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Barriers of Implementing Action Research among Malaysian Teachers

S. Kanageswari Suppiah Shanmugam^{1*} and Lee Shok Mee²

¹*School of Education and Modern Languages, UUM College of Arts and Sciences, University Utara Malaysia, Sintok, Kedah, Malaysia*

²*Training Programme Division, SEAMEO RECSAM, Penang, Malaysia*

ABSTRACT

Action research is instrumental in enhancing teachers' professional development. Therefore, this study attempts to identify the challenges faced by Malaysian teachers in conducting action research in their schools and ensure its successful implementation. A total of 34 mathematics and science teachers participated in a focus group discussion. Thematic analyses indicate that the challenges can be classified as the 'S Factor' (school factor) and the 'T Factor' (teacher factor). The key challenges were found to be lack of research culture in schools, which have led to a series of other challenges, and teachers' lack of confidence due to limited scaffolding received in acquiring research-based knowledge and skills.

Keywords: Action research, barriers, Malaysian teachers

INTRODUCTION

Action research is a powerful and effective educational practice that can improve a teacher's instructional strategies to benefit the entire school (Stringer, 2008). In order to address emerging classroom issues, teachers participate voluntarily, plan collaboratively

and improve their instructional practices through observation and reflection. As such, action research initiates the process of school improvement pointing to the key role of teachers in this regard (Grundy, 1994). Since teachers are central in the successful implementation of action research in schools, it is crucial to identify the challenges they face, especially in countries like Malaysia, where the notion of action research is only now gaining roots after it has been introduced as a component of all the pre-service courses of teacher education from the early 1990s (Chee, 2011).

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E-mail addresses:

Kanageswari@uum.edu.my (S. Kanageswari Suppiah Shanmugam),

shokmee_lee@recsam.edu.my (Lee Shok Mee)

*Corresponding author

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Action Research

Action research is a cyclic process involving planning, action or doing the research, and observing and reflecting to improve an educational process (Hine, 2013). It is regarded as a part of teachers' continuing professional development, mainly because action research caters to their on-job learning in keeping abreast changes to their roles, teaching pedagogies and accountability demands that are necessary to address various student needs in this era of globalisation. As the teachers engage in action research, they construct teaching knowledge and become competent practitioners who integrate theory, research and practice (Hine, 2013; Johnson, 2012; Peters, 2004).

According to Riel (2016), action research is a systematic study that critically reflects the actions taken and the effects of those actions, based on empirically supported evidence from multiple sources. Reflective practices are the lifeline of action research because while conducting action research, teachers need to examine their current practices, and analyse actions taken during and post intervention.

Through a series of reflections, teachers construct their own pathway of learning, which in time, helps them to enhance their understanding of how different individual, environmental and societal factors fit into their real and complex educational situations (Bereiter & Scardamalia, 1993, as cited in Riel, 2016).

Action Research in Malaysia

Officers from the Teacher Education Division had convened for a short course from 11 to 18 December (Meerah, Ahmad, & Johar, 2002). In 1990, SEAMEO RECSAM (South East Asian Ministers of Education Organisation, Regional Centre for Education in Science and Mathematics) embarked on a collaborative action research project known as 'Thinking in Science and Mathematics (TISM)' with secondary school teachers in Penang (Tan & Bella, 1990; Chee, 2011). Since then, the notion of conducting action research was sustained through pre-service courses at educational institutes, in-service courses and workshops conducted by Education Planning and Research Department, Malaysian Ministry of Education (Meerah, Ahmad, & Johar, 2002), and the establishment of Malaysian Action Research Network (Kim, 1997). As a result of these programmes, there was a paradigm shift that saw the inclusion of research culture in the Malaysian teachers' profession, which to a certain extent, transformed education in general. As highlighted in Malaysia country report at the International Seminar on Best Practices in Science and Mathematics Teaching and Learning presented for the Asia Pacific Economy Corporation (APEC), the role of Malaysian teachers have been redefined with the incorporation of the research element that sees 'teachers as researchers'. Accordingly, nurturing the culture of research was seen as a vital and timely move,

especially in enhancing and sustaining teachers' professional development. The rationale stands that for teachers, education and learning are lifelong processes and with teaching being dynamic, it was imperative for them to be engaged in classroom research in order to improve their instructional practices. This is a part of their move to enhance students learning in the 21st century ("Malaysia", 2013).

