# INNOVATION IN EDUCATION:
# BARRIERS AND FACILITATING FACTORS

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**Abstract:**
Many assumed innovation has to do with technology and new inventions. That is far from the truth. Innovation can be as simple as finding new ways of doing things. Millennials learn differently from their older generation peers. The exposure of technology has caused many millennials to have poor communications skills. They are also reported to have shorter attention span for millennials, learning needs to be fun and relaxing. Innovative ideas need to be identified from a list of recognizable facets of innovation. This paper reports a literature review of different facets of innovation in education. The objective of this paper is to explore how the environment influence innovation in learning. This paper also looks into the barriers and facilitating factors for innovation in education.

**Keywords:** innovation, education, millennials, barriers, facilitating factors

## 1. Introduction
### 1.1 Background of the Study
Innovation in education is doing things in a new way. To do something differently requires coming up with an approach, process, product or strategy. According to Reichart (2019), there has been increasing demand for innovation in higher institutions of learning.

### 1.2 What is Innovation in Education?
Many assumed innovation has to do with technology and new inventions. Although it can be related to using technology and making new inventions, but innovation is beyond that. Jewitt, Xambo and Price (2015) see innovation as finding new ways of doing things. Xenitidou & Gilbert (2009) mentioned two facets of methodological innovation. The first facet (Figure 1) looks at the extent of the innovation and how it is connected to an existing method. Some also confined the first facet to the creation of new methods, new designs,

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concepts and doing things (Taylor & Coffey, 2008). The first facet deals with three categories of innovation such as inception, adaptation and adoption.
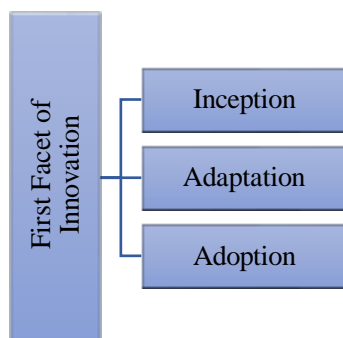


**Figure 1:** First of Innovation (Taylor & Coffey, 2008)

The second facet (Figure 2) deals with diffusion. This refers to the extent to which "true" innovation can be accepted by the wider research community.
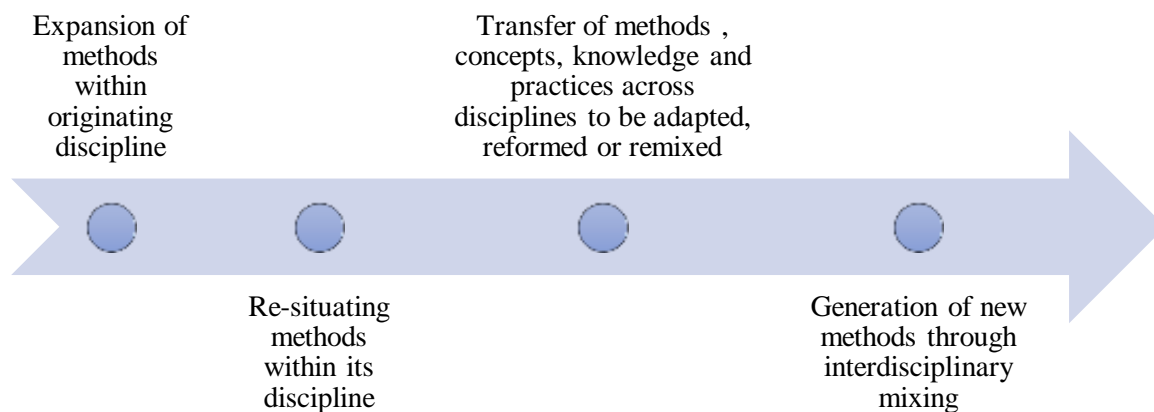


**Figure 2:** Second Facet of Innovation (Xenitidou & Gilbert, 2009)

This second facet can be seen in four categories in a continuum and they are;
a) the *expansion* of methods within its originating discipline;
b) *re-situating* methods across contexts within its discipline;
c) the *transfer* of methods, concepts, knowledge and practices across disciplinary borders to be adapted, reformed or remixed;
d) to the *generation* of new methods through inter-disciplinary mixing.

