensions. Teacher attributes and dispositions such as care, equity, and trust are critical for promoting students' academic, social, and emotional development (Noonan, 2019). Hence, teachers'

professional identities must reflect this complexity, addressing not only the question of "how to be" but also "how to act" as a teacher (Schutz et al., 2020). Teacher identity, according to Clandinin et al. (1999), develops through personal narratives—teachers' "stories to live by"—which illustrate how they perceive and define themselves in their professional roles.

The development of teacher identity is an ongoing, context-dependent process shaped by the interplay of personal beliefs, professional experiences, and societal discourses, as it evolves through the negotiation of these interconnected factors (Scott & Dinham, 2008). This nonlinear process intertwines past experiences as a student with present teaching encounters, evolving through a dynamic interaction between internal convictions and external expectations (Berliner, 2004; Dewey, 1902). As teachers construct their professional narratives, various dimensions of their identity come to the forefront: subject matter expertise, pedagogical proficiency, facilitation of learning, and critically, the role of an investigator in their own teaching practice (Badia et al., 2020;

* Corresponding author.

E-mail addresses: rocio.garcia@deusto.es (R. García-Carrión), garcia.alba@deusto.es (A. García-Cid), lourdes.villardon@deusto.es (L. Villardón-Gallego), isabelmunosroque@comillas.edu (I. Muñoz-San Roque), buropa@comillas.edu (B. Urosa).

<https://doi.org/10.1016/j.ssaho.2025.101591>

Received 24 November 2023; Received in revised form 5 May 2025; Accepted 15 May 2025

Available online 21 May 2025

2590-2911/© 2025 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Freire, 1985; Jonker et al., 2018; Korthagen et al., 2006).

The concept of teachers' professional identity has garnered increasing scholarly attention over the past fifteen years, with research concentrating on how teachers behave, perform their roles, and engage in learning (Akkerman & Meijer, 2011; Beauchamp & Thomas, 2011; Beijard et al., 2004; Meijers & Hermans, 2018). This burgeoning literature underscores the significance of inquiry in teacher identity formation, with the inquiry being conceptualized as a methodical and systematic process of exploration in which educators critically examine their pedagogical practices to stimulate enhancement. This inquiry frequently emerges when teachers encounter challenges or issues within their professional environments, which prompts critical reflection and deliberation. As Cochran-Smith and Lytle (2009) argue, inquiry processes emerge at the intersection of theory and practice, enabling teachers to not only apply knowledge but also generate it. This identity as a teacher-researcher or teacher-inquirer is crucial for fostering critical thinking, self-efficacy, and agency in the teaching profession (Trent, 2011).

According to Yendol-Hoppey et al. (2019), the formation of a teacher's professional identity as an inquirer entails embedding inquiry into routine practice and enabling educators to perceive themselves as active creators of knowledge rather than their passive recipients. A substantial body of literature identifies action research as both a reflective and investigative instrument, serving as a powerful tool for promoting teachers' growth as inquirers into their own practices. Indeed, research demonstrates that teachers who engage in action research are better equipped to integrate theoretical knowledge with classroom practice, leading to more effective instructional strategies and assessment techniques (Ismail et al., 2019). This inquiry-based approach enhances teachers' ability to contribute to the discourse on effective teaching, which ultimately leads to improved educational outcomes (Earl & Katz, 2006; Earl & Timperley, 2008).

The development of a teacher-inquirer identity should be encouraged early in teacher training, as it can shape how teachers approach their work, fostering autonomy and critical reflection (Darling-Hammond, 2006). Without this emphasis, both the quality of teaching and student learning outcomes are prone to suffer (Johnson et al., 2015). Reflective practice and inquiry are fundamental elements in teacher identity construction, offering the means for educators to examine their beliefs, practices, and professional growth (Dewey, 1963; Fives & Gill, 2014). Through systematic inquiry, teachers gain insight into the complexities of their classrooms, which enables them to challenge their assumptions and improve both their teaching and their students' learning outcomes (Marsh & Deacon, 2024; Menter et al., 2011). However, despite its potential, research is often marginalized in teacher education programs, particularly in contexts like Spain, where emphasis tends to be placed more on practical knowledge acquired in classrooms than on educational research (Valverde, 2015).

In light of the existing body of research, the present study seeks to extend our understanding of how action research design can facilitate the development of a teacher-inquirer identity among in-service educators. Initiated as part of an effort to integrate research-based inquiry into teacher education, this study responds to the recognized need for fostering research competencies among in-service teachers in Spain. Conducted within a Master's program in Pedagogy, the study leveraged a structured action research-based course that emphasizes research-oriented professional development. Given the participants' background as in-service teachers, the program provided a unique opportunity to examine how engagement with systematic inquiry influences professional identity formation.

1.1. A motivational framework to explore teacher identity

Teacher identity can be understood as a second-order construct, encompassing self-concept, motivation, self-efficacy, and task perception (Hanna et al., 2020). Apart from that, Pintrich and De Groot (1990)

proposed that exploring teacher motivation, beliefs and emotions is crucial for capturing the complexity of teaching and learning processes. Similarly, Kelchtermans (1993) emphasized motivation, task perception, and future perspectives as key components of professional identity.