According to the Ministry of Education Malaysia (2013), the need to introduce action research in Malaysia was mainly motivated by the advantages that action research brings to the school community. Teachers in particular, can reap the benefits as their experience in conducting action research itself provides an already existing opportunity for 'professional growth', 'self-renewal' in instructional strategies, direct involvement in diagnosing classroom problems and be agents of change in initiating a research culture in their schools ("Malaysia", 2013, p. 131).

In the Malaysian context, action research is slowly but being embraced by the teaching community. Many studies have addressed classroom issues among Malaysian teachers and much of these work is available in print and on the internet. A search in the internet will attest to that. The availability of these action research reports signals that the Malaysian teaching community is moving towards the right direction, as envisioned by the Malaysian Ministry of Education. Although action research promotes teacher learning, with the teachers' existing workload related to

planning a lesson and teaching, managing administrative, advisory, and paper work, conducting action research can be challenging and possibly burdensome to teacher.

Challenges in Action Research

The common understanding of action research is that teachers are required to conduct research in the classroom. However, little or no attention is given to a more pressing demand on teachers, which is, they also undertake the responsibility of initiating the process of implementing change. As a result of their research and action taken, their thinking, knowledge and understanding of the currently adopted instructional practices evolves through critical reflective practices. At a personal level, teachers develop their knowledge and skills (Hensen, 1996; Riel, 2016) to improve student learning (Sweetland & Hoy, 2000), while at a scholarly level they are able to generalise their findings to other situations and disseminate these results (Riel, 2016). At the organisational level, teachers develop a deep understanding on how factors can control change (Riel, 2016). This knowledge accumulated over time among teachers has led to a bigger change in the climate of the organisation (Riel, 2016), which assist in transforming schools into effective learning institutions (Detert, Louis & Schroeder, 2001). By studying evidence from various perspectives and working collaboratively, they engage in an intense inquiry on professional practices, which trigger personal and professional changes

(Osterman & Kottkamp, 1993) and affect the overall climate of the school to bring about societal changes (Riel, 2016). As Pine (2009) puts it, teachers conducting the action research assume the demanding role of 'enacting change' (p. 235), which requires more time, patience and additional skills related to research planning, communication and its implementation. Accordingly, action research poses challenges to teachers.

In a study (Peters, 2004) among Australian teachers, it discovered that one of the main challenges faced by teachers is time constraint: a) heavy school workload, which prioritised teachers' time and as such, impeded their involvement in the action research (Hine, 2013; Peters, 2004); b) The rigid structure of the school timetable that handicapped teachers' commitment in conducting action research, which included meetings to discuss research-related activities that could not be carried out during school time as it deprived students of their learning time. Although teachers willingly arranged for meetings to take place after school hours, there was no one meeting that recorded full attendance as there were incidents of teachers coming late, being absent or leaving early due to personal or official commitments.

While the direct consequence of time working maliciously against teachers was apparent, the indirect consequences of being imprisoned by time also triggered a chain of challenges among them. The teachers were divided between their commitments to students and to their research work (Peters, 2004), which also affected the

robustness of the methodology employed (Waters-Adams, 2006). They faced a huge challenge of continuously and consistently giving attention to their action research as they devoted on improving their teaching practices and improving student learning, which led to research work being at the bottom of their priority list (Peters, 2004).

Another barrier was the support received from the school system, which included the administrative team (Peters, 2004; Slutsky et al., 2005) and the overall school structure (Peters, 2004), with the latter having an overwhelming effect than the former (Leila & Morteza, 2015). The study conducted by Peters (2004) revealed that while the school administration allowed teachers to carry out action research in school, the support was not translated into reducing their existing workload nor rewarding their efforts of conducting the action research. On the other hand, study conducted by Slutsky et al. (2005) found that the teachers lacked support from the school administration and collaboration from their colleagues. This was mainly due to the school culture that perceived teachers sharing their findings as boasting.

According to Peters (2004), the mind set of teachers also posed challenges. Their belief on the usefulness of action research in enhancing their knowledge and professional practices, and their background knowledge was found to be a compelling factor. Despite their conviction on the importance of networking in a professional learning community as a platform to engage in professional discourse, they were sceptical

on the relevance of conducting research and publishing their output as they fear it may take their time away from the core business of teaching. Accordingly, they felt that research aptly suited university scholars. One contributing factor for this the importance teachers place on 'inquiry stance' (Cochran-Smith & Lytle, 1992, as cited in Peters, 2004) and the need to collaborate within the scholarly community to upgrade their knowledge.

