

Innovative Behavior among Teachers: Empirical Evidence from High-Performance Schools

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Abstract: Education is decisive to structure a greater nation and shaping its citizens' ability to compete globally. It is one of the major drivers for social capital progress and the country's economy. As such, the education sector needs continuous monitoring to identify areas for development. Teacher's Innovative Behavior plays an important role in the maintenance of quality education. However, in Malaysia, far too little attention has been paid to Innovative Behavior among teachers. Previously published studies are limited to surveys research design and strategies. Therefore, this mixed methods study aims to identify the Innovative Behavior of teachers from high-performance schools. A questionnaire of Idea Generation; Idea Promotion and Idea Realization was distributed to 629 teachers. Meanwhile, four principals and eight teachers were interviewed to corroborate or refute the quantitative findings. The findings suggest that Idea Generation; Idea Promotion and Idea Realization have been practiced at high levels in the schools. This study brings important messages to policymakers, curriculum developers, and relevant authorities. They can use these findings to formulate regulations to promise a beneficial educational atmosphere and enhance the quality of education.

Index Terms: Innovative Behavior, Teacher Education, Teaching, and Instruction

I. INTRODUCTION

The Malaysian Education Blueprint (2013-2015) provides a comprehensive and long framework to realize a rapid transformation of the education system until 2025 where intended reforms include aspects of student learning approaches, innovation, the selection of teachers, teacher training, and delivery of rewards for teachers and school leaders [1]. Meanwhile, Innovative Behavior teachers can be defined as a process in which new concepts are generated, created, developed, applied, promoted, realized, and modified by teachers to benefit role performance.

Previous studies mostly defined Innovative Behavior relates to the method, by which employees develop, generate, apply or promote fresh ideas to enhance job performance. The structure and functions of Education's innovative nature are determined by teachers creative activity, attitude towards innovation, willingness and capacity to produce fresh instructional materials and instructional techniques. Innovative Behavior and professional growth of teachers are significant elements of quality schooling.

Thus, Innovative teacher behavior in classrooms is required for three main reasons. First, to maintain up to date with a quickly evolving culture, innovative conduct is crucial. The requirements for learners and their educators in our knowledge society are growing [2]. Second, new

strategies and new learning perspectives involve creative Behavior. Third, the school should set a clear example and behave as a point of departure for the nation more creative conduct so that society can remain competitive.

I. LITERATURE REVIEW

In knowledge-based societies where there is intense competition, innovation is seen as critical to organizations sustainability and success. In other words, Innovative Behavior by teachers is of great importance for the further growth of academic careers as well as school organizations and for our growth as a knowledge society. Innovative Behavior is closely related to the social cognitive theory [3]. Against a clear framework, this theory can help predict any change in human behavior. This theory is in conjunction with the theory of learning that describes the idea of individual learning by observing what others do and not do. Innovation in an organization is influenced by two main factors, organizational systems, and culture [4]. Organizational culture and climate are closely related to employees' willingness to carry out the tasks assigned to them [5], [6]. In addition, effective communication aspects are also critical factors that trigger innovation in an organization [7].

Teachers are advocated as knowledge workers who continuously create, develop and share knowledge and skills in their work [6]. Therefore, teachers' work is closely linked to creativity and innovation. Creativity is one of the areas of focus not only on professors but also to educators [6]. According to [8] defined innovative teacher conduct as performing innovation and further elaborated that innovative conduct includes watching, listening to, and adapting thoughts, constructing an action plan, evaluating through reflection and assessment, and adjusting innovation. Innovative teachers impact their students to be creative and innovative in the future [9]. The Innovative Behavior of teacher teaching as suggested by [10] is divided into three; Generating Ideas, Promoting Ideas and Realizing Ideas. These three dimensions need to happen simultaneously to enable teachers to act with Innovative Behaviors in teaching and learning in the classroom.

Innovative Behavior

Based on quite a lot of research [11-15]. According to [16] defined Innovative Behavior divided into three level of process: (a) idea generation, (b) idea promotion, and (c) idea realization, surrounded by a work task and role,

workgroup, or the institution, in order to benefit role achievement to the group, or the institution.

