

Defining Teaching Innovation according to the Perspective of Innovative Teachers of Islamic Education

Wan Ali Akbar Wan Abdullah

Department of Islamic and Moral Education, IPG Kampus Raja Melewar, 70400 Seremban,
Negeri Sembilan, Malaysia

Khadijah Abdul Razak, Mohd Isa Hamzah

Faculty of Education, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia

Nursafra Mohd Zhaffar

Academy of Contemporary Islamic Studies, UiTM Cawangan Negeri Sembilan Kampus
Rembau, 71300 Rembau, Negeri Sembilan, Malaysia
Corresponding Author Email: khadijah.razak@ukm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i7/17850> DOI:10.6007/IJARBSS/v13-i7/17850

Published Date: 23 July 2023

Abstract

Scholars are constantly debating the meaning of innovation. The differences cause the research point of view on innovation to also differ according to the understanding and definition that they set themselves. At the same time, innovation is always associated as something new. The misunderstanding of the meaning of 'new' leads to confusion among teachers, making most of them reluctant to engage in innovative activities. Therefore, this study was conducted to explain the meaning of innovation from a practical point of view. The findings will be summarized in one short sentence so that it becomes a definition that is easily understood by others. The study was conducted using a qualitative approach with a case study design. Eight study participants were selected based on purposive sampling technique. Study participants were tracked using a snowball technique. Data were collected using in-depth interview techniques. The validity and reliability of the data were obtained through long periods of being in the field, triangulation and Kappa values. The findings indicate that there are five necessary frameworks in the definition of teaching innovation, namely; elements of innovation, forms of innovation, innovation targets, impact of innovation and steps to produce innovation. These five frameworks serve as a guide to compile a comprehensive and concise definition of teaching innovation that is easily understood by other teachers.

Keywords: Definition of Innovation, Innovation Framework, Teaching Innovation, Innovative Teachers of Islamic Education, Qualitative Research.

Introduction

Innovation comes from the Latin word, "*innovare*", which means to produce something new or to successfully exploit a new idea (Hamid & Balwi, 2006). There are two elements in this meaning of innovation, namely; the production of something new and the exploitation of new ideas. The exploitation of new ideas, according to Amabile (1988), refers to creativity. This is because innovation is the implementation of new ideas (Amabile, 1988). In Malay, innovation is defined as something newly introduced such as new methods, systems, customs, etc (*Kamus Dewan Edisi Keempat*, 2016). Terminologically, Mohd and Hassan (2007) emphasize technology as innovation through their definition, which is innovation as the development of new technology or the application of technology in a specific use.

Ahmad (2012) said that innovation refers to the ability to produce something new from the existing one. According to this definition, on the one hand, it means modification. On the other hand, it focuses on ability, whereas the ability to innovate is a foreign topic (Amabile, 1988; Kirton, 2003; Thurlings et al., 2015; Abdullah et al., 2021, 2020; Abdullah & Zhaffar, 2018) that can be discussed and should not be confused with the definition of innovation. Rogers (1983) also defines innovation as an idea, practice, or object that is evaluated as new by a certain individual or group when used. This definition meets the meaning of adaptation, but there is no element of the combination, as stated by (Lednor, 2019).

In the field of Education in Malaysia, The Ministry of Education (Kementerian Pendidikan Malaysia (2013), through the Continuous Professionalism Development Plan (PPPB) defines innovation as the production of something new or adding value to something that already exists. It includes ideas, work procedures, systems, methods, and technology that are the result of creative and innovative thinking. In the innovative teacher competition organized by the MOE annually, innovation refers to materials, methods, strategies, and so on to improve the effectiveness of the teaching and learning (T&L) process, it must be an original or an improvement to something that already exists, in the context of translating the national curriculum into the T&L (Pejabat Pendidikan Daerah Langkawi, 2019). The similarity of these definitions is the element of added value that is not stated in the previous definition. This definition is appropriate in the education context because it is described as a singular innovation, which is always produced in everyday life and has an impact on work such as make it easier, more effective, and less stressful (Serdyukov, 2017). It is also innovation at the lowest level (Kaufman & Beghetto, 2013).

