Identifying the Components of a Model for Institutionalizing a Research Culture Among Teachers in Qeshm County

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Purpose: This study aims to identify the components of a model for institutionalizing a research culture among teachers in Qeshm County.

Methods and Materials: The study employed a qualitative research design using a grounded theory approach. Participants included 20 educational managers and experts selected through purposive and snowball sampling methods. Semi-structured interviews were conducted to gather data, and the transcripts were analyzed using open, axial, and selective coding. The MaxQDA software was utilized for data organization and analysis, and theoretical saturation was achieved after the 18th interview.

Findings: The analysis revealed six key dimensions essential for institutionalizing a research culture: enhancing research competencies, fostering psychological characteristics, motivating individual and professional engagement, addressing environmental and organizational factors, applying systemic strategies, and implementing supportive policy frameworks. Participants highlighted critical enablers, such as training programs, financial and organizational support, and leadership, as well as barriers, including insufficient funding, bureaucratic obstacles, and lack of institutional focus. Outcomes of a research culture were categorized as individual (e.g., increased self-efficacy), professional (e.g., enhanced teaching quality), and social (e.g., societal knowledge advancement).

Conclusion: Institutionalizing a research culture among teachers requires a multifaceted approach that addresses personal, organizational, and systemic factors. The findings underscore the need for targeted training programs, organizational support, and policy interventions to overcome existing challenges and foster a sustainable culture of research among educators. These insights can guide educational leaders and policymakers in designing effective strategies to enhance research engagement in schools.

Keywords: Research culture, teacher training, professional development, grounded theory, educational policy, Qeshm County.

1.   Introduction

One of the critical ways to enhance teacher competence and performance is through professional development and training programs. As highlighted by Adika (2018), in-service teacher training significantly impacts the performance of educators in secondary schools (Adika, 2018). Similarly, Akhter (2023) emphasizes that training programs are instrumental in shaping teachers' attitudes and performance, particularly in the context of science education (Butt & Farooq, 2020). Both studies underscore the need for continuous professional development to enable teachers to meet modern educational challenges.

Professional development programs also address the growing need for teacher competence in specialized areas, such as digital pedagogy and higher-order thinking skills. For example, Bentri (2023) demonstrates that digital pedagogy competence can be significantly improved through targeted in-service training programs (Bentri, 2023). Likewise, Bolat (2023) discusses the effectiveness of training programs in preparing teachers to design questions that measure higher-order thinking skills, enhancing their self-efficacy and teaching capabilities (Butt & Farooq, 2020). These findings highlight the critical role of tailored training programs in equipping teachers with the skills necessary to navigate complex educational environments.

The perceptions of teachers regarding professional development programs are also a vital aspect of designing effective training frameworks. According to Alzankawi and Alenezi (2021), English language teachers perceived professional development programs as essential for improving their teaching practices (Alzankawi & Alenezi, 2021). However, they noted the importance of aligning training programs with the specific needs of teachers to maximize their effectiveness. Similarly, Budiwati (2019) highlights the importance of developing training models that cater to the unique needs of economic teachers, thus improving their professionalism and performance (Budiwati, 2019).

Research also shows that teacher training programs have a profound impact on the quality of teacher-student interactions and the overall learning environment. Egert et al. (2020) conducted a meta-analysis demonstrating that in-service professional development significantly enhances the quality of teacher-child interactions in early education settings (Egert et al., 2020). This finding is consistent with the work of Maritasari et al. (2020), who found that training

and supervision positively influence teacher performance by mediating through improved teacher competence (Maritasari et al., 2020). These studies collectively underline the importance of a systematic approach to professional development that not only enhances teacher performance but also contributes to better learning outcomes for students.

