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Exploring Gender Differences in Teachers' Knowledge and Experience on Research in Primary Schools

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ABSTRACT

The current landscape of education underscores the pivotal role of teachers as active participants in shaping and refining classroom practices through research engagement. While the importance of teachers' involvement in research, both as practitioners and consumers, has been extensively highlighted in literature, there remains a gap in understanding the potential gender differences in teachers' knowledge and experiences concerning research. Existing studies hint at the possibility of gender-related disparities in research engagement, influenced by societal perceptions and expectations. However, the extent and nature of these differences within the context of teachers' research involvement remain inadequately explored. This study examined gender differences in the knowledge and experience of primary school teachers in research. The quantitative research study used purposive sampling technique to identify samples. Thirteen teachers were selected for this study. This study found that the level of knowledge and experience of teachers in relation to research is high and concluded that no significant gender differences were found in the knowledge and experience of teachers in research. In addition, management or administration and teaching of English as a second language (TESL) were mentioned as preferred fields of study by respondents. Teachers' knowledge and experiences on research should be further investigated with other research methods.

1. Introduction

The core for teachers' professional growth and an aspect of their professional competence is research [6,15]. In this respect, teachers need research knowledge and experiences that allow them to access, reflect, and refine their daily practice in the classroom. It has long been understood how important it is for teachers to examine their own practices. Dewey [3] identified teachers as the main investigators of the successes and failures of the school as early as 1929. In his teacher-as-researcher method, Stenhouse [17] further stressed the value of teacher research, and Schön [16] refined his theories about teachers as reflective practitioners. Recent research on data-driven or evidence-based

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teaching has concentrated on the role of teachers in methodically compiling information regarding what is effective in their classrooms [20].

Several research objectives have been recognized in relation to the various functionalities of research in teacher practice. (i) Teachers should be able to acquire a critical mindset toward their own practice as a result of the research [9]; (ii) research should show what works in practice and why it works to increase teachers' knowledge [14]; (iii) Teachers who have received training in conducting and utilizing research have to be able to apply the findings of (scientific) research to enhance their own practices [8]. To achieve these goals, teachers must develop and acquire (i) adequate research knowledge, and (ii) research experiences. While the importance of teachers' involvement in research, both as practitioners and consumers, has been extensively highlighted in literature, there remains a gap in understanding the potential gender differences in teachers' knowledge and experiences concerning research. Existing studies hint at the possibility of gender-related disparities in research engagement, influenced by societal perceptions and expectations. However, the extent and nature of these differences within the context of teachers' research involvement remain inadequately explored.

The significance of this research study lies in its exploration of gender differences in the knowledge and experience of primary school teachers regarding research engagement. While the importance of teachers' involvement in research has been widely acknowledged, there remains a notable gap in understanding potential disparities influenced by gender within this domain. By delving into this aspect, the study seeks to contribute valuable insights to educational research and practice. Understanding any gender-related variations in teachers' research knowledge and experiences can inform targeted interventions aimed at fostering equitable opportunities for professional development and research engagement among educators.

The research objectives of this study are twofold: firstly, to examine the level of knowledge and experiences of primary school teachers regarding research engagement; and secondly, to investigate potential gender differences in these aspects. By addressing these objectives, the study aims to provide a comprehensive understanding of the dynamics surrounding teachers' research involvement and to identify areas for further exploration and intervention in the field of primary education.

2. Literature Review

The reason for involving teachers as researchers of their own practice is related to a need for authority of their knowledge about the practice [4]. As researchers, particularly action researchers, teachers are knowledge generators rather than users of knowledge generated by outsiders. In some places, such as China, Saudi Arabia and the Philippines, teachers are encouraged to conduct action research to enable the implementation of educational reforms [10,21]. Engaging in research can help teachers develop a deeper understanding of the material they teach, which in turn can support their ability to provide quality instruction to their students. Research also helps teachers stay abreast of best practices in education and can inform their teaching decisions. Therefore, teachers' knowledge and experience in using action research is crucial.

Teachers' research knowledge refers to the understanding and skills that teachers have in relation to conducting research. This includes knowledge of research methods and techniques and the ability to interpret and use research results to inform their practice. This knowledge is important because it allows teachers to engage in research that is directly relevant to their own practice and has the potential to make a real difference in their classrooms and schools [11]. Teachers with strong research skills are able to identify and address challenges and problems in their own classrooms and

schools in a systematic and evidence-based manner [13]. Besides, it is also important as it allows teachers to keep up to date with the latest research and best practices in education and use this knowledge in their teaching.

In addition, teacher research experiences relate to the opportunities teachers have to engage in research, either individually or as part of a team. These experiences may include participating in research projects, conducting action research, or collaborating with researchers on studies. These experiences are important as they offer teachers the opportunity to develop their research skills and knowledge and to contribute to the knowledge base in education [2]. It can also be valuable for teachers because it allows them to engage in research that is directly relevant to their own practice and that has the potential to make a real difference in their classrooms and schools.