The variety of meanings given by scholars or institutions is because innovation is indeed understood with various meanings (Kristiawan et al., 2018; Rogers, 1983; Thurlings et al., 2015). Scholars' differences in understanding affect their research methods (Chua Yan Piaw, 2012; Thurlings et al., 2015). This also affects the understanding of educators who are confused and fail to understand the true meaning of innovation (Hashim et al., 2019). A true understanding of the innovation concept is vital to educators as a catalyst to produce various innovations (Dagang, 2016). The issue is the lack of clarity regarding the meaning of 'new' stated in each definition of innovation. This issue causes scholars to constantly debate about 'new', thus raises questions such as, "What does new mean?", "New to whom?" and "How is it new?" (Johannessen et al., 2001; Lednor, 2019).

Therefore, this study was conducted to compile a definition of teaching innovation. Therefore, the views of the developers in the education system and grassroots innovators are taken. This is because they are a group that has expertise from a practical point of view and understands teaching in a more practical context.

Research Objective and Questions

This study's objective was to develop a definition of teaching innovation. Two research questions need to be answered, namely; "What is the meaning of teaching innovation based on the understanding of innovative teachers?" and "What is the framework of innovative teachers' understanding of teaching innovation?"

Research Methodology

This study was conducted using a qualitative approach with a case study design. In this study context, the case refers to the innovative Islamic Education teacher's understanding of the concept of innovation. Data were collected through in-depth, semi-structured interviews. According to Merriam (2009), this method was used when the researcher needs specific information from all study participants, but the researcher is only guided by a list of questions or a list of issues to be explored, while the questions were determined depending on the time and situation. What is important is that the researcher has the framework of the research question in mind (Yin, 2011). Researchers believed that this method is suitable for understanding research questions that cannot be observed directly, such as the research participants' understanding of the concept of innovation. The advantages of semi-structured interviews are that the relationship between the researcher and the study participants will be informal (Yin, 2011) enabling them to answer questions more comfortably and the researcher can compare the data obtained from one participant to another (Bogdan & Biklen, 2003).

Study participants were selected using purposive sampling. Merriam (2009) suggests that purposive sampling begins by identifying the main selection criteria of the participants or the study location. Therefore, the researcher has listed the main characteristics for the selection of study participants, which are: 1) have experience producing teaching innovations, 2) the innovations produced are recognized, either by myIPO or winning innovation competitions at least at the state level, 3) easy to approach and cooperate. Because the set of criteria is difficult for the researcher to identify, the snowball technique was used to track them. Snowball sampling is unique and suitable for the researcher to track study participants which can be likened to a hidden population (Noy, 2008). According to Yin (2011), a snowball is acceptable if handled according to the aim. In this study, the focus is on Islamic Education Teachers (IET). So, even though the snowball method is used, the next participant selected is subject to the criteria that have been set (Merriam 2009). What is important is that a research participant recommends other research participants who can provide rich information (Miles & Huberman, 1994). Focusing on studies in the Islamic Education field, the snowball technique is also used by (Elias, 2020).

Efforts to track the participants began by contacting three study participants from three different states. Rapport with those three has been built for a long time. It is called a power relation (Noy, 2008). From the three original study participants, stemmata occurred involving eight study participants (Refer to Figure 1). Eight study participants were involved in this study, just like other qualitative studies in Islamic Education (Jasmi, 2010; Nor, 2020; Abdullah, 2017).

