***GNOSI:* An Interdisciplinary Journal of Human Theory and Praxis**
Volume 4, Issue 2, June, 2021
ISSN (Online): 2714-2485

The Quest for Teachers' perception and Implementation of *Discovery Learning* in Indonesian Senior High Schools

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(**Received**: February-2021; **Accepted**: June-2021; Available **Online**: June -2021)

ABSTRACT

Central to the implementation of educational change are the teachers, regardless of their position in the implementation policy, either as policymakers or as implementers. They may choose to implement or not to implement the policy in their classrooms since they do this behind closed doors. Their perceptions on the innovation are vital, and ultimately affect the successor the failure of the innovation. This study aimed at investigating Senior High School English teachers' perceptions on the Discovery Learning (DL) as a recommended teaching model of English in Indonesian 2013 curriculum, and to what extent they implemented this model in their classrooms. Adopting qualitative inquiry, this study employed an ethnographic interview. It was evident that teachers perceived the DL model as an innovative model and in line with student-centered paradigm currently adopted in the 2013 curriculum. However, most teachers admitted they only occasionally used this model since it requires students to possess a number of cognitive skills and be intrinsically motivated to learn. Besides, this model requires high technology in which their schools still got difficulties providing technology-based tools to facilitate students' learning

Keywords: Curriculum implementation; Discovery Learning; Teachers' Perception.

INTRODUCTION

Change has become the mantra of world life, including education. A change in teachers' perception is a significant component of any educational innovation (Kennedy, 1988; Kirkgöz, 2008). Understanding the principles of innovation is one of the key factors for the success of its implementation. When there is a significant difference between the philosophy of a proposed innovation and the teachers' own beliefs, teachers will interpret innovative ideas in favour of their own and adapt them to their own style of

teaching (Karavas-Doukas, 1995; Anyam & Odey 2015; Veronica & Samuel 2017). Consequently, the innovation is not implemented as intended by curriculum planners. At this point, it is common that teachers are criticized for being unable to understand the new concepts brought by the innovation. When this happens, what is needed is the negotiation of meaning between teachers and the developers of the curriculum so that they can develop a shared vision of the implementation of the innovation.

Research has revealed that what curriculum designers intended is not always reflected in the way a curriculum is implemented in the field (O'Sullivan, 2004). Among the factors that make it difficult to implement curriculum innovation are teachers' understandings, their background training or educational background, lack of guidance, and the influence of textbooks. Contextual factors such as students' expectations, large size class, insufficient resources, and assessment can also affect how teachers implement innovations. Teachers' understandings and their educational backgrounds play a significant role in the degree of implementation of innovation.

Karavas-Doukas (1995) studied factors affecting the implementation of an EFL innovation in Greek public secondary schools. He identified that teachers' understanding of the innovation, their attitudes, their perception of the training they attended, and their belief in the impracticality of the innovation are factors that hindered the implementation of innovation. Teachers' failure to deal with the demands of innovation as a result of their inadequate training, their incompatibility with the innovation, and the failure of the innovation to accommodate the realities in the classroom were found to be important causes of teachers' resistance to the innovation (Karavas-Doukas, 1995, p. 65-66).

Ultimately, teachers' role in the implementation of an innovation is crucial. In the Indonesian context, it is important to investigate whether teachers implement the new innovation, the 2013 curriculum, particularly how they implement it in their specific classroom context. The 2013 curriculum offers some new features, including the adoption of a Scientific Approach to be employed in all subjects. This approach is supposed to be implemented through some recommended learning models; such as discovery learning, problem-based learning, and inquiry-based learning. This study investigated to what extent teachers implement Discovery Learning (DL) model in teaching English in Senior High Schools through the following research questions:

1. How do teachers perceive DL model?
2. To what extent do teachers implement this model?

LITERATURE REVIEW

A. The nature of curriculum implementation

Snyder, Bolin, and Zumwalt (1992) identified three perspectives in relation to curriculum implementation: the fidelity perspective, the mutual adaptation perspective, and the curriculum enactment perspective. The former two perspectives see the curriculum as an entity produced by experts or specialists to be implemented by teachers through instruction. Fidelity perspective, for example, is a very structured approach in which teachers are given specific instructions about how to teach a unit or a course, and that their role is merely as a passive receiver who will be trained to transmit the content of the curriculum package to their students (Marsh & Morris, 1991). The mutual adaptation perspective sees that although teachers are instructed how to implement the innovation, adjustments can be made possible to the innovation itself. In

other words, the implementation should involve a compromise between curriculum developers and teachers as implementers (MacDonald & Walker, 1976). The latter perspective, the curriculum enactment perspective, sees that curriculum is formulated through "the evolving constructs of teachers and students" (Snyder, Bolin & Zumwalt, 1992, p. 404). Syllabuses and teaching materials provided either by the government or other external institutions are considered tools that students and teachers use as they engage in the enacted experience of the classroom.