Almost of the researchers who followed the classification of Janssen (2003) used this definition to suitable with their study [16]. [8] described innovative teacher behavior as acting the innovation and extra elaborated that Innovative Behavior involves observing, listening to, and adapting ideas, building a strategy of action, assessing through reflection and assessment, and modifying the innovation. [17] advanced a questionnaire for innovative work behavior and defined Innovative Behavior as chance investigation, idea generation, idea promotion, idea realization, and reflection.

But, idea realization could not be cross-validated by (CFA) confirmatory factor analysis. The part of reflection as part of Innovative Behavior was also identified by [18]. While, [19-24] on creativity, a term that has been often used interchangeably with specific innovation [12].

[19] defined innovative teaching as the development and use of novelty, creativity or invention of a teaching method to reach a goal of teaching or education. The use of novelty, originality, or invention is related to idea generation stage [16]. The second part of the definition, the invention of a teaching method to reach a goal of teaching or education, is related to [16] idea promotion and realization stages.

Similarly, Innovative Behavior is observed as an collaboration among the individual and condition that is influenced by past as well as current events and leads to an result that can be judged to be creative [24]. [23] termed creativity as surrounding the process of generating new ideas and in this approach intensive only on the first stage of [16].

Meanwhile, [24-28] focused on Innovative Behavior as teacher professional transformation. Here, teachers decide to modification their professional practice with a considered focus on professional development [28]. Reflection on experience is an significant part of teacher transformation [27].

Furthermore, critical reflection of practices led to the innovative progress of school work [24]. In summary, Innovative Behavior in this article is defined as a three-stage process: (a) idea generation, (b) idea promotion, and (c) idea realization [16].

Idea Generation

The idea generation process occurs when employees identify problems that arise in the work being done, hence generate new ideas to address such problems [29]. Idealization means in teaching and learning the formulation of fresh concepts. Therefore, innovative teaching as the ability of the teachers to engage students in the classroom, to improve students' ability to learn, to identify and address the different needs of students by applying strategies. While promotional thoughts are connected with circumstances where educators are bound by the duty to produce fresh teaching and learning thoughts To do so, an individual needs to be skillful in identifying problems and solving them using new solutions or reviewing existing processes for improvements. This stage demands people to be cognitively committed in thinking [1]. [31]. As Drucker (1993) [30] noted, the key to an organization to grow does not only rely on how the existing knowledge is managed but on how the creation of new knowledge is continuously prioritized. Idea

generation involves the development of a new and potentially useful idea [31], [33]. At this stage, individuals need to master the problem-solving skills and be able to look critically at the solution to the problem so that improvements can be made. In the context of schools, idea generation is seen as the ability of teachers to think and create new ideas hence demonstrate them in creative methods that lead to effective delivery to students.

Idea Promotion

Essentially, Innovative Behavior is defined in this article as a self-initiated, three-stage process: (a) intentional idea generation, (b) idea promotion, and (c) idea realization [16]. All 37 studies had an implicit or explicit link with parts of this definition. A more specific form of Innovative Behavior is the integration or implementation of ICT in teachers' classroom practices. The extensive literature search yielded several articles that explored ICT integration. These were included on the condition that the authors made the link to at least one of the stages of Innovative Behavior. Promoting ideas refers to behavior that leads to selling ideas to others, especially to colleagues. At the same time, seek to get support for implementing the idea [32]. In the context of the school, teachers should always be positive in accepting and reinforcing innovative ideas. The launch of these new ideas needs to be done continuously [17]. At the same time, teachers are also working to encourage other teachers to have innovative work behaviors.

Idea Realization

Realizing the idea refers to efforts by teachers to use innovative and creative ideas in carrying out teaching and learning tasks so that teaching and learning sessions in schools become more meaningful and thereby have a positive impact on student achievement and performance. At this stage, creative ideas need to be realized in the teacher's teaching and learning practices although sometimes this creative idea is contrary to the previous practice of the organization [33]. Likewise, [34] investigated the take-up of innovative computer tools in science classes and distinguished the stages of teachers' relevant experience, changing external goals, actual practice, realizing goals, and the effects of existing practices (idea realization).