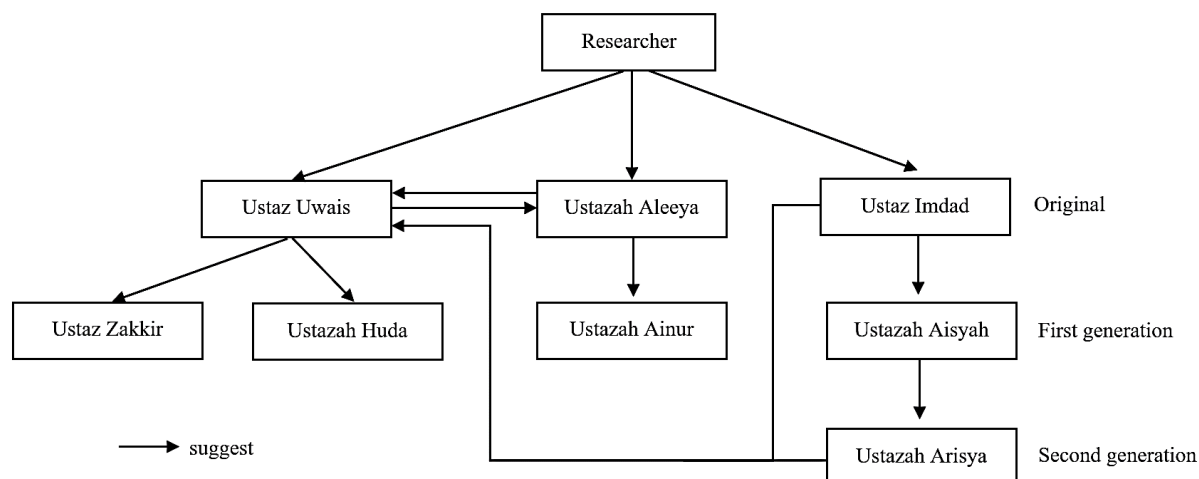


Figure 1: Research participants' stemmata

The validity and reliability were done using the method of time length in the field, triangulation, and Kappa value. In terms of length of time in the field, the researcher was in the field for 18 months, exceeding some other qualitative researchers such as; 12 months Zhaffar (2017) and 15 months (Elias, 2020). From the triangulation perspective, the researcher triangulates sources by comparing data from one study participant and data from another study participant. For the Kappa value, four inter-raters were appointed. All have expertise in innovation and qualitative research. Two of them are Islamic education experts. A total of 38 example passages were given to the inter-raters. The Kappa interpretation value was according to Landis and Koch (1977) because it has the highest profile in the literature (Sun, 2011) and was widely used in qualitative Islamic education studies (Zhaffar, 2017; Rashed, 2016). The Kappa agreement value was 0.91, which was very high. The details of the agreement are in the following table:

Table 1
Interrater's Kappa values

	Expert 1	Expert 2	Expert 3	Expert 4
Calculation	$\frac{37-19}{38-19} = \frac{18}{19}$	$\frac{38-19}{38-19} = \frac{19}{19}$	$\frac{37-19}{38-19} = \frac{18}{19}$	$\frac{33-19}{38-19} = \frac{14}{19}$
Result	0.95	1.00	0.95	0.74
Interpretation	Very high	Very high	Very high	High

Results

The study showed five main themes developed regarding the concept of innovation, namely; 1) elements of innovation, 2) forms of innovation, 3) target of innovation, 4) innovation impact, and 5) steps to produce innovation.

1) Elements of Innovation

Elements of innovation are discussed by the study participants when talking about the new meaning of innovation. Ustazah Ainur said, "The meaning of innovation is that we create something new" (S5U5TB1). However, the 'new' is not absolute. Rather, it means modification. Ustaz Imdad mentioned, "Ha! (Modification) is innovation" (S1U1TB1). There

are two subthemes of the innovation elements, adaptation and combination. The meaning of adaptation is the modification of existing products to adapt to the use of different purposes (S1U1TB1; S2U2TB2). Combination means the mixing of several features of a product to form a new product (S2U2TB1).

2) Forms of Innovation

The form of innovation is a theme identified when research participants discuss the question "How is it new?". For example, Ustazah Ainur said, *"What I understand is the innovation, what people say, a thing that must be seen with the eyes, can be touched, like that... such is the style"* (S5U5TB1). Two sub-themes emerge under the theme of the forms of innovation, namely; 1) technique, and 2) materials. This is based on what Ustaz Imdad said, *"What I see if it is a teaching (innovation), it has two (forms), either we use the form of techniques or we use materials"* (S6U6TB1). Examples of techniques are; 1) formula (S4U4TB2; S6U6TB1; S7U7TB1; S8U8TB2), 2) singing (S2U2TB2; S8U8TB1), 3) speaking techniques (S3U3TB1; S6U6TB1; S7U7TB1), and 4) body language (S6U6TB1; S7U7TB1). The examples of materials are; 1) gamification (S1U1TB1; S2U2TB2; S4U4TB1; S5U5TB2; S6U6TB1; S7U7TB1), 2) ICT (S2U2TB1; S4U4TB2; S5U5TB1; S6U6TB2), 3) module (S1U1TB1; S3U3TB1; S4U4TB2; S6U6TB1; S7U7TB1; S8U8TB2), and 4) model or replica (S4U4TB2; S5U5TB2; S8U8TB1).