There have been several studies and articles that have demonstrated the advantages of teachers having adequate knowledge and experience in conducting research in the classroom. However, there is limited research specifically examining gender differences in teachers' knowledge and experience with research [19]. Past studies elucidated that some women may feel more drawn to research or further studies in management or administration because these fields are seen as more "suitable" or "appropriate" for women due to gender roles and stereotypes. In that regard, it is important to note that the research on this topic is limited and more research is needed to fully understand any potential gender differences in teachers' knowledge and experiences on research. Therefore, this study investigated gender differences in teachers' knowledge and experience on research, and the preferred field of study according to gender.

3. Methodology

Thirteen primary school educators participated in this research, identified through utilizing a purposive sampling approach. The selection of participants employed a purposive sampling method, chosen due to its suitability for situations where resource constraints and time limitations are pertinent factors [5]. This method allows for the selection of participants based on their availability and willingness to engage in the study. Data collection was facilitated through an online survey instrument deployed via Google Form. The instrument was structured into two sections: (i) Respondent Demographics, and (ii) Teachers' knowledge and experiences on research. A total of 13 items adapted from previous research. Statistical analyses were conducted utilizing the Mann-Whitney U test and descriptive statistics methodology, as outlined by May [12].

4. Results

4.1 Demographic Data of Respondents

Based on Table 1, the distribution of respondents by gender shows that of the 13 respondents, 6 (46.2%) were male and 7 (53.8%) were female. This shows that the majority of respondents were women. The distribution of respondents by state shows that the majority of respondents are from Perak (4, 30.8%), followed by Selangor (2, 15.4%) in Figure 1.

Table 1
Distribution of respondents according to gender

Gender	Frequency	Percent (%)
Male	6	46.20
Female	7	53.80
Total	**13**	**100.00**

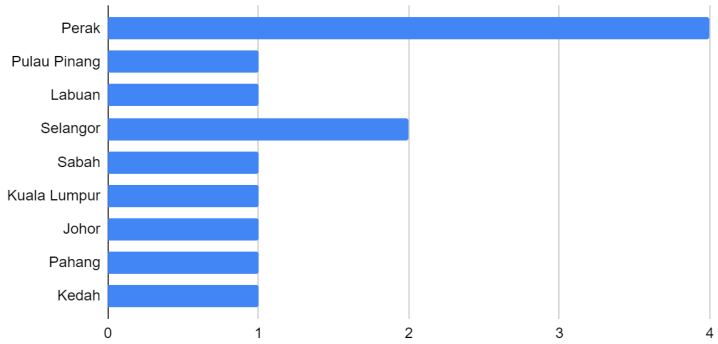

Fig. 1. Distribution of respondents' state

4.1.2 Level of Teachers' Knowledge and Experiences on Research

The state of teachers' knowledge was evaluated by five items in the questionnaire. The result was displayed in Table 2. Item 1 was the highest mean value with 3.46 among other items of this construct. Respondents stated that they have involved in small-scale research, for example action research. Item 2, with mean value 3.15, revealed that respondent found that reading materials relating to research methods are easy to understand. However, item 5 showed the lowest mean value with 1.85, meaning that the main reading material that respondents use (related to research methods) is not only limited to textbooks. Overall, based on the result of Table 2, the level of teacher's knowledge construct was found quite high with the mean value (2.58).

Table 2
Mean and standard deviation of teachers' knowledge on research

Construct	Item	Statement	Mean	Standard Deviation
Teacher's Knowledge on Research	1	I have involved in a small-scale research.	3.46	0.660
	2	I have experience working as a research assistant.	1.92	1.115
	4	Reading materials relating to research methods are easy to understand.	3.15	0.555
	5	The main reading material that I use (related to research methods) is textbooks.	1.85	0.801
	6	Reading materials related to research methods are based on my instructor/lecturer suggestion.	2.54	0.776
		Total	**2.58**	**0.781**

For the teachers' experiences on research construct, respondents agreed the most that data analysis depends on the type of data one gathers with mean value, 3.54, and the data reflected that respondents were experienced in research. Item 3, Item 7 and Item 8 showed the same mean of 3.08. Respondents stated that they can understand well materials related to research methods, know or recognize the key figures in the research method/design that they use for their study, and can distinguish the characteristics of different research designs. However, item 9, with the lowest mean value of 3.00, indicating that respondents understood the research methodology is related to the research questions posed in a study. Overall, Table 3 revealed that teachers' experiences on research is very high with the mean value, 3.15.

Table 3
Mean and standard deviation of teachers' experiences on research

Construct	Item	Statement	Mean	Standard Deviation
Teachers' Experiences On Research	3	I can understand well materials related to research methods.	3.08	0.641
	7	I know/recognize the key figures in the research method/design that I use for my study.	3.08	0.760
	8	I can distinguish the characteristics of different research designs.	3.08	0.954
	9	Research methodology is related to the research questions posed in a study.	3.00	0.707
	10	Data analysis depends on the type of data that one gathers.	3.54	0.519
		Total	**3.15**	**0.720**

The findings of this study suggest that teachers have a general understanding of research, but there is also a noticeable variation in their specific knowledge and experiences. Research skills are an essential part of a teacher's professional competence to help them improve their practice and make evidence-based decisions in school [22]. For example, teachers seem to be more comfortable with engaging in small-scale research projects than appraising the research materials themselves. This study highlights the need for professional development opportunities that target both general research knowledge and address specific areas where teachers may be lacking confidence. These opportunities could include workshops on research methods, but also sessions focused on critically evaluating research materials and navigating different resources. Equipping teachers with strong research skills will allow them to stay up to date on best practices, improve their teaching methods, and ultimately enhance student learning outcomes. By tailoring professional development to address the specific needs identified in this study, teachers can maximize the effectiveness of their teaching and learning.