Teachers' knowledge on what constitutes research and a lack of research skills act as a barrier s leading to misconceptions on the meaning of action research (Gilbert & Smith, 2003). Their lack of understanding, which can be associated to lack of resources (Leila & Morteza, 2015) has caused them to be overwhelmed by the rigid design of a fundamental research, placing great emphases on the technical and the scientific aspects of research. Much of their suffocation stemmed from misconceptions such as the need to have voluminous data and complex statistical analyses. Additionally, those who understood the process of conducting research quickly embraced its implementation, those who did not were less independent and faced greater challenges (Peters, 2004), especially in confronting their fears, which stemmed from their lack of knowledge about research (McKernan, 1993), and also about not being able to come up with 'substantial' outcomes, which is worthy of reporting as conclusive findings (Slutsky et al., 2005). In this perspective, teachers faced a conflicting role as researchers, which affected their

objectivity to interpret the findings (Waters-Adams, 2006) and the dilemma of filtering the actual results from the expected ones (Hine, 2013).

In sum, the common challenges faced by teachers in embracing action research are related to time constraints, heavy workload, lack of knowledge and skills related to research and action research and misconceptions related to fundamental research and action research. Additionally, peer pressure as a result of the school culture and teachers' mind-set also posed challenges.

Challenges in Action Research in the Malaysian Context

The challenges faced by Malaysian teachers are not uncommon as their counterparts from other parts of the world are also affected. One of the the most critical challenges is time constraint (Norasmah & Chia, 2016). Teachers are restrained by time as they have to balance between their teaching and non-teaching tasks. This is aggravated by their existing heavy workload (Meerah, Ahmad & Johar, 2001), such as completing their syllabus and preparing students for examination. These priorities consume most of their school time, leaving little time for research which involves planning, data collection and analyses, and writing research reports.

Malaysian teachers are also challenged by lack of knowledge and skills related to conducting action research. According to Subramaniam (2011), accurately focusing

on a specific research problem and to reflect it in their writing, are crucial skills for teachers and thus, school support is important, but nevertheless continues to be a challenge (Norasmah & Chia, 2016). Teachers are also challenged by lack of facilities and in addition to the fact not many of their colleagues are also knowledgeable in action research (Meerah, Ahmad & Johar, 2001). However, recent years have seen a marked increase in the number of teachers who have adequate knowledge and skills related to conducting action research through cascading and in-house trainings (Meerah & Osman, 2013).

However, one challenge that was not reported in other countries is lack of financial support (Peters, 2004; Slutsky et al., 2005). Funding action research is an issue raised by Malaysian teachers as the sources of fund were limited to school funds, and allocations from the State Education Department and the Ministry of Education (Meerah, Ahmad, & Johar, 2001). Nevertheless, other institutions are beginning to provide fund for teachers to collaborate and network with lecturers in higher learning institutions (Meerah & Osman, 2013).

Statement of Problem

The benefits of conducting action research are rewarding and promising for the schools, teachers and students (Hine, 2013; Osterman & Kottkamp, 1993; Peters 2004; Riel, 2016). The overwhelming limitations, however, remain as challenges and affect

its full implementation. While there have been extensive studies on the theoretical knowledge of action research and the common challenges faced by teachers in many countries, a digital search indicates a dearth of research on the challenges faced in implementing action research in Malaysian schools (Norasmah & Chia, 2016) are limited.

In addition, there are almost no studies on the challenges faced by Malaysian teachers in implementing action research, from their point of view. As such, this study contributes to the existing body of knowledge on highlighting the teachers' point of view on the challenges they face while conducting action research.

This study focuses on mathematics and science teachers mainly because action research in these two fields is of primary importance as students in Malaysia have not been performing as well as they should in international assessment such as Trends in International Mathematics and Science Study (TIMSS) and Programme for International Student Assessment (PISA). Improving students' achievement in mathematics and science has become a national concern, which was addressed in the Malaysian Education Blueprint 2013-2025 (Preschool to Post-Secondary) (Ministry of Education Malaysia, 2013). Therefore, the need to conduct action research in schools in these two fields is more than necessary, and identifying the challenges faced by the mathematics and science teachers is the

way forward as it will not only alleviate the situation but will improve the quality of action research. It is only by identifying the real challenges that confront Malaysian teacher-researchers who are conducting action research in their schools, can there solutions to ensure the full implementation of action research in Malaysian schools.