The need for innovative approaches in teacher training has become increasingly apparent in light of the challenges posed by rapid technological advancements and changing societal needs. Pozo-Rico et al. (2023) argue that teacher training must focus on fostering well-being, resilience, emotional intelligence, and innovative teaching methodologies. Their research emphasizes the importance of equipping teachers with competencies that enable them to adapt to the dynamic demands of modern education systems (Pozo-Rico et al., 2023). Similarly, Siregar (2023) highlights the role of 4C skills-based training—critical thinking, creativity, communication, and collaboration—in enhancing the competence of vocational education teachers.

While the benefits of teacher training are widely recognized, several challenges persist in the implementation and effectiveness of these programs. Mahara (2024) identifies key challenges from teachers' perspectives, including inadequate resources, lack of follow-up support, and misalignment between training content and practical classroom needs. These findings are echoed by Mislia et al. (2021), who emphasize the importance of addressing systemic issues, such as teacher certification allowances and access to quality training, to ensure the effectiveness of professional development initiatives.

Another critical factor influencing the success of training programs is the alignment of training content with teachers' professional needs and interests. Suyitno et al. (2017) argue that training programs designed based on the specific needs and interests of teachers are more effective in enhancing student competence (Suyitno et al., 2017). This approach is further supported by Butt and Farooq (2020), who explored the framework of induction training programs for elementary school educators, emphasizing the importance of contextualizing training to address local educational challenges (Butt & Farooq, 2020).

In addition to professional training, the role of organizational and environmental factors cannot be overlooked. Nazim (2024) discusses how training influences organizational commitment and, in turn, impacts teacher performance (Nazim, 2024). Similarly, Susanti (2024) highlights the influence of discipline, training, and the work environment on teacher performance, emphasizing the need

for a holistic approach to professional development that integrates individual, organizational, and environmental factors (Susanti, 2024).

The integration of teacher training with broader educational goals also plays a pivotal role in fostering a research-oriented culture. Griffith et al. (2021) emphasize the importance of implementing structured frameworks, such as the Mindfulness-Based Interventions Teaching Assessment Criteria (MBI:TAC), to ensure the systematic development of teaching competencies (Griffith et al., 2021). Furthermore, Dignath (2021) highlights that teachers' competence profiles regarding self-regulated learning significantly moderate the effectiveness of short-term training programs, indicating the need for personalized and targeted training interventions (Dignath, 2021).

The institutionalization of a research culture among teachers requires a multifaceted approach that combines training, organizational support, and policy initiatives. Denessen (2023) highlights the importance of fostering teacher-parent partnerships as a key competence area during teacher training (Denessen, 2023). This perspective aligns with the findings of Wang (2023), who emphasizes the need for continued support and follow-up mechanisms to ensure the successful implementation of evidence-based training programs (Wang, 2023).

In summary, the literature provides ample evidence of the critical role of teacher training in enhancing professional competencies and fostering a research-oriented culture. However, the success of these initiatives depends on addressing systemic challenges, aligning training content with teachers' needs, and integrating professional development with broader organizational goals. This study aims to build on these insights by exploring the components of a model for institutionalizing a research culture among teachers in Qeshm County. By identifying the key factors that influence the development of a research culture, this research seeks to contribute to the broader discourse on teacher professional development and its role in advancing educational systems.

2. Methods and Materials

The research design for this qualitative study focused on exploring the components of a model for institutionalizing a research culture among teachers in Qeshm County. The study population included education department managers and experts in educational management. A purposive non-probability sampling method was employed, using both criterion-based selection and snowball sampling techniques. The criteria for selecting education department managers included having at least five years of managerial experience and holding at least a master's degree, ensuring familiarity with research-related concepts. The criteria for selecting experts included being a university faculty member in the fields of educational management or the education system, with a minimum of five years of experience, or being a researcher with at least three published articles or books related to educational management. Snowball sampling was utilized to identify additional participants through recommendations from initial subjects. The sample size was determined based on data saturation, and it was found that after the 18th interview, data saturation was achieved. However, to ensure reliability, data collection continued until the 20th interview.