## 1.3 Statement of Problem

### 1.3.1 How do Millennials Learn?

Many have reported millenials learn differently from their older peers. The exposure of technology has made many millennials have poor communications skills (Rahmat, Syed Abdul Rahman and Hassan, 2018). They are also reported to have shorter attention span. Hence, Laskaris (2015) suggested that millennials respond well to the type of learning that involves the Five R's (Figure 3).
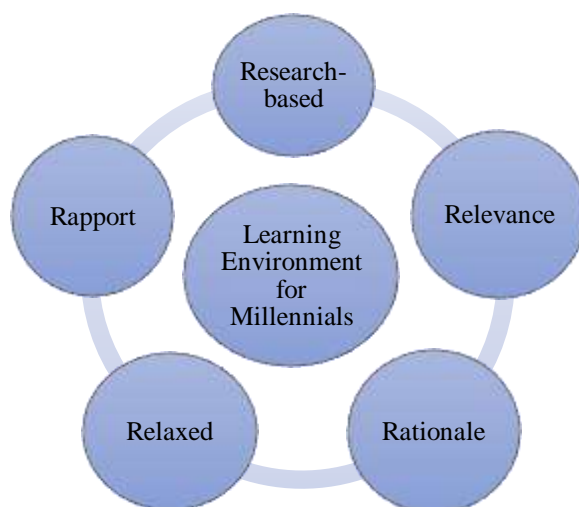
**Figure 3:** Learning for the Millennials (Laskaris, 2015)

## 2. Research-based methods

Millennials respond well to a broad spectrum of learning strategies. They prefer learning materials that caters to their various needs such as visual, auditory and kinesthetic. In addition to that, millennials have shorter attention spans than their older generation peers. They prefer lessons that have less lecture. They enjoy group collaboration where they get to interact with people around them.

### 2.1 Relevance
Millennials are great at "googling" to get information. They do not appreciate information for its own sake. They do not value theories. They only value information if they can see its relevance to their lives.

### 2.2 Relaxed
Millennials look for "laid back" environment. Millennials prefer a relaxed learning environment, with minimum pressure, more freedom to complete assignments and also more freedom for personal expression and creativity. They appreciate a warm, empathetic, "no wrong answers" collaborative environment.

### 2.3 Rationale
While baby boomers or generation X-ers respond well to authoritative teaching style, millennials were brought up in a less authoritative environment. They preferred this less authoritative environment because decisions and actions were constantly justified. They expect flexibility and socio-emotional rationale when dealing with new ideas and expectations.

## 2.4 Rapport

Millennials strive on personal relationships. When being raised, they had complete attention from their parents. They are used to older adults showing more interest in their lives. They prefer and appreciate instructors who show personal interests in their goals.

## 3. Innovation in Education?

Why must there be innovation in education? According to Kendall (2015), there has been increasing research in humanities and social science to explore innovative methods as they emerge. Products developed are often tangible and they usually take the form of new procedures and processes. These "products" help to improve teaching and learning.

Next, over the years, many found that learning improves in interactive environment. According to Singh (2018), social science teaching needs to be revitalized towards helping the learner acquire knowledge and skills in an interactive environment. So, in order to make learners participate in learning, there is a need to shift from mere imparting of information to debate and discussion. This approach to learning will keep both the learner and teacher alive to social realities.

## 4. Objective of the Study and Research Questions

The main objective of this study is to explore innovation in education. Specifically, this paper describes the characteristics of innovation. This paper also looks at how the environment influence innovation. Finally, this paper looks at what hinders / facilitates innovation in the class? This review is presented to answer the following research questions;

1) What hinders innovation in the class?
2) How can the learning environment influence innovation in the classroom?

## 5. Literature Review

### 5.1 Introduction

This section explores the outcomes of teaching, outcomes of learning, as well as, dimensions of innovation.