Research Objective

This study was aimed at closing the gap between idealism and reality of conducting action research by highlighting the challenges faced by Malaysian teachers in executing action research as part of their professional job. Its objective is to understand the challenges of conducting action research from the Malaysian mathematics and science teachers' viewpoint, who are teacher practitioners and researchers. Hence, this research examined the challenges mathematics and science teachers faced in conducting action research as part of their job description.

METHODOLOGY AND SAMPLE

The study adopted the methodology of focus group discussions, where seven groups of five to six teachers were asked on the

challenges they faced while conducting action research (Krueger, 1988).

This study was conducted based on a one week in-country training conducted at SEAMEO RECSAM. A total of 34 science and mathematics teachers and educators attended this training workshop, with an overwhelming 25 female teachers (73.5%) and 9 male teachers (26.5%). The group consisted of teachers with diverse teaching experience, with majority of them (35.3%) having 11 to 15 years of teaching experience. A majority of 27 teachers were first degree holders (79.4%), while 7 had Master's (20.6%), which indicate that the group is experienced in robust data analyses and fundamental research. The group consisted of teacher-practitioners (24), eight School Improvement Specialist Coach + (SISC+) and two educational officers. The School Improvement Specialist Coaches are mandated to conduct action research in the schools under their care as part of their job description. All of them are mathematics and science teacher educators, who have had classroom teaching experiences having taught in primary or secondary levels (see Table 1 on demographic details of the participants)

Table 1
Participants' demography

		Age (Years)						Total
		21– 25	26 – 30	31 - 35	36 - 40	41 - 45	≥ 46	
Gender	Male	0	1	1	6	0	1	9
	Female	2	5	5	6	2	5	25
	Total	2	6	6	12	2	6	34
Teaching Experience (Years)	1 – 5	2	0	1	0	1	0	4
	6 – 10	0	6	1	3	0	0	10
	11 - 15	0	0	4	6	0	2	12
	16- 20	0	0	0	3	1	2	6
	≥26	0	0	0	0	0	2	2
	Total	2	6	6	12	2	6	34
Academic Qualification	Degree	2	5	4	10	2	4	27
	Master's	0	1	2	0	0	2	5
	Phd	0	0	0	2	0	0	2
	Total	2	6	6	12	2	6	34
Designation	Teacher	2	5	4	7	2	4	24
	Ed. Officers	0	0	0	1	0	1	2
	SISC+	0	1	2	4	0	1	8
	Total	2	6	6	12	2	6	34

The teacher educators were requested were asked four questions on their prior knowledge and skills related to conducting action research. Majority of them (25, 73.5%) have heard of action research, while 10 of them (26.5%) have not heard of action research. About 29.3% (the highest) acquired the knowledge by attending training workshops, 4.7% heard about the concept from their colleagues and the rest knew about it from a variety of sources such as books, internet or attending

talks in schools to fulfil part of the school requirement. Except for three teachers, all of them (91.2%) have had experience conducting action research, with 20 teachers (58.8%) having conducted action research only once. However, when asked to self-rate their confidence level in conducting action research, only 12 respondents (35.3%) rated themselves as having very high or high confidence. Table 2 shows the participants' responses.

Table 2
Participants' Responses on Action Research

		Heard of Action Research		
		No	Yes	
Have Conducted Action Research	No	1	2	3
	Yes	8	23	31
	Total	9	25	34
Num of Times Having Conducted Action Research	None	2	1	3
	Once	4	16	20
	Twice	3	8	11
	Total	9	25	34
Have Confidence	Very Low	1	0	1
	Low	4	7	11
	Fair	1	9	10
	High	3	7	10
	Very High	0	2	2
	Total	9	25	34

In understanding the challenges of action research from their point of view as teacher practitioners, they were first asked whether they had ever conducted any classroom action research. Each participant was later given an individual task of listing some challenges that he or she encountered while conducting action research, or challenges that prevented him or her from carrying it out. They were later assigned to a group of 5-6 participants, where they were given tasks to outline the challenges in an easy-to-read diagrammatic representation on what they experienced while conducting action research. The session concluded with each group having a poster display followed by an oral presentation. This was used as a platform to identify solutions and alleviate their fear of action research. The entire four-

hour session was facilitated by two trainers. The rationale of using this approach was to unearth the challenges faced by the teachers themselves and to allow them to present those challenges as they experienced from their perspective.