To explore teacher motivation, the Expectancy-Value Theory (Eccles, 1983) provides a useful lens. It identifies two key components of teacher motivation: (a) the value a teacher assigns to a task (its importance or utility) and (b) their expectation of success in performing the task (self-efficacy). Task value reflects teachers' personal goals and beliefs about the task's relevance to their professional identities and aspirations (Wigfield & Eccles, 2000) while self-efficacy refers to beliefs in task completion success.

Pintrich and De Groot (1990) extended this model by adding an emotional dimension, acknowledging the role of emotions in motivation. Although originally designed for students, this model has been adapted to the study of teacher motivation and identity, with evidence showing that teachers with higher self-efficacy are more likely to adopt innovative instructional strategies and positively influence student outcomes (Klassen et al., 2011).

In addition to self-efficacy beliefs, autonomous or intrinsic motivation (Deci & Ryan, 2000) plays a crucial role in maintaining engagement in demanding tasks. Thus, teachers driven by intrinsic motivation are more likely to pursue continuous professional development than those motivated by external factors (Roth et al., 2007). Likewise, emotions such as pride, frustration, or satisfaction profoundly affect teachers' motivation and engagement, influencing their professional efficacy (Gill & Hardin, 2015; Sutton et al., 2009).

By framing teacher identity within a motivational model, the study aims to investigate (a) how engaging in action research design influences teachers' perceptions of educational research, (b) how their emotional responses to the research process affect their professional growth, and (c) how teachers' expectations shape their evolving identities as reflective practitioners.

2. Method

2.1. Context and training

This study was part of a collaboration between two Spanish universities within an online Master's program in Pedagogy. The 6-credit Educational Research course, held between July and November 2022, was designed to cultivate competencies in educational research among in-service teachers. Action Research was selected as the fundamental approach due to its cyclical, practical, and collaborative nature (Kemmis & McTaggart, 1988), making it particularly relevant for teacher development. Its potential to improve teaching and enact meaningful educational change has been widely acknowledged (Bodman et al., 2012).

The course was structured into four sequential units: (1) Introduction to Action Research, (2) Quantitative Research Techniques, (3) Qualitative Research Techniques, and (4) Action Research Project.

Unit 1 (Introduction to Action Research) introduced participants to the fundamental principles of Action Research through lectures, readings, and videos. Conducted synchronously over one week (2 h per day, totaling 10 h), this unit familiarized students with the methodological framework and required them to identify a problem in their own teaching practice.

Unit 2 (Quantitative Research Techniques) covered methodological tools for diagnosing and analyzing the identified problem, as well as for evaluating both the implementation process and the impact of the project. Participants explored different quantitative research techniques, reviewed relevant literature, and examined evidence-based strategies for addressing the issue.

Unit 3 (Qualitative Research Techniques) focused on non-numerical research methods, such as observations, interviews, focus-groups, and thematic analysis. They also designed monitoring techniques to assess

the diagnosis, implementation process and evaluate the impact of their action plans.

Unit 4 (Action Research Project) brought together the skills acquired in previous units, guiding participants in formulating a structured action-research plan, including monitoring the action and assessing the impact. Participants developed an action plan based on the problem they had identified, integrating scientific evidence and the knowledge acquired in the previous units into their proposed interventions. They shared their projects with peers, receiving feedback for refinement. Due to the course's duration, participants were unable to implement their action plans fully; however, they engaged in a collective reflection session at the course's conclusion. This session encouraged them to apply their newly acquired knowledge in their professional contexts beyond the course.

While the course primarily aimed to enhance participants' research competencies, a key objective was also to support the integration of research into their professional identities.

2.2. Participants

Eighteen in-service teachers enrolled in the course participated in the study. The participants had a mean age of 44.7 years ($SD = 6.51$), ranging from 29 to 53 years, and an average teaching experience of 18.2 years ($SD = 6.47$). Participation in the study was voluntary, with participants given the option to submit reflective journals for analysis. Four individuals chose not to submit their journals, resulting in a final sample of 14 reflective journals: six authored by women and eight by men.

2.3. Instrument

To gain deeper insights into teachers' reflections throughout the action research project-based course, reflective journals were employed as the primary data collection instrument. These journals served as the primary data source for the study, providing insights into participants' engagement with action research and the development of their teacher-inquirer identities. Thus, the participants document their thoughts, emotions, and evolving perspectives on educational research and practice (Bashan & Holsblat, 2017). By systematically reflecting on both theoretical concepts and practical experiences, participants engaged in a process of self-inquiry, facilitating their transition toward a teacher-inquirer identity.

The journal prompts were designed to encourage critical reflection on key aspects of action research and its relevance to teaching practice. Specifically, participants were asked to write their responses to the following open-ended questions:

- What do you think research contributes to education and to your professional profile?
- How do you think action research can help you educate in a way that is consistent with your values?
- From what you have learned, what elements will be useful for your professional practice?
- Why is it important to collect information in educational contexts?
- What has your learning contributed to your teaching or educational competencies?
- Do you think you will use the instruments studied in this unit in the future?

