



THE IMPACT OF LEARNING BY DOING APPLICATION TO ENHANCE STUDENTS INQUIRY IN THE CLASSROOM

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Abstract

Background: *Learning by doing, also known as experiential learning, is a method when the learners actively participate in the learning process. The role of the teacher is to guide and facilitate the learners by providing a variety of activities and teaching materials that enhance inquiry in the classroom.*

Research purposes: *The purpose of this study was aimed to investigate the impact of learning by doing applications to enhance students' inquiry in the classroom.*

Research methods: *The present study involved forty-six (46) teachers across disciplines. Literature review, teachers' questionnaires, and open-ended questions through interviews were used for this study.*

Research results: *The finding showed that most of the respondents understood and agreed about the impact of learning by doing application in the classroom and have been applied the method in their teaching and learning process. Some strategies, strengths, and possible challenges were shared during the interview. Hence, the result emphasized that the method enhances active participation that promotes inquiry.*

Conclusion: *Most of teachers are familiar and consistently implement the learning by doing strategies to extend inquiry in the classroom. Some of the learning by doing strategies were shared during the interview. Most of the teachers have occupied with professional development workshops to increase their understanding on how to implement learning by doing that enhance inquiry in the classroom practices. Accordingly, over 90% of teachers agreed on the importance of application learning by doing in the classroom practices. Regarding some feedback, more than half of teachers agreed that learning resources and environment are helpful in the application of learning by doing. Moreover, learning by doing also enhanced inquiry and promote student voice and choice. Despite all the strengths have mentioned above, some challenges also were shared. For example limited resources, time and cost consume and different teachers' abilities in applying learning by doing in the classroom.*

Keywords: *Application, Impact, Learning by Doing, Inquiry*

Abstrak

Latar belakang: *Learning by doing, juga dikenal sebagai experiential learning, adalah suatu metode dimana peserta didik secara aktif berpartisipasi dalam proses pembelajaran. Peran guru adalah membimbing dan memfasilitasi peserta didik dengan menyediakan berbagai kegiatan dan bahan ajar yang meningkatkan inkuiri di kelas.*

Tujuan penelitian: *Tujuan dari penelitian ini adalah untuk mengetahui dampak pembelajaran dengan melakukan aplikasi untuk meningkatkan inkuiri siswa di kelas.*

Metode penelitian: *Penelitian ini melibatkan empat puluh enam (46) guru lintas disiplin ilmu. Tinjauan pustaka, kuesioner guru, dan pertanyaan terbuka melalui wawancara digunakan untuk penelitian ini.*

Hasil penelitian: *Hasil penelitian menunjukkan bahwa sebagian besar responden memahami dan setuju tentang dampak pembelajaran dengan melakukan penerapan di kelas dan telah menerapkan metode tersebut dalam proses belajar mengajar mereka. Beberapa strategi, kekuatan, dan kemungkinan tantangan dibagikan selama wawancara. Oleh karena itu, hasilnya menekankan bahwa metode tersebut meningkatkan partisipasi aktif yang mendorong inkuiri.*

Kesimpulan: *Sebagian besar guru sudah terbiasa dan konsisten melaksanakan pembelajaran dengan melakukan strategi perluasan inkuiri di kelas. Beberapa strategi pembelajaran dengan melakukan dibagikan selama wawancara. Sebagian besar guru telah mengikuti lokakarya pengembangan profesional untuk meningkatkan pemahaman mereka tentang bagaimana*

menerapkan pembelajaran dengan melakukan yang meningkatkan inkuiri dalam praktik kelas. Oleh karena itu, lebih dari 90% guru setuju tentang pentingnya pembelajaran aplikasi dengan melakukan praktik di kelas. Mengenai beberapa umpan balik, lebih dari separuh guru setuju bahwa sumber belajar dan lingkungan sangat membantu dalam penerapan learning by doing. Selain itu, belajar dengan melakukan juga meningkatkan inkuiri dan mempromosikan suara dan pilihan siswa. Terlepas dari semua kekuatan yang disebutkan di atas, beberapa tantangan juga dibagikan. Misalnya keterbatasan sumber daya, konsumsi waktu dan biaya serta kemampuan guru yang berbeda dalam menerapkan learning by doing di kelas.