DATA ANALYSES AND INTERPRETATIONS

The poster and oral presentations provided rich qualitative data for this study (Johnson, 2009). This study adopted word analysis, where the focus was on looking at the frequency count of repeating words and keywords-in-contexts (KWIC). The basis of using this form of analysis was because words that occur multiple times are often seen as salient in the respondents' minds (Ryan & Bernard, 2003).

RESULTS AND DISCUSSION

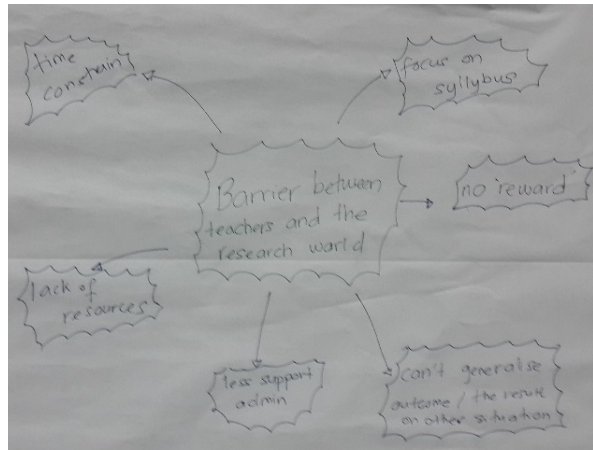


Figure 1. An example of participants’ diagrammatic representation

Table 3
Barriers to conducting action research

S factor (Number of groups, n)	T Factor (Number of groups, n)
Lack of research culture in school (n=6)	Time constraint (n=5)
Lack of resources and internet facilities (n=4)	Lack of knowledge or skills or confidence (n=5)
Lack of support from administration or school (n=5)	Heavy workload- comprising teaching and documentation (n=3)
Lack of financial support (n=1)	Teachers’ motivation or negative mind-set of conducting research (n=3)
	No extrinsic reward or recognition of doing action research (n=2)
	Exam orientated expectations (n=2)
	Resistant to change (n=1)
	Open-endedness of action research (n= 1)

Further investigation reveals two major categories of issues related to the school and teachers, referred to as the ‘S factor’ and the ‘T factor’. The main challenge captured in the ‘S Factor’ is the lack or absence of research culture in schools. The main argument is that conducting research is ‘not normal’, which probably suppresses the research element and thus the successful

implementation of action research. Another challenge most frequently reported was lack of support from the school or from the school administration. As one teacher explained, “The school supports us by encouraging us but not by reducing our workload”. It is clear that the support rendered by the school is not translated into actions that can reduce the workload that they assume as teachers,

just like in other countries (Peters, 2004) When the research culture is almost absent in schools, it is understandable support from the school to be lacking too. However, support from the school system is critical in motivating teachers to conduct action research (Grundy, 1994).

Despite the ongoing efforts to encourage action research in Malaysian schools, schools are more likely to be focussed in enforcing instructional practices, rather on research. Another challenge that was highlighted, which is related to the school culture, was lack of co-operation among teachers, poor school facilities and financial constraints. Facilities and infrastructure in schools, mainly availability of internet and resources to facilitate action research, was perceived as a drawback in conducting research. Support from the school administration is also important team (Peters, 2004; Pine, 2009). Only one group highlighted financial issues as a challenge among teachers who collaborate in action research. Possible reasons could be that the school lacked sources to fund their research, teachers lack the knowledge to source for funds or the fund is insufficient. In short, the research culture in schools can be captured in two standpoints, the existing static nature of the school culture that does not encourage the research element and the lack of encouragement to conduct research. Either way, it directly affects the growth of a research culture in schools.

The teacher factor or the 'T factor' relates to extrinsic factors such as time constraints and workload, and intrinsic factors such as

attitude, motivation, confidence and fear. While time constrain was reported as a huge challenge, it was often associated with the teachers' heavy workload of teaching and 'clerical' work, which were directed towards finishing syllabus and preparing students for examinations. Time constraint appears to be a global challenge faced by teachers as their instructional time spent in school was insufficient to allow them to engage in action research (Peters, 2004). As highlighted by one of the participants, "If the school can intervene by reducing the teachers' workload, time may not challeng us as how it is now".

Many teachers had negative perceptions of conducting research in schools, as research was generally thought to being secondary to teaching, and therefore viewed as not important or worthy of efforts when compared to teaching, being a teacher's core task. Upon further examination, it was revealed that some teachers were not interested to 'write' the report of the completed action research and as such, were discouraged to conduct action research. Some reported they were not comfortable with the initiative to make a change or to undertake the daunting task of becoming 'agents of change'. Their roles as teachers are perceived as passive consumers of knowledge and not dynamic producers of knowledge, which is seen to be the purview of university researchers. Their resistance to change also formed a barrier in conducting action research.