These prompts were intentionally designed to stimulate deep introspection and allow participants the flexibility to articulate their personal and professional transformations in response to the course. While participants had autonomy over the length and depth of their responses, the structure of the prompts ensured that reflections were aligned with the study's objectives, fostering an integrated research-oriented mindset among teachers.

To ensure validity, the initial set of journal prompts was developed

by the researchers in alignment with the study's theoretical framework. The draft was subsequently reviewed by the course instructors and three experts in educational research. As no substantive revisions were deemed necessary, the final version of the prompts was implemented as originally designed.

2.4. Procedure

This study was conducted in accordance with all relevant legal and institutional ethical standards (Aristos Campus Mundus, ACM2022_01, dated May 11, 2022). Prior to the commencement of the study, participants were fully informed about the research objectives, the voluntary nature of their involvement, and the confidential treatment of their data. Informed consent was obtained from all participants, and pseudonyms were assigned to ensure anonymity.

Throughout the course, participants were required to complete reflective journal entries at the end of each unit, allowing them to document their evolving understanding of action research, their professional beliefs, and their approach to integrating research into their teaching practice. This process provided longitudinal insights into their engagement with action research and the development of their teacher-inquirer identity.

By collecting reflections at different stages of the course, the study aimed to capture participants' progressive conceptual shifts and emotional engagement with action research. The structured yet flexible nature of the journal entries allowed for both individualized and comparative analysis, enabling the identification of key themes related to teachers' evolving research competencies and identity formation.

2.4.1. Analysis

A total of 27,000 words were analyzed across the 14 reflective journals, with a qualitative content analysis aimed at capturing the evolution of participants' identities as teacher-inquirers. The analysis was guided by Pintrich and De Groot's (1990) motivational framework, which includes three key dimensions: Expectancy, Value, and Affect. These dimensions provided a structured lens for examining how participants perceived their research capabilities, the significance they attributed to research, and the emotional responses associated with engaging in action research.

To ensure systematic and rigorous analysis, four researchers independently categorized the content of the journals using the predefined framework. In addition to this deductive approach, an inductive analysis—in line with the principles of grounded theory (Strauss & Corbin, 1990)—allowed for the emergence of an additional category: "Transformation". This category was integrated into the framework as it captured broader identity shifts that were not fully encapsulated by the initial three motivational dimensions. Specifically, "Transformation" reflected changes in teachers' self-perception as researchers, as well as the emotional challenges and personal fulfillment associated with adopting a research-oriented professional identity.

By combining deductive and inductive approaches, the study ensured a comprehensive understanding of how action research training and project design facilitated professional identity transformation. The inclusion of the "Transformation" category enriched the interpretation of findings, highlighting the interplay between expectancy (belief in one's ability), value (perceived importance), and affect (emotional engagement).

To assess the reliability of the categorization process, Fleiss's kappa coefficient—a statistical measure for evaluating inter-rater agreement among multiple raters for categorical variables—was calculated (Fleiss et al., 2003). The coefficient adjusts for chance agreement, making it widely accepted in social science research. IBM SPSS version 28 was used for the analysis.

Agreement levels were interpreted following Landis and Koch's (1977) guidelines, which define slight agreement as <0.20 , fair agreement as $0.21\text{--}0.40$, moderate agreement as $0.41\text{--}0.60$, substantial

agreement as 0.61–0.80, and almost perfect agreement as 0.81–1.00. The results indicated sufficient agreement in the “Expectancy” category, while “Value”, “Affect”, and “Transformation” demonstrated moderate to strong levels of agreement. Discrepancies between researchers’ categorizations were resolved through consensus discussions, during which each researcher articulated their reasoning to arrive at a shared understanding.

The qualitative analysis provided an in-depth exploration of how participants’ identities as teacher-inquirers evolved throughout the action research design process. The categorization framework, integrating both deductive and inductive approaches, allowed for a nuanced interpretation of identity transformation. Table 1 presents the final categories identified in the analysis, along with their respective inter-rater agreement values, illustrating the consistency of the coding process and the reliability of the findings.

3. Results

The frequencies of the categories derived from the content analysis of the reflective journals are summarized in Fig. 1. The most frequently identified category was “Value” indicating participants’ recognition of

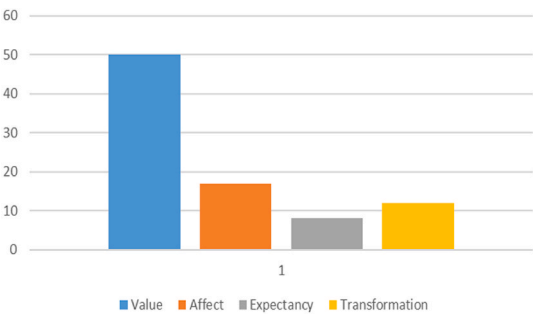


Fig. 1. The frequency of each category in the journals.
Source: Author’s elaboration

research as an integral aspect of their teaching practice, while “Expectancy” was the least represented. In the following sections, we present the findings for each category, including representative quotations that best capture the essence of each theme.