### 5.2 Outcomes of Teaching

Teaching is not a "one-way" activity. What is "taught" is not always "learnt". According to Kovacs (2017), teachers need to emphasise the importance of learning when they plan their teaching. Kovacs (2017) views teaching approach from three perspectives (Figure 4).
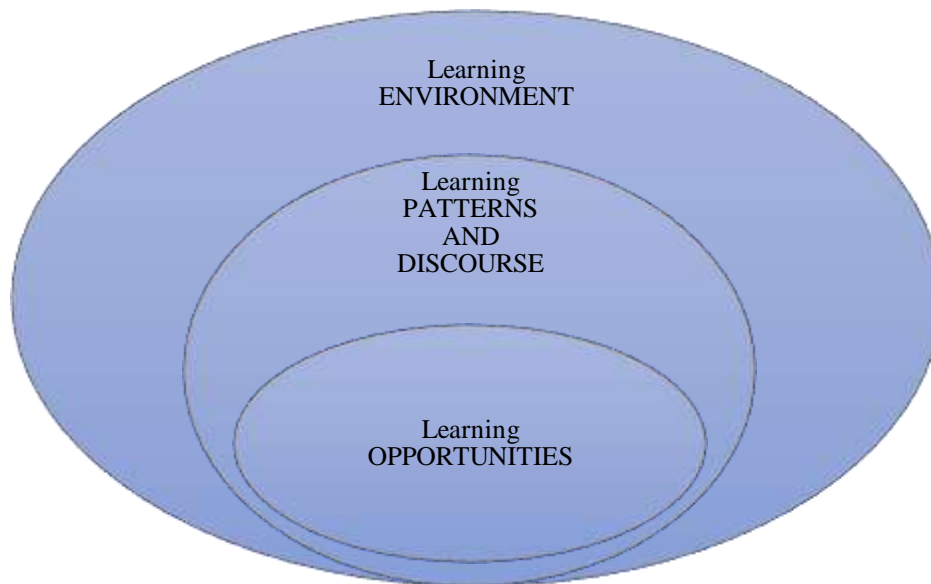
**Figure 4:** Outcomes of Teaching (Kovacs, 2017)

Kovacs (2017) points out that the outcomes of teaching that benefits the learners. Firstly, the teacher creates learning opportunities. The opportunities are created by and among teachers for students to gain benefits . Next, the balancing factor from teaching is learning on the part of the students. Students exhibit learning behaviour through patterns and discourse in the classroom. Finally, learning needs to be seen not as a receptive behaviour of learners; learning can be seen also as the environment where the learners are put in. The schools and institutions are responsible to provide a condusive environment for learners.

**5.3 Outcomes of Learning**
The study by Bakkens et al. (2010) suggested the changes that can take place in learners. Thus, the research team established four categories of learning outcomes.
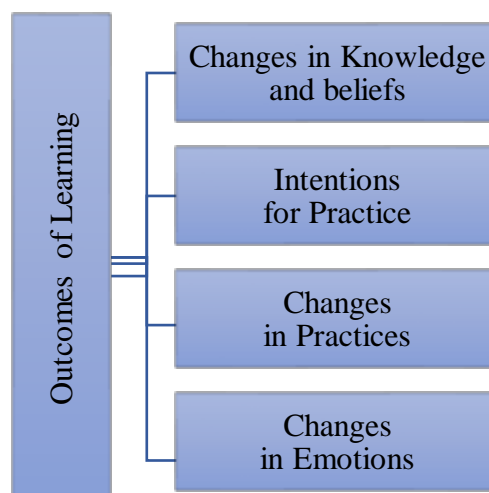


**Figure 4:** Outcomes of learning (Bakkens, et al., 2010)

Figure 4 above presents the outcomes based on their respective levels. The basic outcome of learning is changes in emotions. The immediate reaction after learning is emotions-learners either have a positive or a negative emotion. The emotion may lead to changes to practices-learners may no some things differently after putting emotions towards the learning. This can also mean getting back to old practices if they learner was negative towards the learning. Next, the learner will build intentions for practice. This intention may include intentions to try new practices, intentions to continue new practices or even intentions to continue current/old practices. Learners respond well to learning that reflect real life (Rahmat, 2014) so they can relate to what they are going through. The highest outcome is changes in knowledge and beliefs. When learners are positive about the learning outcome, they gain new knowledge. This also includes awareness, confirmed ideas, and also new ideas.