Kata kunci: Aplikasi, Dampak, Belajar sambil Melakukan, Inkuiri

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INTRODUCTION

Education aims to develop human qualities according to the needs of the community (Baco & Elihami, 2021). Hence, education should be given to individuals from early stages (Sailer et al., 2021). Education is essential to form individuals' personalities and behaviour and how to solve various problems (Conger et al., 2021). Education is a learning experience that can be given in formal (Spassiani et al., 2021) and non-formal environments that requires interaction and collaboration between learners and educators to achieve the learning goals (Björklund Boistrup & Selander, 2022).

Education is one of the fundamental priorities, not an accessory but it is a necessity (Mohamed & Mohamed, 2021) and crucial for individuals. Education is a continuous learning experience from an early age to develop not only knowledge (Fleming, 2021) but also increases the important value of making our lives better (Brem et al., 2021). Education has two different approaches (Pohle et al., 2021); academic and non-academic performances, which should be balanced (Razali et al., 2021). The academic approach is more structured (Reuter & Leuchter, 2021) and focuses on knowledge and subject matters (Tobien, 2021), while the non-academic approach is a value-based education that includes non-cognitive skills, behaviour, social-emotional skills, communication skills, character, growth mindset, and soft skills that are essential for the learners to grow and help learners to grow as individuals (Fernandes et al., 2021).

School as part of education institute should focus on giving the best education to students by empowering them to achieve their best on both academic (McNicholl et al., 2021) and non-academic performance. Hence, a good education is giving the opportunity for the students to explore, understand the process, know the value of learning (Hung, 2021), and be able to solve problems, instead of traditional learning method which used repetition and memorisation of information in the classroom practices.

Nowadays, students want to learn new knowledge by doing. They want to express themselves, tell a story, interact and collaborate with others. They want to explore and be engaged in the learning process to increase their knowledge so that new ideas can be developed through the learning process. John Dewey's learning by doing is one of the methods that can be implemented in classroom practices. To fulfil the learners' needs, teachers as facilitators should be able to provide learning resources and an environment that promotes learning by doing practices. Teachers should enrich themselves and explore learning by doing strategies that can engage and promote inquiry in the classroom.

Teaching is indeed a complex and challenging profession. Teachers should be able to meet various social and intellectual demands, and should be able to work cooperatively with students and colleagues. In line with that, the role of the teacher has gone beyond teaching. Their role now involves counselling, mentoring and teaching students to be able to use and apply their knowledge in their lives. Teachers are now looking for ways to influence and inspire students to do more and be a better versions of themselves.

Following the introduction, evaluating the process and result is important. Thus, these findings will be useful to ensure the expected educational goals are achieved. With this intention, the present study investigates teachers' understanding of the importance and application of learning by doing to enhance inquiry in the classroom.

RESEARCH METHOD

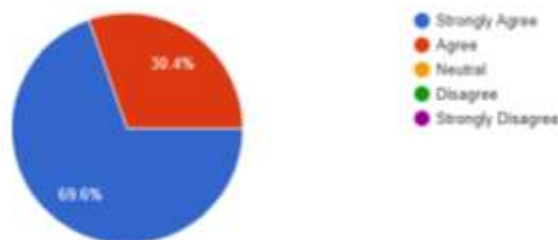
In this study, a quantitative cross-sectional study and sampling technique was applied for the data collection. Forty-six (46) teachers were invited to take part in this study through self-administered questionnaire. Some teachers were interviewed in the self-administered interview to identify their understanding of importance of learning by doing and the impact of the learning by doing application to enhance inquiry in the classroom. Open-ended questions related to strategies, strengths and challenges were also asked during interview.

The self-administered questionnaire was designed by the investigator. The questions were designed in a Likert Scale format. The objectives of the questionnaire focused on the teachers' understanding of the importance and application of learning by doing that enhance inquiry in the classroom. Open-ended questions also included in assessing the strategies, strengths and challenges in applying learning by doing that enhance inquiry.

Following data collection, the frequency and percentage of each response is summarized and presented in the form of pie chart and table. For open-ended questions, thematic analysis through different themes are also summarized in the table.