3.1. Value

The majority of participants expressed an increased awareness of the value of research in improving teaching practices. A total of 50 responses were categorized under “Value”, reflecting participants’ growing perception of research as a professional necessity rather than a peripheral activity.

For example, June noted, “I consider research to be key in every sphere of the field of education”, while Inés emphasized the role of research in evidence-based decision-making, stating, “Educational research is necessary and, in my view, the best way to obtain evidence that helps us with decision making in our educational practice”. Similarly, César highlighted the importance of rigor in research, asserting: “Formal research processes are needed to obtain the necessary data, with sufficient reliability, in order to draw the right conclusions in any important topic to be dealt with”.

Beyond its instrumental value, several participants emphasized the intrinsic connection between research and their professional identities, perceiving inquiry as an inherent aspect of being an educator. Andrés described his mindset:

I feel that educational research should be part of the educator’s DNA—curiosity, the desire to keep growing, to gain deeper knowledge, and many other virtues are a part of one’s vocation, at least in my case, as a teacher or educator.

Participants also identified practical benefits of research, particularly, the role of action research in fostering collaboration and enabling informed decision-making in their classrooms:

Action research makes possible an active interaction between all the educational agents in the classroom (faculty and students); this is positive because it places teachers in contact and in collaborative work, and even the students can benefit from the improvement. (Jon)

Additionally, participants noted that research adds rigor and credibility to their educational work. Inés stated, “It ensures the scientific validity of the ideas and references, thus enhancing the rigor of the research work”, while June added, “In my particular case, it will help me find better ways to collect information so that I can later analyze it and make better decisions when I am assessing a situation”.

Participants also recognized the utility of research in improving teaching and learning processes, particularly through the systematization and organization of information, which helps to improve the quality of professional practice.

[Research techniques] open up a rather clear horizon (...) for measuring teaching effectiveness and for establishing adequate

Table 1
Definitions of the categories and Inter-rater agreement.

Category	Definition	Methodology of extraction	Inter-rater agreement (Fleiss’s kappa)	Degree of agreement
Value	Statements highlighting the general importance of investigative effort in teaching practice, either for its benefits or its utility	Deductive	kappa = 0.521, z = 10.675, p = 0.000	Moderate
Affect	Statements highlighting participants’ emotions, feelings, and frames of mind regarding the research function	Deductive	kappa = 0.547, z = 4.830, p < 0.001	Moderate
Expectancy	Statements reflecting participants’ beliefs of being capable of engaging in educational research activities, and their goals to undertake research activities in the future	Deductive	kappa = 0.294, z = 6.032, p < 0.001	Sufficient
Transformation	Statements reflecting participants’ perception of having modified their behaviour, opinion, or value given to educational research	Inductive	kappa = 0.660, z = 13.526, p = 0.000	High

Source: Author’s elaboration

performance indicators, so you can verify the suitability of the strategies that have been applied. (César)

It is helpful to me in bringing systematization and evidence to my educational practice. (Rosa)

Action research processes can be very useful to us as teachers in coping with our daily tasks. They develop in us a kind of culture and continuous improvement dynamic, also systematizing in such a way that it helps us and gives credibility to our efforts. (Andrés)

3.2. Affect

Emotional aspects, including motivation, hope, and interest in the subject matter, were referenced 17 times in the reflective journals. Participants expressed that engaging with action research concepts instilled a sense of purpose and enthusiasm for their profession. For instance, Inés remarked, "The idea of empowering teachers to use knowledge and reflection in their daily practice seems necessary to me and very motivating." Similarly, María described the experience as inspiring: "This unit has meant [the chance] to dream, and see that the dream is possible".

A recurrent theme was hope for educational improvement, with several participants indicating that action research instilled a sense of optimism in them. Olivia articulated, "Action research for me brings hope that you can improve education based on evidence".

Participants also expressed a desire to further engage with action research in the future, reflecting a growing interest in continuing their professional development. Inés, for example, shared, "Action research is a very useful tool that I'm excited to learn about and learn how to do it", while Carmen expressed a similar sentiment: "I see that it enriches my current function at school, and at the same time it piques my interest. I don't rule out getting more training in this area".

3.3. Expectancy

A total of eight responses reflected participants' desire and expectation to apply research in their professional practice. While the study did not involve direct implementation of action research, participants conveyed confidence in using research methods for various aspects of teaching, planning, and assessment.

For example, Julian remarked: "It's going to help me in planning and design of my academic subject, and it will enrich the procedures I plan to use in evaluation". Similarly, Jon emphasized research's practical applications:

In the future I think I will use these techniques in different contexts ... they can be useful for certain specific experiences with my tutor group or in my academic subjects.

Additionally, participants also highlighted their intent to critically examine and refine their teaching practices. As Jon reflected:

I think this will help me to better analyze my daily effort, and to be aware of and handle research sources that can be useful to me in the future for exploring new educational practices.

June added that research would aid her in "reformulating some of [her] tools and generating new ones".