Another intrinsic factor that had an impact on conducting action research was

motivation. The teachers reported that there was neither reward nor recognition, for assuming a complementary role as teacher-researcher. While monetary gratifications were not their main focus, teachers welcomed a reduced workload or a lighter timetable to cope with the added research-related work, and also guidance from external assistance to scaffold their queries on their research. This may explain why this one-week course on action research received immense response within days of its announcement.

Confidence was another challenge. Many lamented their lack of knowledge and skills associated to research and suggested ways that could be integrated into teaching. Lack of such skills has eroded their confidence and deterred them from conducting action research.

A negative intrinsic factor that directly worked against the teachers was fear. More teachers reported their belief that action research requires the rigorous methodology and rigidity statistical analyses of applied research compounded their fear they already had on lack of knowledge on action research. The open-endedness of action research was also found to be a challenge as some teachers reported that their fear also stemmed from not being able to make substantial findings at the end of their research. A few indicated that their fear sprang from their reluctance to admit the difficult truth, which was related to the pedagogical methods employed in their research. The fear of having conducted a 'failed' research was a challenge by itself in

conducting action research, especially after investing much time and effort.

Therefore, there were manifold factors that deterred this group of science and mathematics teachers in conducting action research in schools. But, lack of research culture was cited as the key factor. Could this be due to lack of or no encouragement from the ministry of education to provide sufficient training for teachers, or there is no reward or due recognition for teachers as researchers? Discussions with the sample revealed that school teachers were subjected to heavy procedures when applying for leave to present their findings in international conferences, coupled with the burden of self-financing, and not even obtaining partial sponsorship from the authorities. Yet, financial support was listed at the bottom of the scale and therefore least expected. The results also indicated that lack of knowledge or skills and support from administration were high on the list of thorny barriers. Time constraint was cited as problematic, but workload was not perceived as much of a deterrent factor. Thus, the results show that motivation can remove the negative mindset of teachers in engaging classroom action research and ensure they are less resistant to changes in their instructional practices.

CONCLUSION

The article has shed some light on the challenges faced by Malaysian teachers-researchers in conducting action research from their viewpoint. The lack of research culture in schools and lack of support from

school administration were identified as key challenges in addition to teachers' heavy workload, which were associated with time constraint, and teachers' low confidence, which was related to lack of knowledge, skills, and scaffolding.

As highlighted by Grundy (1994), even though teachers play an instrumental role in improving the quality of education through action research, the pivotal role of the school as providing a 'benign facilitative structure' (p. 34) must be acknowledged. According to the author, but the school is a site where educational reform is taking place. Such recognition highlights the importance of receiving support from schools, specifically through the organisational structures within which teachers operate, which is not exclusive to the administrative teams.

Thus, provision of proper scaffolding to address the poverty of research culture in school is essential. Accordingly, a two-way collaboration between university lecturers and school teachers is important (Yuan & Lee, 2014). The external assistance will provide the teachers the much-needed support in terms of knowledge and skills related to research, and simultaneously address their lack of confidence, motivation, interest, knowledge and skills, and minimise fear. The experience born out of this partnership can be rewarding for both parties and it also forges professional ties between the two educational institutions. By working towards promoting, embedding and actualising the culture of 'doing research' in schools, it will help to alleviate the lack

of support from the school and improve teacher cooperation as well. This is because when schools are mandated to execute a programme, it becomes a priority and no longer an option.

This study has highlighted some of the challenges faced by Malaysian teacher-researchers in conducting action research in schools. However, it ought to be noted that the study was carried out in a small-scale among a selected sample of mathematics and science teachers who attended a one-week course on action research. It is recommended that future studies be conducted among a large sample from all the states in Malaysia, for the successful implementation of action research. For monitoring and evaluative purposes, it is vital to get current updates on the implementation of action research in Malaysian schools, especially in view of the on-going training programmes on action research conducted by the Ministry of Education to nurture and sustain action research for the teacher's continuous professional development. For this purpose, it is also proposed that the school and teacher categories that were identified in this study be used as constructs to be developed into a questionnaire.

To conclude, improving educational practices is not solely concerned with methodology. For action research, teachers play a vital in its successful implementation. It is hence, important that they receive support from schools and the Ministry of Education in overcoming challenges related to sustainability of action research.

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