Data collection was conducted through semi-structured interviews. The questions for the interviews were designed based on the grounded theory approach, which guided the formation of open-ended questions that allowed for in-depth exploration of the topic. The validity and comprehensiveness of the interview questions were confirmed by academic advisors and experts in the field. The interviews were conducted in person, with each lasting between 65 and 90 minutes. Following an invitation to the participants, the time and location of the interviews were arranged through mutual coordination. The interviews were conducted in a semi-formal setting, where the researcher and participant engaged in conversation while the responses were recorded using an audio recorder. During the interviews, if necessary, the audio recording was paused and resumed as required.

For data analysis, a theoretical coding method, grounded in the systematic grounded theory approach, was utilized. Grounded theory, first developed by Barney Glaser and Anselm Strauss in 1967, is an inductive and interpretive research method that aims to generate theories grounded in the data. This approach allows for the exploration of topics that have not been extensively studied, contributing new knowledge to the field. In this method, data is broken down into concepts, categories, and propositions, which are then systematically grouped to form a theory. Data analysis occurred concurrently with data collection, as interviews were transcribed and analyzed immediately after each interview. Multiple rounds of review and analysis were conducted for each interview. The grounded theory approach was applied in three stages of coding: open coding, axial coding, and selective coding. The analysis process was supported by Maxqda software (version 10), which assisted

in organizing and categorizing the data for further interpretation and theory development.

3. Findings and Results

The participants in this study included 6 women and 14 men. Regarding age, 3 participants were between 35 and 40 years old, 6 were between 41 and 45 years, 6 were between 46 and 50 years, and 5 were over 50 years old. In terms of work experience, 6 participants had 10 to 15 years of experience, 8 had 16 to 20 years, and 6 had more than 20 years of experience. These demographics reflect a diverse range of ages and work experiences within the sample.

The findings of this study were organized around the central phenomenon of fostering and strengthening research competencies among teachers in Qeshm. Through open coding, concepts and categories were identified, and irrelevant or redundant data were eliminated. The process of axial coding helped to consolidate these concepts into coherent themes, and the final selective coding provided a more focused understanding of the research culture. Based on the expert interviews, a total of 127 indicators, 18 categories, and 6 dimensions were identified for embedding a research culture among teachers in Qeshm.

Table 1

The Results of Qualitative Analysis

Dimension (Selective Coding)	Component (Axial Coding)	Indicator (Open Coding)	Code
Central Phenomenon	Fostering and strengthening research competencies	Developing research skills	A1
		Increasing awareness and knowledge	A2
		Cultivating a positive attitude toward research	A3
	Psychological Characteristics	Creativity and innovation	B1
		Curiosity	B2
		Teamwork spirit	B3
		Anxiety control	B4
		Social responsibility	B5
		Critical thinking	B6
		Self-confidence	B7
	Individual Motivation	Learning new things and applying them	C1
		Responding to perfectionism	C2
		Financial and personal benefits	C3
		Gaining academic prestige	C4
		Resolving confusion and correcting mistakes	C5
		Interest in research	C6
	Professional Motivation	Expanding the thinking of "teacher as researcher"	D1
		Active research as part of teaching	D2
		Enhancing teachers' research capacity	D3
	Social Motivation	The best way to solve problems	E1
		Type of in-service education	E2
		Scientific accountability	E3
		Avoiding elitism	E4
		Enhancing scientific level	E5
		Improving undesirable situations	E6
		Aligning theory with practice	E7
		Innovation and knowledge increase	E8
		Community development	E9
Research Characteristics	Identifying research problems	Identifying the issue	F1
		Confusion about the topic	F2
		Solving everyday problems	F3
Environmental Factors	Financial resources	Budget allocation and research funding	G1
		Government and organizational financial support	G2
Organizational and Structural Factors	Organizational structures	Approval process for publishing books and articles	H1
		Administrative approval for research proposals	H2
		Internet bandwidth	H3
		Technology and tools	H4