In addition to applying research to existing practices, participants noted the potential for innovation in their teaching strategies. Olivia articulated the perspective "[What I have learned] is going to give me tools to go one step further in the teaching impact that I wish to achieve".

3.4. Transformation

Although participants did not conduct an action research intervention, their engagement with the course material and the design of the

action research project contributed to shifts in their professional identities. A total of 12 responses indicated a conceptual transformation regarding the role of research in their teaching practice. Participants described a renewed vision of their teaching roles, where systematic inquiry became an essential part of planning, assessment, and decision-making. Rosa explained:

It has equipped me with greater rigor in planning my class sessions, as well as in evaluating them. It has provided me with a wide range of ways to obtain data and reach conclusions.

Similarly, Inés noted a shift in her observational and analytical approach to teaching:

It's given me a new vision of my teaching role, with more value given to classroom observations, interactions, and information collected day by day, shining a light for me to be attentive and find feasible ways to systematize this valuable information that comes from direct experience with students and with learning processes.

Some participants acknowledged that research had deepened their professional reflection, fostering a culture of continuous improvement. Rosa commented:

It has made me look at my way of doing things and take a more professional stance ... From educational research, I am gaining a continuous reflection on my teaching practice.

Others emphasized the challenge of rethinking established practices, as articulated by Julian: "It encourages me to not settle for my preconceived view, and to challenge the way I am used to doing things, in order to improve". While some initially found research intimidating, their engagement with the course helped them recognize its potential for meaningful change: "Although at first it seemed impossible ... I have realized that it is possible to change things in the way we are working, in order to improve our educational practice" (María).

Finally, some participants reported that the course heightened their awareness of previously overlooked aspects of their professional work. Carlos reflected: "There are many aspects I wasn't aware of, or I didn't give them the importance they really have".

4. Discussion

This study contributes to the growing body of literature on the development of the inquirer dimension within teachers' professional identity, offering insights into how engagement with action research design can influence teachers' professional beliefs, self-efficacy, and perceptions of research. While participants did not carry out the full action research cycle, their design of an action research project and reflective engagement facilitated meaningful shifts in their professional identities. The findings suggest that exposure to structured action research-based training can help teachers understand research as a core component of their professional role, reinforcing previous research on teacher identity development (Anspal et al., 2012; Cochran-Smith & Lytle, 2009). Four key themes emerged from this study as central to teacher-inquirer identity development: (1) teachers' beliefs about the value of educational research, (2) their sense of self-efficacy in conducting research, (3) the emotional dimensions of their engagement, and (4) the transformative potential of action research for identity formation as inquirers.

Reframing teacher Beliefs about research. One of the most significant findings was that participants recognized the value of research as a tool for enhancing teaching effectiveness. This supports previous studies that emphasize how teacher beliefs shape instructional decisions and student learning outcomes (Kunter et al., 2013; Van den Bergh et al., 2010). Participants' reflections suggest that even without conducting interventions, designing an action research project and reflecting on inquiry-based approaches helped them reframe their perceptions of research from an abstract academic exercise to a practical and integral

component of teaching.

This aligns with findings from [Beauchamp and Thomas \(2011\)](#), who argue that teachers who adopt an inquirer stance are more likely to engage in systematic reflection and evidence-based practice. Additionally, [Pintrich and De Groot's \(1990\)](#) motivational model offers an insightful paradigm for understanding why participants saw research as both useful (utility value) and aligned with their professional self-concept (attainment value). These shifts are crucial, as teachers who believe research is relevant to their professional roles are more likely to sustain inquiry-based practice beyond training programs.

Developing research self-Efficacy. Participants' reflections indicated a growing sense of confidence in conducting research, even though they had not yet applied their action research plans in practice. This aligns with [Bandura's \(1997\)](#) theory of self-efficacy, which posits that perceived competence is a key predictor of future engagement in a task. Increased self-efficacy was evident in participants' aspirations to use research for curriculum design, assessment, and instructional decision-making, reinforcing [Pintrich and De Groot's \(1990\)](#) notion of expectancy as a driver of motivation.

A key implication of these findings is that action research training can enhance research self-efficacy, even in short-term programs. Previous studies suggest that teachers with higher research self-efficacy are more likely to adopt innovative pedagogical approaches and engage in lifelong professional learning ([Chesnut et al., 2015](#); [Klassen et al., 2011](#)). However, as [Wheatley \(2002\)](#) points out, realistic self-appraisals are essential for sustained professional development. Future research should explore whether teachers' confidence in their research skills translates into long-term engagement with inquiry-based practices.

Emotional dimensions of research engagement. The findings also highlight the emotional aspects of teacher identity development. Participants frequently expressed motivation, enthusiasm, and hope, indicating that engaging with action research reinvigorated their sense of purpose as educators. This is consistent with prior studies showing that positive emotions can foster professional growth and openness to pedagogical change ([Schutz & Pekrun, 2007](#); [Zembylas, 2005](#)).