RESULT AND DISCUSSION

Anonymous self-administered questionnaire were conducted among forty-six (46) teachers across disciplines. The results of the study presented on Figure 1 revealed that 32 (69.9 %) strongly agreed and 14 (30.4%) agreed about learning by doing is important in teaching and learning process. The blue colour indicates strongly agreed and red colour indicates agreed.

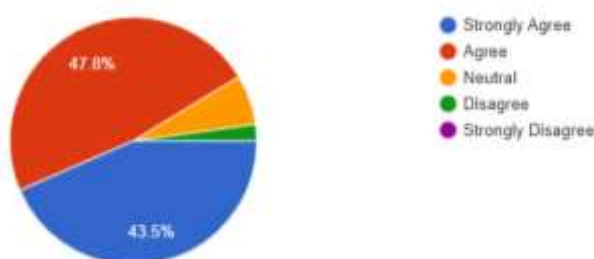


Picture 1. Teacher's response on their understanding of the importance and application of learning by doing in the classroom (n=46).

Teachers were asked whether the meaning of learning by doing was that the students find the information by themselves. Out of the 46 respondents, 16 (34.8%) strongly agreed, 17 (37%) agreed, 9 (19.6%) neutral, 3 (6.5%) disagree and 1 (2.2%) disagreed. From the self-administered interview, the possible reason for those who disagreed could be *"because children still need the support from adult to find information. It can't just be done without support"*. However, learning by doing is a process where the student learn doing something through experiences to gain

understanding and practical expertise and in this learning process, the role of the teacher is as facilitator in the classroom. It is aligned with what Dewey believed that teacher as educator facilitates the dynamic interactions of learner and his/her experiences.

Then, when the teachers were asked about the manipulatives is one of the learning by doing tools. From the result presented on Figure 2, the 20 (43%) strongly agreed, 22 (47.8%) agreed, 3 (6.5%) agreed and 1 (2.2%) disagreed. Laski et al. (2015) explained that manipulatives are physical tools that help to build concepts and understand the concept. Teachers should be able to provide resources to support the learning by doing and one of the tool is manipulatives. The findings below are presented using descriptive statistics based on frequency counts and percentages.



Picture 2. Teacher's response on their agreement that manipulatives is one of the learning by doing tools (n=46).

Table 1. Teachers' response from the self-administered questionnaire (n = 46).

No.	Items	Frequency (percentage)				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Learning by doing is important.	32 (69.6)	14 (30.4)	0 (0)	0 (0)	0 (0)
2	Learning by doing means the students find information by themselves.	16 (34.8)	17 (37)	9 (19.6)	3 (6.5)	1 (2.2)
3	Manipulatives is one of the learning by doing tools.	20 (43.5)	22 (47.8)	3 (6.5)	1 (2.2)	0 (0)
4	Providing learning resources is important to enhance learning by doing in class.	33 (71.7)	13 (28.3)	0 (0)	0 (0)	0 (0)
5	Environment is the third teacher in learning by doing.	23 (50)	21 (45.7)	2 (4.3)	0 (0)	0 (0)
6	Doing experiment leads to inquiry.	26 (56.5)	19 (41.3)	1 (2.2)	0 (0)	0 (0)
7	Learning by doing leads to deeper understanding.	33 (71.7)	13 (28.3)	0 (0)	0 (0)	0 (0)
8	Designing learning environment is essential.	22 (47.8)	22 (47.8)	2 (4.3)	0 (0)	0 (0)
9	Learning by doing drives inquiry.	30 (65.2)	16 (34.8)	0 (0)	0 (0)	0 (0)
10	The inquiry process should be included in the classroom practices.	26 (56.5)	19 (41.3)	1 (2.2)	0 (0)	0 (0)

Then, the result showed that 33 (71.7%) strongly agreed and 13 (28.3%) agreed that providing learning resources is important to enhance learning by doing in the classroom and providing learning resources is important to enhance learning by doing in class, the 33 (71.7%) strongly agreed and 13 (28.3%) agreed to the statement. When the

teacher were asked about the importance of learning environment, 23 (50%) strongly agreed, 21 (45.7%) agreed and 2 (4.3%) neutral. Designing learning environment is essential, The 22 (47.8%) strongly agreed, 22 (47.8%) agreed and 2 (4.3%) neutral. Biggs (2021) mentioned that teacher must be able to create learning environment that facilitates the process of learning to engage student into the lesson.