		Libraries and scientific resources	H5
		Internal information banks	H6
		School culture and capabilities	H7
		Appropriate educational planning for research	H8
		Space and time for research	H9
		Dissemination system for research findings	H10
		Research facilities and equipment	H11
Strategies	Research literacy enhancement	Strengthening research skills	J1
		General research knowledge	J2
		General research knowledge in education	J3
		Using classic studies and others' research	J4
		Strengthening English proficiency	J5
		In-service education	J6
		Encouraging group and team research	J7
		Enhancing brainstorming activities	J8
		Strengthening creativity	J9
		Promoting group discussions	J10
		Teaching research habits and skills	J11
		Educating on research methods, resources, goals	J12
		Promoting information literacy	J13
Management Actions	Managerial actions	Connecting with supporting research institutions	K1
		Periodic and organized research activities	K2
		Effective leadership	K3
		Clear objectives	K4
		Recognizing top researchers	K5
		Understanding research needs	K6
		Valuing teacher-researchers	K7
		Research call announcements	K8
		Securing financial resources with government support	K9
		Reviewing and prioritizing research projects	K10
		Organizing conferences, workshops, and courses	K11
		Providing research incentives	K12
		Defining specific research frameworks	K13
		Setting research timelines	K14
		Utilizing research consultants	K15
		Evaluating research activities	K16
Policy Making	Research policies and incentives	Stability in management	L1
		Comprehensive research programs	L2
		Research curriculum in teacher training colleges	L3
		Teacher hiring policies	L4
		Salary and compensation systems	L5
		Research as a major educational goal	L6
		Having a defined research system	L7
		Promoting research ethics	L8
		Spreading and promoting research	L9
		Improvement in community culture	L10
		Supporting research in educational documents	L11
		Supervision and control over research	L12
Research Requirements	Research requirements	Avoiding personal biases and external factors	M1
		Use of scientific methods	M2
		Accurate and valid conclusions	M3
		Innovation and applicability of research	M4
		Reliable sources	M5
		Proper planning and scheduling	M6
		Public awareness of the importance of research	M7
		Economic feasibility and resource allocation	M8
Intervening Factors	Structural	Low impact of research incentives on teachers' promotion	N1
		Lack of research skills training for teachers	N2
		Weak communication between teacher-researchers	N3
		Inefficient research processes in educational administration	N4

		Inadequate research compensation	N5
		Inaccessible research findings	N6
		Weak needs assessment in research	N7
		Low credibility of research outcomes	N8
	Behavioral	Decreased value of research among teachers	P1
		Lack of interest from officials in disseminating teachers' research	P2
		Weak creativity and innovation in teachers' research	P3
	Environmental	Low government funding for research	Q1
		Lack of serious government support for researchers	Q2
		Weak status of research in public perception	Q3
		Inadequate governmental support for education	Q4
		Decline in status of education in society	Q5
Consequences	Individual	Development of reflective teachers	R1
		Improving teachers' skills (thinking, analysis, problem-solving)	R2
		Increased self-efficacy	R3
		Greater job satisfaction for teachers	R4
	Professional	Growth of inquiry-based teaching in schools	S1
		Enhancing students' research spirit	S2
		Influence on teaching methods	S3
		Increased job performance and effectiveness	S4
	Social	Research as a foundation for values, views, and actions	T1
		Advancing research in society	T2
		Increased levels of national and international publication	T3

The first dimension, related to strengthening research competencies, highlighted the importance of developing research skills, increasing awareness, and cultivating positive attitudes toward research. The psychological characteristics of researchers, such as creativity, curiosity, teamwork spirit, anxiety control, social responsibility, critical thinking, and self-confidence, were considered vital. Furthermore, individual, professional, and social motivations for research were emphasized, including the desire for personal growth, answering personal perfectionist tendencies, and the benefits of professional recognition and academic prestige.

The second dimension revealed environmental factors that support or hinder research culture. These included the availability of financial resources, the role of educational institutions, and organizational support, such as appropriate infrastructure, internet bandwidth, libraries, and scientific resources. Structural factors within the education system, such as approval processes for research projects and access to research databases, also played a crucial role.