As [Gill and Hardin \(2015\)](#) argue, emotions are deeply intertwined with teachers' professional beliefs and behaviors. In this study, participants' enthusiasm for research appeared to enhance their willingness to embrace inquiry as part of their teaching identity, as they expressed optimism about integrating inquiry into their professional practice. This suggests that action research training programs can be structured to foster an emotionally supportive environment, reinforcing teachers' intrinsic motivation to engage in research.

The transformative potential of action research. Perhaps the most significant contribution of this study is its exploration of how action research design—without full implementation—can still catalyze identity transformation. Many participants described a conceptual shift in how they viewed their role as educators, reinforcing conceptual change theories ([Pintrich et al., 1993](#)). This suggests that teacher identity is malleable and responsive to structured engagement with research, even in contexts where teachers do not immediately apply research in practice.

[Sinatra et al. \(2012\)](#) argue that both cognitive dissonance and positive emotions can drive conceptual change. In this study, participants' hope, curiosity, and engagement with inquiry-based learning facilitated their reconsideration of teaching strategies, classroom interactions, and data collection methods. While previous studies emphasize the importance of conducting action research for professional transformation ([Elliott, 1991](#)), these findings suggest that even partial engagement (e.g., designing research projects and engaging in structured reflection) can contribute to the development of an inquiry-based professional identity.

A key implication of this study is that teacher training programs should integrate structured opportunities for research engagement, even if teachers are not able to complete an action research cycle. By emphasizing critical reflection and project design, such programs can help teachers internalize research as an essential aspect of their

professional identity ([García-Carrión et al., 2017](#)), paving the way for future engagement in inquiry-based practices.

4.1. Limitations and suggestions for future research

Despite its contributions, this study has several limitations. First, the short duration of the course prevented participants from fully implementing their action research plans, meaning the study could not capture the full cyclical nature of action research. However, reflections from participants indicate that engagement with research design alone was enough to stimulate identity shifts, reinforcing the idea that teacher-inquirer identity can develop in stages. Future studies should extend the timeframe or include longitudinal follow-ups to examine whether these identity shifts translate into sustained engagement with research.

Second, while the sample size was sufficient for a qualitative exploration of identity development, the study did not account for participants' prior research experience, which may have influenced their responses. Future research could incorporate larger and more diverse samples to examine how teachers with different backgrounds engage with research training. Additionally, triangulating journal reflections with classroom observations or interviews could provide deeper insights into how these identity transformations manifest in teaching practice.

5. Conclusions

This study examined the development of teacher-inquirer identity in the context of an action research training program. Findings suggest that engagement with research design and structured reflection can help teachers reframe their beliefs about inquiry, build confidence in their research abilities, and experience a conceptual shift in their professional identity.

While prior research has emphasized the role of action research in professional development ([Johnson et al., 2015](#)), this study highlights that even without full implementation, structured exposure to research methodologies can contribute to identity transformation. These findings reinforce the importance of integrating inquiry-based learning into teacher education programs, ensuring that educators are equipped with the skills and mindset necessary for continuous professional growth.

By targeting beliefs, motivation, and emotions, action research-based training can serve as a powerful mechanism for reshaping teacher identity, ultimately enhancing teaching quality and student learning outcomes.

CRediT authorship contribution statement

Rocío García-Carrión: Writing – review & editing, Supervision, Formal analysis. **Alba García-Cid:** Writing – original draft, Validation, Formal analysis. **Lourdes Villardón-Gallego:** Writing – original draft, Project administration, Funding acquisition, Formal analysis, Conceptualization. **Isabel Muñoz-San Roque:** Writing – review & editing, Project administration, Funding acquisition. **Belén Urosa:** Writing – review & editing, Validation, Methodology.

Ethical statement

The manuscript “Cultivating Teacher-Inquirer Identity through Action Research: A Study of In-Service Teachers in Spain” was performed in compliance with relevant laws and institutional guidelines and have been approved by the appropriate institutional committee. The privacy rights of human subjects have been observed: informed consent was obtained before the participation in this research. Number of the ethical approval: ACM2022_01 (05/11/022).

Artificial intelligence declaration

Generative AI tools were utilized solely for language editing purposes in the preparation of this manuscript. No AI technologies were employed in the generation of content, data analysis, or interpretation of results.

Funding information

This research has been funded by Aristos Campus Mundus ACM2022_01.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Lourdes Villardon-Gallego reports financial support was provided by Aristos Campus Mundus. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

We would like to express our special appreciation to all the participating teachers who made this research possible. We would also like to thank the reviewers and editor for their thorough work.