Impacts of Innovative Behavior

There are positive and negative impacts of Innovative Behavior. While teacher support strongly impacts creative behavior, this behavior in itself may also put pressure on collegiality. The issue continues whether tensions impact Innovative Behavior always negatively. This issue can be resolved in part through the concept of powerful and weak ties [35], as links are essential for creative conduct (getting fresh input and fresh ideas), but at the same moment these ties should not be too powerful, as weak ties are more in line with innovation and powerful ties with the status quo [36]. Innovative Behavior's impact on the relationships between colleagues can lead to tensions that can decrease the intensity and, perhaps, the number of interactions. This decrease could lead to more creative behavior. Assumptions on the impacts of creative behavior are formulated in terms of greater competitiveness and significance to knowledge society growth. However,

only a few significant positive effects were found.

More specifically, two studies found positive results of Innovative Behavior on the students [21].

II. RESEARCH METHODOLOGY

This study adopts a mixed methods approach via explanatory sequential design method to gain insights on the issue. The quantitative survey design was implemented in the early stages followed by a semi-structured interview. The qualitative data are able to unbury the issues in-depth [37] during triangulation. Therefore, can provide a more detailed picture [38]. This method is a two-phase design with the first collection of quantitative data followed by qualitative data collection. The aim is to further clarify and interpret the findings from the quantitative stage using the qualitative results.

Instrumentation

For a quantitative approach, a questionnaire on sustainable leadership was adopted [39], [40] and administered to teachers to gather information on sustainable leadership in schools. Teachers have been randomly involved in answering this questionnaire. While for the qualitative approach, a semi-structured interview protocol was developed based on the dimensions measured in the survey. The protocol served as a guideline to ensure smooth and orderly session while assist researchers to make important notes during the conversation.

Validity and Reliability

Reliability explains the extent to which an instrument, procedure or test is built capable of producing the same results in various situations assuming that other things do not change. This reliability also refers to the consistency of a measuring instrument in measuring something to be measured [41], [42]. In this study, validity and reliability are ensured by obeying the procedures outlined below.

To ensure that the questionnaire met with the validity, in the early stages, all questionnaires were translated into Malay using the Back to Back Translation method. Researchers seek cooperation from an officer at the Ministry of Education (MOE, Curriculum Development Division) with a translation certificate from the National Translation Institute and two language lecturers from the Aminuddin Baki Institute and an English language teacher.

In the second stage, for the five faculties, a total of five teachers from daily high schools comprising various races, namely Malay, Chinese and Indians, were selected to examine the entire instrument, ie, in terms of typeface, size, instrument and language layout. This is to determine whether they are clear or blurry against the language used.

As a result of such feedback, some improvements such as verbs have been translated into teacher words. In addition, the words of the organization have also been changed to the words of the school. Subsequently, the researcher submitted the questionnaire to two Malay language experts of whom are Munsyi Dewan. At the third level, researchers have managed to get seven experts who have extensive knowledge in the areas of management, administration and education leadership. This stage involves lecturers from IAB, District officers, principals, and university lecturers from other universities such as Universiti Pendidikan Sultan Idris (UPSI) and Universiti Sains Malaysia (USM). Then, the

researcher conducted a pilot study to test for validity and reliability. The reliability test is shown in Table 1.

Table 1. The Reliability Of Sustainable Leadership Instruments

Dimension	Cronbach Alpha
Idea Generation	0.831
Idea Promotion	0.833
Idea Realization	0.917

The results show that Cronbach Alpha value is 0.831 which is above 0.70 [43] which suggest its appropriacy for research purposes.

The findings obtained from four principals and eight teachers were analyzed by the researchers. The data interview was transcribed in verbatim and appropriate codes were placed to the verse uttered by the respondents. Once done, the researcher asked the views and expertise of two experts, acting as inter-rater, in the field of education management to examine and evaluate each category given. Subsequently, the researchers finally made calculations based on [44] for qualitative data as shown in Table 2.

Table 2. Results of Kappa's Reliability Test on Interview Findings

Finding	Value	Kappa's Reliability
Interview	0.82	Landis & Koch (1977) Almost perfect agreement Chua (2012) High and very satisfying

Sample and Population

The study involved the daily high school in band 2 and band 3 in northern Peninsular Malaysia. A total of 42 schools were involved in this and 629 teachers were involved. Interviews included four principals and eight teachers. These principals and teachers are selected from four different schools.