Teachers are supposed to play a key role in any curriculum implementation (Essoh et al., 2014). They can decide whether or not to execute any innovation in their classroom as intended by policymakers (Elmore & McLaughlin, 1988; Smith & Desimone, 2003). Sarason(1996), for example, suggested that it is likely to doom the implementation of educational innovation into failure if teachers are not involved directly in the process of innovation. Research has also suggested that when teachers take part in decision-making during the process of implementation of an innovation, it is likely that implementation will be successful, despite the questions when exactly teachers need to be involved and how much they should be engaged (Berman & McLaughlin, 1978).

This statement implies that teachers should be taken into account in curriculum policymaking. Failure to do so will result in the ineffectiveness of the implementation of the curriculum. Teachers need to be acknowledged that they are the experts in their classroom and that the curriculum is for their use (Loucks & Lieberman, 1983).

A number of studies have demonstrated the powerful influence that teachers may have on the implementation of the curriculum. Therefore, it indicates that, in general, teachers do not implement curricula in their classrooms in the same way that these curricula were assigned to be implemented (Iskandar, 2016). For example, Clark and Elmore (1981) reported that teachers adapt curricula to fit their knowledge, priorities, and unique classroom settings while Brophy and Good (1974) reported that teachers influence curriculum implementation by deciding which topics and activities are appropriate for their students. These studies suggest that teacher perceptions and beliefs play a critical role in the process of curriculum implementation. Teacher perceptions may lead to the hindrance of the effectiveness of curriculum implementation.

Teachers' attitudes also contribute to the implementation of change (Iskandar, 2015). According to Kennedy and Kennedy (1996, p. 351), the implementation of change in classrooms requires changes in both teacher and student behaviour. Teachers' attitudes play a part in this behaviour. When their attitudes are compatible with a proposed innovation, the implementation of the innovation is likely to harvest a positive result. However, this positive climate can also be extinguished by the lack of support for the innovation; either support from the government, the principal, colleagues, or communities.

In the process of implementation of new innovation, teachers need to receive more information and, if necessary, some training on how to implement it. Very often, teachers are commanded to implement things without getting satisfactory reasons why they have to shift their traditional practice of teaching to a new one. The curriculum authorities need to convince the teachers that the new innovation is more appropriate and relevant to teachers, students, and communities to ensure that will adopt it in their teaching practice.

Ultimately, teachers determine the fate of a curriculum innovation (Ball, 1994). Although other factors may contribute to the success or failure of its implementation, it is the teachers' practice of teaching that will influence the learning taking place. Teachers' view about curriculum regulates their practice and will affect how they decide the content of the curriculum (Kable, 2001).

B. Discovery Learning

DL-contains an instructional model that focuses on active, hands-on learning opportunities for students (Piaget, 1973). Bicknell-Holmes and Hoffman (2000) describe the three main attributes of DL: 1) exploring and problem-solving to create, integrate, and generalize knowledge, 2) student-driven, interest-based activities in which the student determines the sequence and frequency, and 3) activities to encourage the integration of new knowledge into the learner's existing knowledge. How do these three attributes combine to make discovery learning different from traditional forms of learning? The most fundamental differences are 1) learning is active rather than passive (Mosca & Howard, 1997), 2) learning is process-oriented rather than content-oriented, 3) failure is important, 4) feedback is necessary (Bonwell, 1998), and 5) understanding is deeper (Papert, 2000).

First, in discovery learning, students are active. Learning is not defined as simply absorbing what is being said or read, but actively seeking new knowledge. Students are engaged in hands-on activities that are real problems needing solutions. (Mosca & Howard, 1997).

Secondly, the focus shifts from the end product, learning content, to the process; that is how the content is learned. DL pushes students to a deeper level of understanding, and the emphasis is placed on mastery and application of primary skills (Bonwell, 1998).

Thirdly, failure in discovery learning is seen as a positive circumstance (Bonwell, 1998). Learning occurs even through failure. DL does not prioritize getting the right answer. Cognitive psychologists have shown that failure is central to learning (Schank & Cleary, 1994). The focus is learning and just as much learning can be done through failure as success.

Fourth; an essential part of DL is the opportunity for feedback in the learning process(Bonwell, 1998). Student learning is enhanced by a discussion of the topic with other learners (Schank & Cleary, 1994). Without the opportunity for feedback, learning is left incomplete. Instead of students learning in isolation, as is typical in the traditional classroom where silence is expected, students are encouraged to discuss their ideas to deepen their understanding.

By incorporating all of these differences, DL provides deeper learning opportunities. Learners internalize concepts when they go through a natural progression to understand them (Papert, 2000).

RESEARCH METHODS

This study was a qualitative investigation designed to explore the conceptual issues of teachers' perception towards DL model as a recommended teaching model in the 2013 curriculum, and the extent to which it is implemented in the classroom context. This study employed an ethnographic interviewing technique to collect data from the respondents(Bauman & Adair,1992). Data about teachers' interactions, behaviours, and

beliefs were expected to emerge naturally from within their own personal and cultural context. The nature of this kind of interview is that it is an unstructured, non-directive interview. However, tentative interview questions were used to steer the flow of information toward the topic of the study. Tentative interview questions were prepared. In these interviews, the respondent's role was the expert. This role was employed to encourage respondents to provide descriptive data as dense as possible. The researcher treated respondents' language as data.