The result indicates 26 (56.5%) strongly agreed, 19 (41.3%) agreed and 1 (2.2%) neutral to the statement of experiment leads to inquiry. Some teachers were interviewed about learning by doing strategies in the classroom; “we do experiments, problem-based assignment and role-play”; “we always repeat similar or almost similar activities and consistently doing hands on learning from most activities. At the end, students will come out and develop their own ideas. They initiated the activities using their own ideas”; “we do explore brain stimulating activities, experiment and observation.” The teachers also mentioned that the school provide professional development to help teachers understand more and implement the learning by doing better in the classroom practices. The 30 (65.2%) strongly agreed and 16 (34.8%) agreed that learning by doing drives inquiry and should be included in the classroom practices, 26 (56.5%) strongly agreed, 19 (41.3%) agreed and 1 (2.2%) neutral. According to one of the teacher have mentioned during interview; “Yes, learning by doing should be included in the classroom practices because by doing the activity, student will be more engaged to the learning and will have a first-hand experience in the learning process itself.”

Then, the teachers were asked some open-ended questions and the responses were categorized into logically related themes. When the teachers were asked about the strengths of learning by doing, most of them agreed that learning by doing drives inquiry. If we want the students to actively take part into learning process, they have to be able to be an inquirer to explore it by themselves. This concept is align with John Dewey’s preference of student-centered learning.

Furthermore, the teachers were asked if learning by doing promote student voice and choice, the common responses emphasized that learning by doing helped the students to develop their own idea and understand lesson in-depth. They are also given choices and chance to voice out their ideas through learning by doing activities. A teacher mentioned; “Learning by doing does empower student choice and it also builds independence”.

Regarding the obstacles related to the learning by doing method. The study revealed that limited resources was the main challenge. For example, one teacher stated that “limitation of learning resources limit the learning by doing practices in the classroom.” Another teacher also stated that “designing the learning environment that is encourage learning by doing is challenging”. Therefore, encouraging teachers to increase the ability and knowledge of their understanding of the learning by doing concept is important. Pring (2007) mentioned that teacher should have enough experience to be able to identify the students’ interest and drive them to inquiry learning.

Table 2. The teacher's response about strengths and Challenges in applying learning by doing in the classroom.

Common Themes	Teachers' response
Strengths of applying learning by doing in the classroom	A: "more student agency, students will also be given freedom to make their own choice in how to solve the problem" B: "there is a saying, practice makes perfect" C: "allow for processes of knowledge construction" D: "enhance inquiry in the classroom practices" F: "students can be more independent while learning and playing"
Challenges in applying learning by doing in the classroom	V: "Lack of learning resources" W: "need more cost and resources (including cost of failure)" X: "need supervision and advisory" Y: "failure to meet expectation"
Learning by doing strengthens the student engagement and empowers student voice and choice	R: "during the process, students will be given freedom to make their own choice on how to do things or solve the problem" S: "by learning by doing, the students will also learn about the skills. By mastering the skills, the students can confidently share their ideas about the knowledge, which is also affecting their self-efficacy in becoming more vocal and confident in sharing their knowledge". T: "they learn and understand the concept if they do it by engaging themselves. They as well enhance their skills. You (teacher) as well empower them because you have given them chance to voice out their thoughts and express their feelings".

CONCLUSION

Most of teachers are familiar and consistently implement the learning by doing strategies to extend inquiry in the classroom. Some of the learning by doing strategies were shared during the interview. Most of the teachers have occupied with professional development workshops to increase their understanding on how to implement learning by doing that enhance inquiry in the classroom practices.

Accordingly, over 90% of teachers agreed on the importance of application learning by doing in the classroom practices. Regarding some feedback, more than half of teachers agreed that learning resources and environment are helpful in the application of learning by doing. Moreover, learning by doing also enhanced inquiry and promote student voice and choice. Despite all the strengths have mentioned above, some challenges also were shared. For example limited resources, time and cost consume and different teachers' abilities in applying learning by doing in the classroom.

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