III. FINDINGS

Quantitative findings

Based on the findings, teachers perceived their own Innovative Behavioral lessons in school at moderate-high levels. In particular, the idea realization shows a high-level perception (Mean 3.95). Likewise, the idea dimensions also show that they are at a moderate level (Mean 4.21). The standard deviation value also shows that the perception range of Innovative Behavioral practice behavior is not much different. This is illustrated in Table 4.

Table 4. Mean score for Innovative Behavioral in Teaching

Dimensions	Mean	Standard Deviation	Level
Idea Generation	4.07	0.55	Medium High
Idea Promotion	4.21	0.59	High
Idea Realization	3.95	0.69	Medium High

Findings show that teachers have a high level of practice in promoting any new form of ideas in their teaching and learning.



However, to generate and realize the idea, the level of practice of teachers is moderately high. This is because internal factors such as the lack of support and rejection of counterparts make creative and innovative ideas unprofitable [45].

Qualitative findings

Teacher's Innovative Behavior is important in influencing the organization as it is in school. It can improve productivity, effectiveness and improve the quality of expertise in an organization. In the context of this study, researchers focus on the Innovative Behavior of teacher teaching in the teaching and learning aspects of the classroom. Teachers need to be creative in planning their lessons. Creativity should be accompanied by the ability of teachers to innovate their ideas. Based on the interviews, researchers found that the three dimensions proposed by [32]. The Innovative Behavior of teachers was partly encouraged by the principals. The following excerpts illustrate the findings:

PC "Encourage and freedom for teachers to be more creative and innovative in delivering Teaching and Learning in the classroom"

PD "We are not restricted. Teachers must think of a method to make it easier for students to understand what is being taught. That is why I emphasize innovative. Innovation does not need big capital".

GA "Like now the subject of history, we make it in the form of the gallery walk, jigsaw puzzle, the pupil becomes proactive. It's not a boring time to teach the subject".

GB1 "There is .. be able to see these creative teachers. How much does he make in his Teaching and Learning?".

The Innovative Behavior of teacher teaching goes well with high-performance schools. Encouragement and freedom have been given by principals to further enhance their success as well as that of students.

Of the three dimensions tested through quantitative studies, qualitative findings show that all of these things happen simultaneously. In addition, qualitative findings also produce several sub-themes such as a) Encourage and freedom is given b) Encourage and liberation given by principals to participate internationally c) Innovative Behavior in terms of designing and implementing teaching methods and d) Encouraging principals the application of creativity and innovation elements among teachers. All these things happen well in high-performance schools. It turns out that school management, especially principals, encouraged teachers to generate ideas, promote ideas and realize ideas.

IV. CONCLUSION

The study was started by quantitative research and supported by qualitative studies. Quantitative findings show that Idea Promotion is the highest level of 4.21. While it is followed by Idea Generation (4.07), and Idea Realization (3.95). Meanwhile, qualitative findings support all of the quantitative findings. The implication for practice focuses on teachers is another implication for exercise. This study suggests teachers need their colleagues' assistance and guidance to be successful in innovating. This study shows that teachers need support and guidance from their colleagues to succeed in innovating. At the same time,

conflicts can emerge or further develop when teachers are involved in innovation.

Thus, it is important for those teachers who are innovating to respect their colleagues, and for teachers whose colleagues are innovating to respect their innovating colleagues for having the courage to change their lessons and behaviors. All teachers should acknowledge they need each other and ask for each other's support, and acknowledge that conflicts can sometimes be beneficial to Innovative Behavior. Educational organizations that want to increase Innovative Behavior can select or create human resource management instruments intended to identify teachers with the personal qualities that lead to more Innovative Behavior. Giving each other feedback, developing a learning climate, and facilitating autonomy and task interdependency promote Innovative Behavior Overall, this study has successfully identified the level of innovative teaching of teachers. The findings show that this behavior occurs in high-performance schools. Meanwhile, leadership plays an important role in ensuring the continuity and success of this behavior. Idea generation, the idea of promotion and realization need to be better and more organized to ensure the sustainability of the behavior. Support from the authorities is much needed to ensure successful implementation in education.

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