## 5.4 Dimensions of Innovation
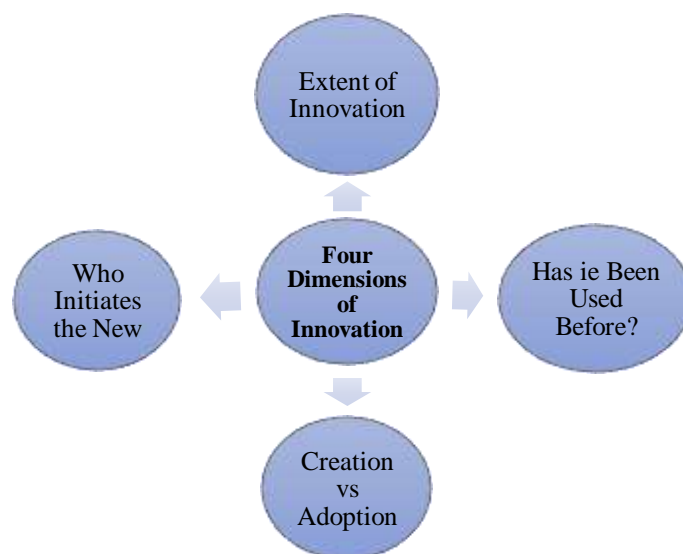


**Figure 4:** Four Dimensions of Innovation (Singh, 2018)

In order to understand the nature of innovation, there is a need to explore the different dimensions of innovation (Figure 4). Singh (2018) reports four dimensions of innovation. The first dimension deals with the extent of the innovation. When dealing with the extent of the innovation, one needs to as whether the innovation is a mere fundamental design- meaning is the innovation an adoption of an existing product or is the innovation means making adjustments or tweaks at some of the aspects of the existing product. The second dimension deals with whether the innovation has ever been done before. This involves either creating the new design from scratch or a replication of the old with some elements of newness injected. The third dimension looks at whether the school is new in terms of creation or adoption. Creation means implementing a new design in a totally new school or program. Next adoption is about creating or refining characteristics in an existing school or program. The fourth dimension deals with the

person who creates the new. This involves the people at the working level or the people who are from the outside giving support.

## 6. Discussion

### 6.1 Introduction
This section discusses the answers to the two research questions presented in the previous section.
1) What hinders innovation in the class?
2) How can the learning environment influence innovation in the classroom?

### 6.2 Hindrance
Innovation has entered classrooms of the millennials because classrooms need to change to suit the changing needs of learners. Eraut (2007) identified a few characteristics needed to create innovation in the classroom. Firstly, teachers need to transfer both implicit and tacit knowledge to their learners. However, there may be some barriers to overcome before teachers can transfer knowledge about innovation. There are some known barriers for innovation in the classroom. Carless (2013) divided the barriers into three categories.

a) *Teacher-related*: There can be a lack of teacher ownership or understanding of the innovation. The change may not be in line with existing teacher values and beliefs. Teachers may have negative attitudes as they are often given additional workload. Teachers are often emotionally bound up in existing practices; and change can be personally threatening.

b) *System-related*: Sometimes, poor communication and lack of mutual trust between change agents and frontline implementers can create unnecessary barriers. They could put too much emphasis on the intricacies of the innovation itself and not enough on consideration of how it could be implemented. There can be lack of appropriate resources to support the innovation or even insufficient professional development and support for teachers. There can also be failure to bridge the gap between rhetoric and reality.

c) *School-related*: There can be lack of supportive culture for change. There can also be conservative forces within a school; lack of support or understanding from senior management; inadequate school-based resources; and also student difficulties in adapting to teacher change. This can be true if the rationale has not been persuasively articulated.

### 6.3 Facilitating Factors- Environment for Innovation
The key to a good environment is the culture of the ecosystem. Figure 5 presents the environment for The culture needs to be supported by both the teaching and learning environment for innovation. Learning is influenced by (a) the teaching and (b) learning environment.
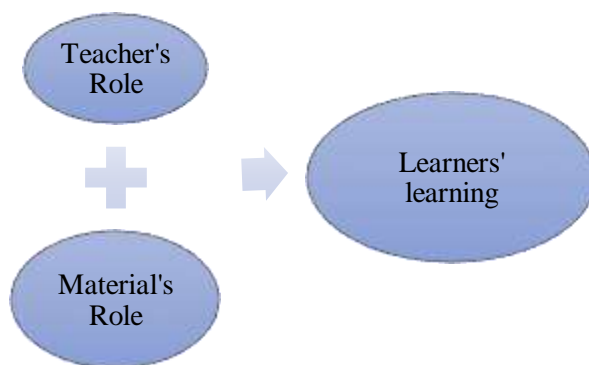
**Figure 5:** Environment for Innovation (Rahmat, 2014)