RESULTS AND DISCUSSION

Five teachers participated in the study. All the interviewed teachers were speakers of English as a Foreign Language; therefore grammatical mistakes may occur in some responses. Occasionally, Bahasa Indonesia was used by the teachers at their own convenience when they gave responses. To some extent, those responses have been modified accordingly in the presentation without changing their meanings. For an ethical reason, the presentation of the interview results employs pseudonyms for the interviewed teachers. The results of the study were discussed based on the research questions.

A. Teachers' perception of the DL model

From the interview, teachers commonly perceived that DL is one of the recommended models of teaching English under the umbrella of the Scientific Approach. Other models are the Problem-Based model, Inquiry-Based model, and Project-Based Learning. They perceived that this model is basically a development of the notion of "learning by doing". They also witnessed that this model, if applied properly, has many advantages. It encourages students to be creative, enables them to work both individually and in a group, enables them to explore their own potentials in learning, enables students to think critically, enables active involvement of students, and enables students to be responsible. These are the attributes of the model identified by most teachers. Agus, one of the participating teachers, commented:

> *DL makes learning fun. When I provide them with learning resources and inform them of the learning objectives, they form their group to start the learning. They start exploring the resources, then identifying problems, collecting and verifying the data, making conclusions and generalizations. I found it difficult for them at the very first time; therefore I put the instructions in detail to guide what they should do. Now, whenever I employ this model, students do it with fun because they already know what to do.*

What Agus portrayed was evident that DL can promote active learning (Mosca & Howard, 1997). It was also evident that this model can enhance students' collaboration with other learners (Schank & Cleary, 1994). It was obvious, too, that the type of DL employed by Agus was Guided Discovery Learning or GDL (Bruner 1961; Brown &Campione 1994). When students get adequate support in developing the necessary knowledge, GDL can help them to become more motivated, develop flexible knowledge, and learn how knowledge is developed in a specific domain (Reiser, 2004). Fiona, another teacher, added some more attributes of DL. She said:

> *In my experience, my students like most when the given tasks are in the form of games. I often do this when we are encountered with dull topics students feel uninteresting. They like when I give them crossword puzzle.*

> *This is typically incidental learning, but anyway, students are motivated because they want to do the game activities. This creates an opportunity to discover new things.*

Fiona seemed to believe that although this incidental model of learning was not well planned, students actively involved in the classroom. Incidental learning has been proposed earlier by Shank and Cleary (1994) as one of the main architectures for discovery learning. Others are case-based learning, learning by exploring/conversing, learning by reflection, and simulation-based learning.

From what Agus and Fiona attested, it was apparent that they have a considerably enough understanding of the DL and its features, and have sufficient knowledge on how to employ this model of learning in their classrooms.

B. Teachers' implementation of the DL model

Contrast to their understanding and their positive perception of the DL model, teachers were not enthusiastic to give responses when they were confronted with the question of to what extent they implemented this model in their classroom. Alex said:

> *Actually, I have understood how to implement DL model in the classroom. I've attended enough training on this from teacher trainers. What makes it difficult is that my students are mostly from less advantaged families who cannot support their children with good facilities. They cannot buy them laptops that are required to access the internet, for example, and neither the schools can provide them. It forces me to apply teacher-centred approach, in which I do the teaching with direct instruction.*

Ali who taught at school that most students came from slum areas admitted that it was challenging for him to apply innovative methods. Ali saw that his students were not suited to student-centred learning. Most students were less motivated to learn and were mostly passive. Many of these students have to work after school or even absent from school so often to support their family's earnings.

> *I know that if I force myself to apply the DL model, the students do not learn at all. So, sometimes I have to choose between implementing recommended teaching model or stick to a more traditional model, such as direct instruction. This model works better for my student, although very often I got a warning from the school supervisor. But that's my consequence. I know my students better…*

Ali obviously understood the best method for his students. He did not want to put their students in a detrimental situation, such as lessening their motivation to come to school. They were so vulnerable, so teachers have to carefully select a teaching approach that suits them.

CONCLUSION

Teachers perceived the DL model as an innovative model of teaching. This model has shifted the learning environment or behaviour from the traditional teacher-centred approach to learner-centred approach. It encourages students to be active participating learners instead of passive recipients of knowledge transferred by their teachers through direct instruction. However, they admitted that this model is not easy to implement. First; DL requires high order thinking skills, while teachers admitted that more students were low achievers who tend to hide issues that were not understood, and made them

difficult to identify students' learning difficulties. Second; DL is a learning model that mainly involves high technology equipment to support learning take place; therefore schools have to be furnished with this type of equipment. It is generally acknowledged that most Indonesian schools are still lack facilities to enhance students' learning.

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