3) Innovation Target

The target of innovation was discussed by the study participants when debating the question "New to whom?" There are two subthemes formed, namely; 1) evaluation, and 2) user. The evaluation sub-theme is related to the expert evaluation of an innovation. An assessment is made to determine whether something deserves to be recognized as an innovation or not. This depends on the knowledge of experts who evaluate an innovative product. Ustazah Aleeya explained:

When I went to the (competition at the) district level, people said I had to upgrade again to make it an innovation ... When I go to the state (level), I will bring an innovation that has been upgraded ... For them, that is not innovation yet ... (In the national competition) I bring (all those modified innovations) ... From district, state, national (levels). But as some of the judges looked at it, the first one is enough for them... They don't need the third one (upgrade) (S4U4TB2).

As for the user sub-theme, it involves user acceptance of the innovative product being promoted. In the context of education, the target users are teachers and students. It is related to the impact of innovation. For example, from the student's point of view, Ustazah Arisya said, *"In the T&L, we want to create something easy for our students to understand and remember quickly"* (S8U8TB1).

4) Impacts of Innovation

Themes related to the impact of innovation were discussed by study participants regarding the purpose of an innovation being produced. Generally, the desired impact is to facilitate teacher teaching and student learning (S2U2TB1; S4U4TB1; S4U4TB2; S5U5TB1; S5U5TB3; S6U6TB1; S6U6TB2; S7U7TB2; S8U8TB1). Specifically, from an educational point of view, the desired impact is; 1) achieving teaching objectives such as knowing the letters of the Quran (S2U2TB1) and enhance students' prayer practice (S1U1TB1; S6U6TB1), 2) improving

memorization (S2U2TB2; S5U5TB2; S6U6TB1; S7U7TB2; S8U8TB1), 3) enhancing the understanding (S2U2TB2; S5U5TB1; S8U8TB1), 4) stimulating students' higher order thinking (S4U4TB1; S5U5TB1), 5) improving exam results (S1U1TB1; S3U3TB1), 6) increasing students' interest in learning (S2U2TB1; S5U5TB1; S7U7TB1; S8U8TB1), 7) saving teaching time (S6U6TB2; S7U7TB2), 8) managing student discipline during the T&L (S4U4TB2; S5U5TB2), and 9) building students' morals and character (S1U1TB1; S3U3TB1; S6U6TB1; S7U7TB1).

5) Steps to Produce Innovation

Themes related to innovation production steps were discussed by the study participants when they shared the steps they went through when producing innovation. Three subthemes emerge, namely; 1) generate ideas, 2) realize the ideas, and 3) promote the ideas. For generating ideas, the study participants started the process in three ways, namely; 1) identify the problem (S1U1TB2; S3U3TB1; S4U4TB1; S6U6TB2), 2) identify student interests (S1U1TB1; S8U8TB1), and 3) identify teacher tendencies (S1U1TB1; S2U2TB2; S3U3TB1; S4U4TB1; S5U5TB2). For realizing the idea, the study participants began to develop innovations in phases starting from a prototype until successfully produced the end product. For example, Ustazah Aleeya explained, *"For me... I already started in 2016... First I taught to make a mind map. That's the Hajj one. I made a sequence. I made pictures. Put in the path. Subsequently, in the second phase, I made the pop-up. After that, in 2017, I did the big thing"* (S4U4TB1). The effectiveness of the innovation prototype was also tested during the verification process (S1U1TB1; S3U3TB1). The intended effectiveness can be seen from two angles, namely; exam scores and student moral development (S3U3TB1). For promoting the ideas, the innovation is disseminated through competitions (S5U5TB2), publication (S3U3TB1), and sales (S1U1TB2; S2U2TB2; S5U5TB2).