The third dimension focused on strategies for enhancing research literacy among teachers. It included fostering research skills through continuous education, encouraging group research, promoting brainstorming activities, and improving critical thinking and information literacy. Additionally, teaching strategies and habits, such as using classic studies and encouraging team research, were identified as key components of a supportive research culture.

Leadership and managerial strategies were the fourth dimension, highlighting the need for leadership that supports research, clear goal-setting, recognition of research achievements, and the provision of financial support. Effective management also involved regular academic events, creating platforms for sharing research, and aligning educational goals with research objectives.

The fifth dimension centered on policies and incentives that influence research engagement. These policies included promoting research in educational curricula, ensuring a stable management system, and incentivizing research through rewards and recognition. The implementation of comprehensive research plans and the integration of research into broader educational goals were also emphasized as necessary for fostering a research-oriented environment.

Finally, the sixth dimension focused on the necessary requirements for conducting research, such as avoiding personal biases, using scientific methods, and ensuring the feasibility and practicality of research findings. Ensuring resource availability, appropriate planning, and time management were crucial elements for successful research endeavors.

In conclusion, the analysis of expert interviews revealed that a multifaceted approach involving skill development, psychological support, organizational structure, leadership,

and policy initiatives is essential for embedding a research culture among teachers in Qeshm.

Figure 1

Final Model of The Study
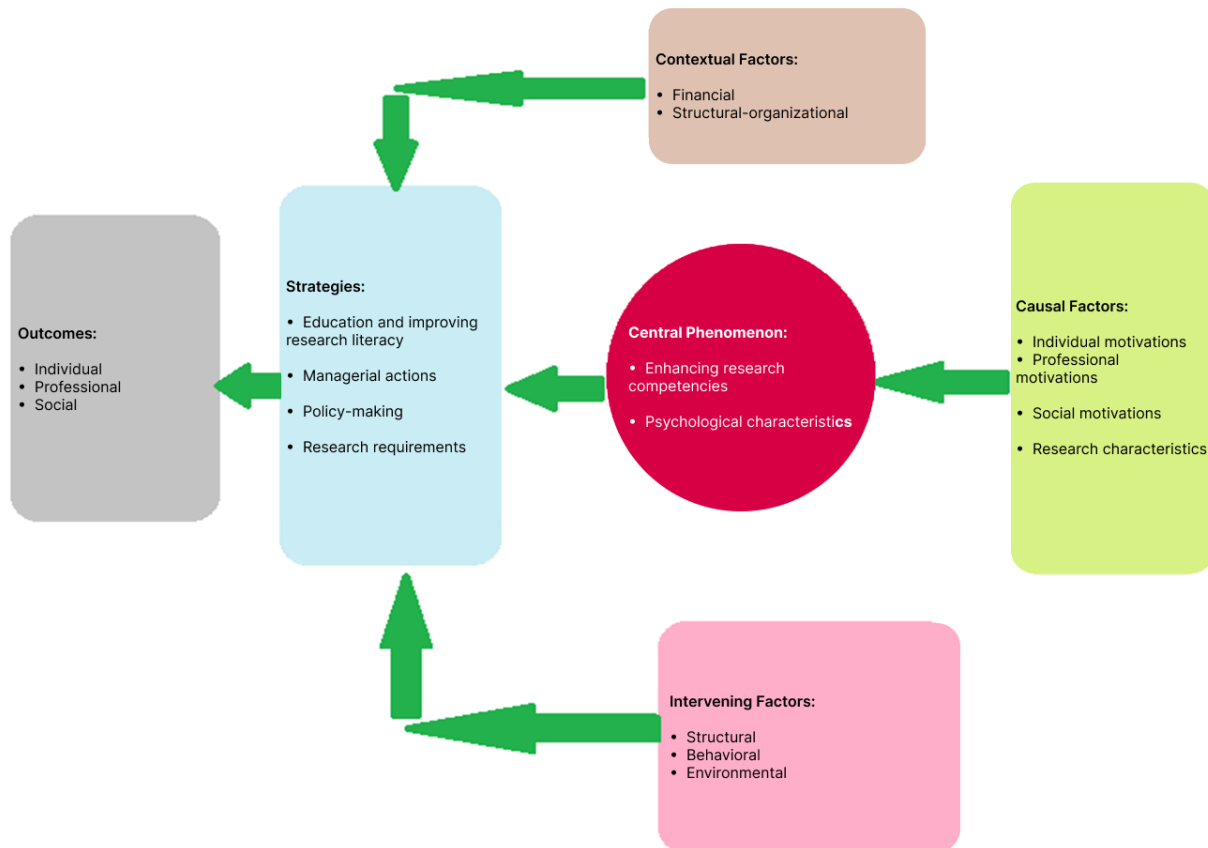
4.   Discussion and Conclusion