References

- Akkerman, S. F., & Meijer, P. C. (2011). A dialogical approach to conceptualizing teacher identity. *Teaching and Teacher Education*, 27(2), 308–319. <https://doi.org/10.1016/j.tate.2010.08.013>
- Anspal, T., Eischmidt, E., & Löfström, E. (2012). Finding myself as a teacher: Exploring the shaping of teacher identities through student teachers' narratives. *Teachers and Teaching*, 18(2), 197–216. <https://doi.org/10.1080/13540602.2012.632268>
- Badia, A., Liesa, E., Becerril, L., & Mayoral, P. (2020). A dialogical self-approach to the conceptualization of teacher-inquirer identity. *European Journal of Psychology of Education*, 35(4), 865–879. <https://doi.org/10.1007/s10212-019-00459-z>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman and Co.
- Bashan, B., & Holsblat, R. (2017). Reflective journals as a research tool: The case of student teachers' development of teamwork. *Cogent Education*, 4(1), Article 1374234.
- Beauchamp, C., & Thomas, L. (2011). New teachers' identity shifts at the boundary of teacher education and initial practice. *International Journal of Educational Research*, 50, 6–13. <https://doi.org/10.1016/j.ijer.2011.04.003>
- Beijaard, D., Meijer, P. C., & Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teaching and Teacher Education*, 20(2), 107–128. <https://doi.org/10.1016/j.tate.2003.07.001>
- Berliner, C. (2004). Describing the behavior and documenting the accomplishments of expert teachers. *Bulletin of Science, Technology & Society*, 24(3), 200–212. <https://doi.org/10.1177/0270467604265535>
- Bodman, S., Taylor, S., & Morris, H. (2012). Politics, policy and professional identity. *English Teaching: Practice and Critique*, 11(3), 14–25.
- Brooks, L., & Scott, C. L. (2000). Occupational self concepts of primary and secondary teachers. In S. Dinham, & C. Scott (Eds.), *The social context of teaching*. Australian Council for Educational Research.
- Chesnut, S. R., Siwatu, K. O., Young, H. A., & Tong, Y. (2015). Examining the relationship between the research training environment, course experiences, and graduate students' research self-efficacy beliefs. *International Journal of Doctoral Studies*, 10, 399–418. <https://doi.org/10.28945/2310>
- Clandinin, D. J., Connelly, F. M., & Bradley, J. G. (1999). Shaping a professional identity: Stories of educational practice. *McGill Journal of Education*, 34(2), 189.
- Cochran-Smith, M., & Lytle, S. L. (2009). *Inquiry as stance. Practitioner research for the next generation*. New York: Teachers College. <https://digitalcommons.nl.edu/ie/vol11/iss2/7>
- Darling-Hammond, L. (2006). *Powerful teacher education*. Jossey-Bass.
- Day, C., & Leitch, R. (2001). Teachers' and teacher educators' lives: The role of emotion. *Teaching and Teacher Education*, 17(4), 403–415. [https://doi.org/10.1016/S0742-051X\(01\)00003-8](https://doi.org/10.1016/S0742-051X(01)00003-8)
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Dewey, J. (1902). *The school and society*. University of Chicago Press.
- Dewey, J. (1963). *Experience and education*. Macmillan.
- Earl, L. M., & Katz, S. (Eds.). (2006). *Leading schools in a data-rich world: Harnessing data for school improvement*. Corwin Press.
- Earl, L. M., & Timperley, H. (2008). *Professional learning conversations: Challenges in using evidence for improvement*. Springer.
- Eccles, J. (1983). Expectancies, values and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives: Psychological and sociological approaches* (pp. 75–146).
- Elliott, J. (1991). *Action research for educational change*. Open University Press.
- Fives, H., & Gill, M. G. (Eds.). (2014). *International handbook of research on teachers' beliefs* (1st ed.). Routledge. <https://doi.org/10.4324/9780203108437>
- Fleiss, J. L., Levin, B., & Paik, M. C. (2003). *Statistical methods for rates and proportions* (5th ed.). Wiley.
- Freire, P. (1985). *The politics of education: Culture, power, and liberation*. Bergin & Garvey.
- García-Carrión, R., Gómez, A., Molina, S., & Ionescu, V. (2017). Teacher education in schools as learning communities: Transforming high-poverty schools through dialogic learning. *Australian Journal of Teacher Education*, 42(4). <https://doi.org/10.14221/ajte.2017v42n4.4>
- Gill, M. G., & Hardin, C. (2015). A "Hot" Mess: Unpacking the relation between teachers' beliefs and emotions. In H. Fives, & M. G. Gill (Eds.), *International handbook of research on teachers' beliefs* (pp. 230–245). Routledge.
- Hanna, F., Oostdam, R., Severiens, S. E., & Zijlstra, B. J. H. (2020). Assessing the professional identity of primary student teachers: Design and validation of the teacher identity measurement scale. *Studies In Educational Evaluation*, 64. <https://doi.org/10.1016/j.stueduc.2019.100822>
- Ismail, S. N., Nur, A. H. B., Raman, A., & Purnomo, Y. W. (2019). A Mixed-method study of the epistemological teacher-beliefs towards educational research in classroom teaching practices. *International Journal of Instruction*, 12(3), 393–406.
- Johnson, B., Down, B., Le Cornue, R., Peters, J., Sullivan, A., Pearce, J., & Hunter, J. (2015). *Early career teachers: Stories of resilience*. Springer.
- Jonker, H., März, V., & Voogt, J. (2018). Teacher educators' professional identity under construction: The transition from teaching face-to-face to a blended curriculum. *Teaching and Teacher Education*, 71, 120–133. <https://doi.org/10.1016/j.tate.2017.12.016>
- Kelchtermans, G. (1993). Getting the story, understanding the lives: From career stories to teachers' professional development. *Teaching and Teacher Education*, 9(5–6), 443–456. [https://doi.org/10.1016/0742-051X\(93\)90029-G](https://doi.org/10.1016/0742-051X(93)90029-G)
- Kemmis, S., & McTaggart, R. (1988). *The action research planner*. Deakin University.
- Klassen, R. M., Tze, V. M. C., Betts, S. M., & Gordon, K. A. (2011). Teacher efficacy research 1998–2009: Signs of progress or unfulfilled promise? *Educational Psychology Review*, 23(1), 21–43. <https://doi.org/10.1007/s10648-010-9141-8>
- Korthagen, F., Loughran, J. y., & Russell, T. (2006). Developing fundamental principles for teacher education programs and practices. *Teaching and Teacher Education*, 22(8), 1.020–1.041. <https://doi.org/10.1016/j.tate.2006.04.022>
- Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, 105(3), 805–820. <https://doi.org/10.1037/a0032583>
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159–174. <https://doi.org/10.2307/2529310>
- Marsh, B., & Deacon, M. (2024). Teacher practitioner enquiry: A process for developing teacher learning and practice? *Educational Action Research*, 1–20.
- Meijers, F., & Hermans, H. (2018). Dialogical self-theory in education: An introduction. *The dialogical self-theory in education: A multicultural perspective* (pp. 1–17).
- Menter, I., Elliot, D., Hulme, M., Lewin, J., & Lowden, K. (2011). *A guide to practitioner research in education*. London: Sage.
- Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom performance. *Journal of Educational Psychology*, 82, 33–40. <https://doi.org/10.1037/0022-0663.82.1.33>
- Pintrich, P. R., Marx, R. W., & Boyle, R. A. (1993). Beyond cold conceptual change: The role of motivational beliefs and classroom contextual factors in the process of conceptual change. *Review of Educational Research*, 63(2), 167–199. <https://doi.org/10.2307/1170472>
- Roth, G., Assor, A., Kanat-Maymon, Y., & Kaplan, H. (2007). Autonomous motivation for teaching: How self-determined teaching may lead to self-determined learning. *Journal of Educational Psychology*, 99(4), 761–774. <https://doi.org/10.1037/0022-0663.99.4.761>
- Schutz, P. A., Hong, J., & Cross Francis, D. (2020). *Teachers' goals, beliefs, emotions, and identity development: Investigating complexities in the profession*. Routledge. <https://doi.org/10.4324/9780429456008>
- Schutz, P. A., & Pekrun, R. (2007). *Emotion in education*. Elsevier Academic Press.
- Scott, C., & Dinham, S. (2008). Born not made: The nativist myth and teachers' thinking. *Teacher Development*, 12(2), 115–124. <https://doi.org/10.1080/13664530802038105>
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4–14. <https://doi.org/10.3102/0013189X015002004>
- Sinatra, G. M., Kardash, C. M., Taasobshirazi, G., & Lombardi, D. (2012). Promoting attitude change and expressed willingness to take action toward climate change in college students. *Instructional Science*, 40, 1–17. <https://doi.org/10.1007/s11251-011-9166-5>
- Sutton, R. E., Mudrey-Camino, R., & Knight, C. C. (2009). Teachers' emotion regulation and classroom management. *Theory Into Practice*, 48(2), 130–137. <https://doi.org/10.1080/00405840902776418>
- Trent, J. (2011). 'Four years on, I'm ready to teach': Teacher education and the construction of teacher identities. *Teachers and Teaching*, 17(5), 529–543. <https://doi.org/10.1080/13540602.2011.602207>