Discussion

This study shows five innovation frameworks according to the understanding of innovative Islamic education teachers, namely; 1) elements of innovation, 2) form of innovation, 3) innovation target, 4) innovation impact, and 5) steps to produce innovation. Findings on the elements of innovation are consistent with Lednor (2019) about the two elements of innovation, namely; adaptation and combination. Both of these elements also fulfill God's purpose as Al-Badi', that is the Innovator Abd Allah (2006) who Create creatures throughout the world by modifying certain materials that already exist to make other new creatures (adaptation) and combining certain materials to create new creatures (combination) (Abdullah et al., 2020). These two elements coincide with God's command 'Be' (al-Baqarah, 2:117; al-An'am, 6:73; an-Nahl, 16:40; Yasin, 36:68) shows the existence of something that is ordered to take the form of something else (Al-Qurtubi, 1964). The combination is also an element accepted in Islam as innovation (Ismail, 2014).

Findings on the forms of innovation summarize the intended forms of innovation as defined in the innovative teacher competition (Pejabat Pendidikan Daerah Langkawi, 2019) and are more appropriate in the T&L context than the forms stated in the definition of innovation by the MOE, Kementerian Pendidikan Malaysia (2013). There are tangible or material-type innovations such as gamification and technology as well as intangible innovations such as techniques (Serdyukov, 2017). Findings on innovation elements also answer the question "How is it new?", while findings on innovation targets answer the question, "New to whom?" (Johannessen et al., 2001; Lednor, 2019).

The impact of innovation corresponds to the normal impact of innovation in education that is qualitative such as the addition of knowledge and morals, and quantitative such as exam results, time, and cost savings (Serdyukov, 2017). The result fulfills the National Education Philosophy's aspirations which are to "*create people who are balanced and harmonious intellectually, spiritually, emotionally, and physically based on faith and obedience to God*" (Kementerian Pendidikan Malaysia, 2012). In the enthusiasm of teachers to produce innovations to improve academic performance, the innovative Islamic Education teachers do not forget one of the main goals of Education which is the formation of morals and manners. For the innovation production steps, the three subthemes formed fit the innovation steps framework by (Janssen, 2003). The innovation production step model by Janssen (2003) is the most accepted model by scholars in education (Thurlings et al., 2015). The results also found that the study participants sold their innovations. This includes commercialization in the innovative production process as suggested by Tohidi and Jabbari (2012). Findings on the innovation production steps improve the incomplete existing innovation production steps Tohidi & Jabbari (2012) and are parallel (Boden, 2019).

Conclusion

Five frameworks were successfully formed on the concept of innovation, namely; 1) elements of innovation, 2) forms of innovation, 3) innovation target, 4) innovation impact, and 5) innovation production steps. Based on this framework, teaching innovation can be defined as:

Materials or techniques that have the elements of adaptation or combination intending to have an impact on teachers and students in terms of the T&L objectives, classroom control, and other general tasks of teachers by going through the process of generating ideas, realizing the ideas, and promoting the ideas.

This definition does not mention the term 'new' which can confuse teachers, instead, it continues to be expressed as adaptation or combination. In addition, this definition also begins with the form of innovation as a form of affirmation that technique cannot be ruled out as one of the forms of innovation that fit the nature of education which contain abstract concepts that may not be explained through materials.

Acknowledgement

This research was conducted with permission from the Malaysian Ministry of Education (Ref. no: KPM.600-3/2/3-eras(7431)), State Department of Education, and school administrators and agreed upon by the study participants involved. This research did not receive any grant from any public or private agency.

References

- Abd Allah, U. F. (2006). Innovation and Creativity In Islam. Retrieved from <http://www.nawawi.org/wp-content/uploads/2013/01/Article4.pdf>
- Abdullah, M. A. (2017). Pengamalan Kompetensi dalam Kalangan Pensyarah Pendidikan Islam Institut Pendidikan Guru di Malaysia. Tesis PhD. Universiti Teknologi Malaysia.
- Abdullah, W. A. A. W., & Zhaffar, N. M. (2018). Inovasi Pendidikan Islam: Inspirasi dan Transformasi. Kuala Lumpur: Institut Terjemahan Buku Malaysia (ITBM).