The findings of this study revealed that institutionalizing a research culture among teachers requires a multifaceted approach that involves improving research competencies, psychological characteristics, motivations, environmental factors, and systemic strategies. Through a grounded theory methodology, six dimensions were identified: enhancing research competencies, fostering psychological characteristics, motivating individual and professional engagement, addressing environmental and contextual factors, applying systemic strategies, and implementing policy frameworks. These dimensions collectively highlight the interdependent nature of personal, organizational, and policy-related factors in promoting a sustainable research culture among teachers in Qeshm County.

The central phenomenon identified in this study—enhancing research competencies—aligns with existing research on the importance of professional development for teacher efficacy. Adika (2018) and Akhter (2023) emphasized that training programs targeting skills development directly impact teachers' performance (Adika, 2018). This study adds to these findings by suggesting that fostering a positive attitude, self-confidence, and critical thinking skills among teachers are critical for building research capacities. Moreover, the identification of psychological characteristics such as creativity, curiosity, and teamwork spirit aligns with the findings of Pozo-Rico et al. (2023), who highlighted the role of emotional intelligence, resilience, and innovative thinking in teacher training programs (Pozo-Rico et al., 2023). These attributes not only improve individual teacher performance but also contribute to a collaborative and research-oriented school environment.

The study also identified motivation—individual, professional, and social—as a significant factor driving teachers' engagement in research activities. Previous studies

support the role of intrinsic and extrinsic motivators in professional development. For example, Bentri (2023) and Bolat (2023) found that professional growth opportunities, such as skill enhancement and career advancement, serve as key motivators for teachers to engage in training and research (Bentri, 2023; Bolat, 2023). Additionally, Mislia et al. (2021) and Butt and Farooq (2020) emphasized the importance of providing financial and institutional incentives to sustain teacher motivation (Butt & Farooq, 2020; Mislia et al., 2021). In this study, participants cited personal interests, professional recognition, and societal benefits as driving factors for engaging in research, further validating the need for a comprehensive motivational framework.

Environmental and organizational factors also emerged as critical dimensions in this study, highlighting systemic barriers and enablers for institutionalizing a research culture. Key factors included access to financial resources, the availability of research facilities, internet infrastructure, and support from school administration. These findings echo the results of Suriansyah et al. (2020), who argued that managerial leadership and institutional resources significantly influence teachers' ability to participate in research activities (Suriansyah et al., 2020). Similarly, Alzankawi and Alenezi (2021) stressed the importance of aligning professional development programs with organizational support mechanisms to create a conducive environment for teacher research (Alzankawi & Alenezi, 2021). The systemic barriers identified in this study, such as inadequate funding and bureaucratic delays, are consistent with the challenges highlighted by Mahara (2024) and Nazim (2024). These studies underline the need for addressing structural and organizational constraints to enable teachers to engage in meaningful research activities (Mahara, 2024; Nazim, 2024).