- Valverde, J. (2015). La formación inicial del profesorado en el grado en educación primaria. Una valoración cualitativa del diseño y desarrollo curricular de la asignatura "Recursos tecnológicos didácticos y de investigación". *Tendencias pedagógicas*, (25), 207–228. <https://doi.org/10.15366/tp2015.25>
- Van den Bergh, L., Denessen, E., Hornstra, L., Voeten, M., & Holland, R. W. (2010). The implicit prejudiced attitudes of teachers: Relations to teacher expectations and the ethnic achievement gap. *American Educational Research Journal*, 47(2), 497–527. <https://doi.org/10.3102/0002831209353594>
- Wheatley, K. F. (2002). The potential benefits of teacher efficacy doubts for educational reform. *Teaching and Teacher Education*, 18(1), 5–22. [https://doi.org/10.1016/S0742-051X\(01\)00047-6](https://doi.org/10.1016/S0742-051X(01)00047-6)
- Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. *Contemporary Educational Psychology*, 25(1), 68–81. <https://doi.org/10.1006/ceps.1999.1015>
- Yendol-Hoppey, D., Dana, N. F., & Hoppey, D. T. (Eds.). (2019). *Preparing the next generation of teacher educator for clinical practice*. IAP.
- Zembylas, M. (2005). Discursive practices, genealogies, and emotional rules: A poststructuralist view on emotion and identity in teaching. *Teaching and Teacher Education*, 21(8), 935–948. <https://doi.org/10.1016/j.tate.2005.06.005>