- Abdullah, W. A. A. W., Razak, K. A., & Hamzah, M. I. (2020). Allah sebagai al- Badi ' : Inspirasi untuk menjadi Guru Inovatif. *Journal of Educational Research & Indegenous Studies*, 2(1).
- Abdullah, W. A. A. W., Razak, K. A., & Hamzah, M. I., & Zhaffar, N. M. (2020). Pengetahuan Untuk Menghasilkan Inovasi Pengajaran dalam Kalangan Guru Inovatif Pendidikan Islam. *Asian People Journal*, 3(2), 192–201.
- Abdullah, W. A. A. W., Razak, K. A., & Hamzah, M. I., & Zhaffar, N. M. (2021). Inovasi “Hajj Pop-up Tour”: Kemahiran dan Pengetahuan yang diperlukan untuk Membangunkannya. *Innovative Teaching and Learning Journal*, 5(1), 23–30.
- Ahmad, M. A. (2012). Faham Kreativiti dan Inovasi Menurut Islam. In Azrina Sobian (Ed.), *Islam: Kreativiti & Inovasi* (pp. 1–26). Kuala Lumpur: Penerbit IKIM.
- Al-Qurtubi, A. A. M. A. (1964). *Tafsir al-Qurtubi*. Kaherah: Darul Kutub.
- Amabile, T. (1988). A Model of Creativity and Innovation in Organizations. *Research in Organizational Behavior*, 10, 123–167.
- Boden, K. E. (2019). Pedagogical Innovation among University Faculty. *Creative Education*, 10, 848–861. <https://doi.org/10.4236/ce.2019.105063>
- Bogdan, R. C., & Biklen, S. K. (2003). *Qualitative Research for Education*. Singapore: Allyn and Bacon.
- Chua Yan Piaw. (2012). Pengukuran Semasa Kreativiti: Isu dan Cabaran. In Azrina Sobian (Ed.), *Islam: Kreativiti & Inovasi* (2nd ed., pp. 77–96). Kuala Lumpur: Penerbit IKIM.
- Dagang, M. Y. (2016). *Amalan Kreativiti Pengajaran Guru Pendidikan Islam di Sekolah-sekolah Negeri Johor*. Tesis PhD. Universiti Tun Hussein Onn Malaysia.
- Elias, F. (2020). *Amalan Guru tentang Pendekatan Berpusatkan Murid dalam Pengajaran Akidah untuk Pembelajaran Murid*. Tesis PhD. Universiti Kebangsaan Malaysia.
- Hamid, M. A. A., Balwi, M. K., & Othman, M. F. (2006). *Reka Cipta & Inovasi dalam Perspektif Kreativiti*. Skudai: Penerbit UTM.
- Hashim, H., Saharani, M., Zulkifli, Z., Mokhtar, M. M., & Yunus, M. M. (2019). Conception of Innovative Teaching Methodologies among Lecturers at Selected Polytechnics in Malaysia. *Creative Education*, 10(05), 874–881. <https://doi.org/10.4236/ce.2019.105065>
- Ibn Khaldun, A. M. (2001). *Mukaddimah Ibn Khaldun*. Beirut: Dar al-Kitab al-'Arabi.
- Ismail, M. Z. (2014). *Islam & Higher-Order Thinking: An Overview*. Kuala Lumpur: Penerbit IKIM.
- Janssen, O. (2003). Innovative behaviour and job involvement at the price of conflict and less satisfactory relations with co-workers. *Journal of Occupational and Organizational Psychology*, 76(3), 347–364. <https://doi.org/10.1348/096317903769647210>
- Jasmi, K. A. (2010). *Guru Cemerlang Pendidikan Islam Sekolah Menengah di Malaysia: Satu Kajian Kes*. Universiti Kebangsaan Malaysia.
- Johannessen, J., Olsen, B., & Lumpkin, G. T. (2001). Innovation as newness: what is new, how new, and new to whom ? *European Journal of Innovation Management*, 4(1), 20–31.
- Kamus Dewan Edisi Keempat. (2016). Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Kaufman, J. C., & Beghetto, R. A. (2013). Do People Recognize The Four Cs? Examining Layperson Conceptions Of Creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 7(3), 229–236. <https://doi.org/10.1037/a0033295>
- Kementerian Pendidikan Malaysia. (2012). *Dasar Pendidikan Kebangsaan* (Vol. 66). Putrajaya: Kementerian Pendidikan Malaysia.