### a. Teaching Environment

The teaching environment involves the role of the teacher and the way the teacher makes use of the materials in class. The teacher can become a provider of a conducive environment that caters for the shortcomings of the learners, prepare activities that support the needs of the millennials who have poor communication skills, are engaged to technology, and have short attention span. In addition to that, teachers could use the concept of scaffolding and authenticity (Rahmat, 2014) when dealing with materials. One way of teaching is to scaffold new learnings from old ideas or familiar concepts.

### b. Learning Environment

One of the ways millennials learn well is through having fun and engaging in activities they can identify with. Technology has also made learners depend on visual interpretation for better understanding. The study by Rahmat (2018) reports the use of infographics by learners to facilitate chunking of information. Graphics help learners present their understanding in the form of graphic organisers. In addition to that, fun interaction in the classrooms help learners feel relaxed in a learning environment. This is also agreed by Rahmat, Othman, Muhammad, Shirin, and Arepin (2019) who report that millennials prefer activities that allow them to socially interact with their peers on a less stressful learning environment.

## 7. Conclusion

### 7.1 Summary

To sum up, there should be innovation in education to cater to the changing needs of millennials. Figure 6 shows the theoretical framework for innovation preparation in education. There may be barriers that hinder teachers from using innovation and learners from participating in innovative activities; these barriers may stem from the system of education, from the school or even from the teachers. However, teachers can strive to prepare facilitating factors in many forms. One way is to prepare a conducive environment for both teachers teaching and learners learning in the classroom.
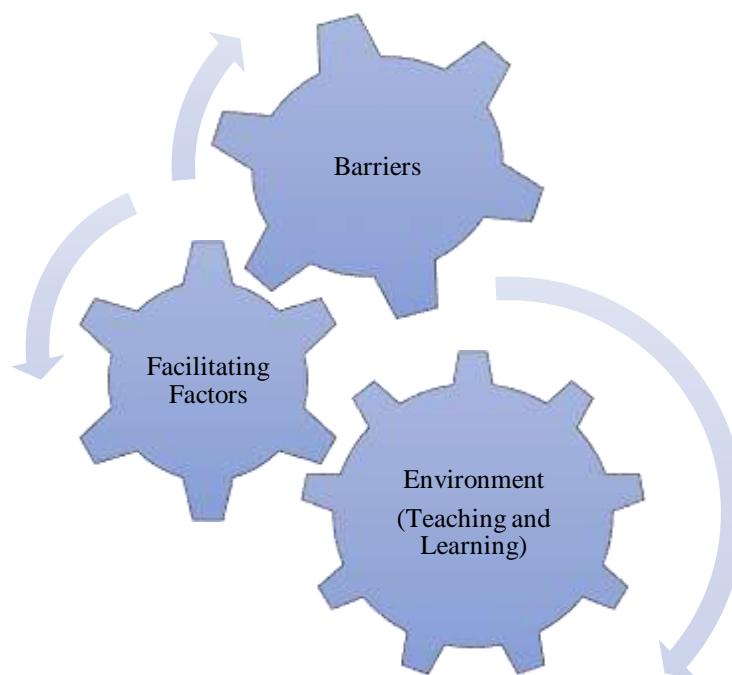
**Figure 6:** Innovation Preparation in Education

Innovation in education encourages teachers and students to explore, research and use all the tools to uncover something new. It involves a different way of looking at problems and solving them. Innovation improves education because it compels students to use a higher level of thinking to solve problems. Innovation in education means doing what's best for all students. Teachers, lessons, and curriculum have to be flexible. Innovation also means finding the best possible ways to reach out to the students. Innovation in education is stepping outside the box and doing things differently, or doing mundane things in different ways.

## About the Author(s)

The author is an associate professor at the academy of language studies, Universiti Tknologi MARA, Malaysia. She has taught at the university for the past 26 years. Her research interests include TESL methodology, academic writing, psycholinguistics, as well English proficiency. She has authored several books, chapters, articles in proceedings and also journal articles.

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