The strategies proposed in this study—such as enhancing research literacy, promoting managerial actions, and implementing targeted policy frameworks—further validate existing literature on teacher training and development. For instance, Griffith et al. (2021) emphasized the need for structured frameworks in teacher training to ensure consistency and alignment with educational goals (Griffith et al., 2021). Similarly, Egert et al. (2020) and Maritasari et al. (2020) highlighted the role of well-designed training programs in improving teacher performance and fostering research capabilities (Egert et al., 2020; Maritasari et al., 2020). This study's findings on the importance of providing in-service training, promoting collaborative research

activities, and creating opportunities for professional development align with these recommendations.

The results of this study also revealed the importance of policy-level interventions in promoting a research culture among teachers. Participants highlighted the need for clear and supportive policies, such as research incentives, defined frameworks for research activities, and the integration of research into broader educational goals. These findings are supported by Dignath (2021), who emphasized the role of policy frameworks in fostering self-regulated learning among teachers (Dignath, 2021). Additionally, Susanti (2024) and Siregar (2023) stressed the importance of aligning policy initiatives with teacher training programs to create a cohesive system that supports research and innovation in education (Susanti, 2024).

This study's identification of intervening factors, such as structural, behavioral, and environmental barriers, further supports the findings of Wang (2023), who argued that continued support and follow-up mechanisms are essential for overcoming systemic challenges in implementing evidence-based teacher training programs (Wang, 2023). Similarly, the behavioral factors identified in this study, such as reduced value of research among teachers and lack of creativity, align with the challenges noted by Mahara (2024), who found that systemic issues and inadequate follow-up hinder the effectiveness of teacher training programs (Mahara, 2024).

The outcomes identified in this study—individual, professional, and social benefits—demonstrate the transformative potential of a research culture in education. On an individual level, participants reported increased self-efficacy, critical thinking skills, and job satisfaction, consistent with the findings of Akhter (2023) and Pozo-Rico et al. (2023). Professionally, the study found that a research culture fosters a spirit of inquiry and innovation, which has a direct impact on teaching quality and student learning outcomes (Akhter, 2023; Pozo-Rico et al., 2023). These findings are supported by the work of Bentri et al. (2022), who emphasized the role of digital pedagogical competence in enhancing teaching practices. Socially, participants highlighted the broader impact of research on community development and the advancement of societal knowledge, aligning with the prior findings (Butt & Farooq, 2020; Mislia et al., 2021).

This study has several limitations that should be considered when interpreting the findings. First, the study was conducted in a single geographic region (Qeshm County), which may limit the generalizability of the results

to other contexts. The unique cultural, social, and organizational characteristics of the region could influence the applicability of the findings in other settings. Second, the study relied on qualitative methods, which, while providing in-depth insights, may not capture the full complexity of the factors influencing the institutionalization of a research culture. Third, the study was limited to teachers and educational experts, and the perspectives of other stakeholders, such as policymakers and students, were not included. Finally, the reliance on interviews as the primary data collection method may introduce biases related to self-reporting and interpretation.

Future research should explore the institutionalization of a research culture among teachers in diverse geographic and cultural contexts to enhance the generalizability of the findings. Comparative studies across different regions or countries could provide valuable insights into the universal and context-specific factors influencing research engagement among educators. Additionally, quantitative studies using larger sample sizes could complement qualitative findings and provide a more comprehensive understanding of the phenomenon. Future research could also investigate the role of other stakeholders, such as policymakers, school administrators, and students, in fostering a research culture. Longitudinal studies examining the long-term impact of research-oriented initiatives on teacher performance and educational outcomes would also be valuable.

To institutionalize a research culture among teachers, educational institutions should focus on providing targeted and needs-based training programs that enhance research competencies and foster a positive attitude toward research. Schools and education departments should invest in creating a supportive infrastructure, including access to financial resources, research facilities, and technology. Policymakers should develop clear and comprehensive frameworks that align research activities with broader educational goals and provide incentives for teacher participation. Additionally, school leadership should prioritize the promotion of a collaborative and inquiry-based environment, encouraging teamwork and innovation among teachers. Regular follow-up mechanisms and feedback systems should be implemented to ensure the sustainability of research-oriented initiatives.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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