- Kementerian Pendidikan Malaysia. (2013). *Pelan Pembangunan Profesionalisme Berterusan (PPPB)*. Putrajaya: Kementerian Pendidikan Malaysia.
- Kirton, M. J. (2003). *Adaption-innovation: In the Context of Diversity and Change*. Adaption-Innovation: In the Context of Diversity and Change. London and New York: Routledge: Taylor & Francis Group. <https://doi.org/10.4324/9780203695005>
- Kristiawan, M., Suryanti, I., Muntazir, M., Ribuwati, Areli, A. J., Agustina, M., Hisri, T. B. (2018). *Inovasi Pendidikan*. Jawa Timur: Wade Group National Publishing.
- Landis, J. R., & Koch, G. G. (1977). The Measurement of Observer Agreement for Categorical Data. *Biometrics*, 33(1), 159–174. <https://doi.org/10.2307/2529310>
- Lednor, P. W. (2019). *How to be Innovative*. Singapore: World Scientific Publishing Co. Pte. Ltd.
- Merriam, S. B. (2009). *Qualitative Research*. Francisco: Jossey-Bass.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis*. United Kingdom: SAGE Publications.
- Mohd, A., & Hassan, A. (2007). *Berfikir seperti Inventor*. Batu Caves: PTS.
- Nor, M. S. M. (2020). *Kaedah Penerapan Kemahiran Generik di Sekolah Menengah Kluster Kebitaraan Kokurikulum Persatuan Agama Islam*. Tesis PhD. Universiti Kebangsaan Malaysia.
- Noy, C. (2008). Sampling Knowledge: The Hermeneutics of Snowball Sampling in Qualitative Research. *International Journal of Social Research Methodology*, 11(4), 327–344. <https://doi.org/10.1080/13645570701401305>
- Pejabat Pendidikan Daerah Langkawi. (2019). *Pertandingan Guru Inovatif*. Retrieved from <https://ppdlangkawi.com/2019/01/13/pertandingan-guru-inovatif-2019-kementerian-pendidikan-malaysia/>
- Rashed, Z. N. (2016). *Amalan Pengintegrasian Ilmu Sains dan al-Quran dalam Pengajaran Pendidikan Islam di Maahad Tahfiz Sains Negeri Selangor*. Tesis PhD. Universiti Kebangsaan Malaysia.
- Rogers, E. M. (1983). *Diffusion of Innovations (Third Edit)*. New York: The Free Press. <https://doi.org/10.1002/chp.4750170109>
- Serdyukov, P. (2017). Innovation In Education: What Works, What Doesn't , And What To Do About It? *Journal of Research in Innovative Teaching & Learning*, 10(1), 4–33. <https://doi.org/10.1108/JRIT-10-2016-0007>
- Sun, S. (2011). Meta-analysis of Cohen's kappa. *Health Services and Outcomes Research Methodology*, 11, 145–163. <https://doi.org/10.1007/s10742-011-0077-3>
- Thurlings, M., Evers, A. T., & Vermeulen, M. (2015). Toward a Model of Explaining Teachers' Innovative Behavior: A Literature Review. *Review of Educational Research*, 85(3), 430–471. <https://doi.org/10.3102/0034654314557949>
- Tohidi, H., & Jabbari, M. M. (2012). Different Stages of Innovation Process. *Procedia Technology*, 1, 574–578. <https://doi.org/10.1016/j.protcy.2012.02.125>
- Yin, R. K. (2011). *Qualitative Research from Start to Finish*. New York and London: The Guilford Press.
- Zhaffar, N. M. (2017). *Kefahaman dan Amalan Penerapan Pemikiran Kritis dalam Pengajaran Pendidikan Islam Sekolah Menengah*. Tesis PhD. Universiti Kebangsaan Malaysia.