4.1.3 Gender Differences in Teachers' Knowledge and Experiences on Research

Table 4 showed that there is no significant gender difference in teachers' knowledge of research ($U=20$, $p=-0.885$, $p<0.05$). Table 5 revealed that there is no significant gender difference in the teachers' experiences on research ($U=11.5$, $p=0.171$, $p<0.05$). Thus, the hypothesis null was fail to be rejected. There are no significant gender differences for teachers' knowledge and experiences on research. Teachers to be eager to learn how to conduct action research during times of crisis or change, such as during a pandemic. For example, action research is a type of research that is focused on identifying problems or challenges within a specific context, such as a school or classroom, and finding ways to address these problems or challenges through action. This approach can be particularly useful for teachers during times of crisis or change, as it allows them to identify and address problems or challenges within their own classrooms and schools in a systematic and evidence-based way. Thus, teachers, regardless of gender, attended online Continuous Professional Development (CPD) to enhance their knowledge and experiences on research.

Table 4
Gender differences in teachers' knowledge on research

Test Statistics[a]	
	Mknowledge
Mann-Whitney U	20.000

Wilcoxon W	41.000
Z	-.145
Asymp. Sig. (2-tailed)	.885
Exact Sig. [2*(1-tailed Sig.)]	.945[b]

a. Grouping Variable: gender

b. Not corrected for ties.

Table 5

Gender differences in teachers' experiences on research

Test Statistics[a]	
	Mexperience
Mann-Whitney U	11.500
Wilcoxon W	32.500
Z	-1.368
Asymp. Sig. (2-tailed)	.171
Exact Sig. [2*(1-tailed Sig.)]	.181[b]

a. Grouping Variable: gender

b. Not corrected for ties.

4.1.4 Preferred Fields of Study according to Gender among Teachers

The data was harmonized based on fields of study among the respondents in order to identify the preferred fields of study according to gender among teachers. Table 7 shows that the majority of respondents chose Management or Administration (3, 27.27%) and Teaching English as Second Language (TESL) (3, 27.27%) as their fields of study.

Table 7

Fields of study according to gender among teachers

Field of Study	**Gender**		**Frequency**	**Percentage (%)**
	Male	**Female**		
Education Management/Administration	1	2	3	23.08
Education Technology	1	1	2	15.38
Mathematics Education	1	0	1	7.69
Chemistry Education	0	1	1	7.69
Biology	0	1	1	7.69
Physical Education	1	0	1	7.69
Teaching English as Second Language (TESL)	1	2	3	23.08
Special Education for Visual Impairment Students	1	0	1	7.69
Total	**6**	**7**	**13**	**100.00**

In addition, female teachers tend to be more interested in conducting research than male teachers, mainly in the field of Management or Administration and Teaching English as Second Language (TESL). There are a number of factors that may contribute to why female teachers may be more interested in conducting research or pursuing further studies in management or administration and English language compared to male teachers. Some possible reasons include: (i) Personal interests and career aspirations. Some women may be naturally interested in management or administration and may be drawn to research or further study in these areas to advance their careers or deepen their understanding of these fields. This might be particularly true for women who have

an inherent interest in these fields or who find a career in management or administration to be a good match for their skills and interests [7]. (ii) Gender roles and stereotypes. It is possible that some women may feel more drawn to research or further studies in management or administration because these fields are seen as more "suitable" or "appropriate" for women. This could be due to societal expectations or biases that associate certain characteristics, such as leadership and decision-making skills, with men [18]. (iii) Societal expectations and biases. There may be societal expectations or biases that encourage or discourage women from pursuing certain types of research or further studies. For example, women may feel more supported or encouraged to pursue research or further studies in fields that are traditionally seen as more "feminine," such as education or healthcare [18].

5. Conclusions

In conclusion, this study revealed that the level of teachers' knowledge and experiences on research in schools is high and also concluded that no significant gender difference in teachers' knowledge and experiences on research were found. Furthermore, Management or Administration, and Teaching English as Second Language (TESL) were reported as the preferred field of study among respondents. Teachers' knowledge and experiences on research should be further investigated in future. Future research could investigate the specific areas where teachers need the most support in terms of research knowledge and explore the factors that contribute to the variation in research experience among teachers. This would help to tailor professional development opportunities to meet the specific needs of teachers and inform broader strategies to improve research literacy among educators. Additionally, future research could involve a larger sample size and collect data about the teachers' backgrounds and the school context to see if there are any patterns related to research knowledge and experience.

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