

How Do Teachers Perceive Modern Instruction? An Online Survey to Pre-Service and in-Service Teachers

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Abstract-*Modern instruction in today's era is actually about appropriate integration of technology in teaching and learning. It is very important to promote 21st century skills of students. Therefore, teachers should be able to use technology appropriately to improve the opportunity of students to learn and at the same time to develop their 21st century skills. The question is that do in-service teachers have a correct perception about modern teaching? This research was aimed at investigate how in-service teachers perceive modern instruction. Online survey was delivered to 2.773 in-service and 410 pre-service teachers who were following Teacher Professional Education (TPEs) program in Indonesia. It consists of four different illustrative cases. Illustrative case 1 until 3, show appropriate modern instruction, while illustrative case 4 shows inappropriate one. Respondent were asked to pick one or more cases they perceived as appropriate modern instruction. Survey result s showed that 62% in-service teachers perceived case 1, 2, and 3 as appropriate modern instruction, 38 % in-service teachers cannot distinguish between appropriate and inappropriate modern instruction, and 4% in-service teachers perceived case 4 as appropriate modern instruction. It can be concluded that in-service teachers need to be equipped with the competency to integrate technology in instruction in teaching and learning appropriately. The main goal of TPEs is to promote teachers competency in applying modern instruction. Therefore, it is highly recommended that TPEs need to redesign the curriculum and instructional strategies to address it.*

Keywords: in-service teachers, technology, teaching with technology

I. INTRODUCTION

Ministry of Research, Technology and Higher Education (MoRTHES) in Collaboration with Ministry of Education and Culture (MoECs), are implementing Teacher Professional Education (TPEs) program for in-service teachers in Indonesia. TPEs program was aimed to produce certified professional teachers in Indonesia. One of intended learning outcome of TPEs program, responding to the advance of science and technology in digital era, is to promote professional teachers competency in implementing modern instructions. In this case, modern instruction is defined as the ability of teachers in integrating information and communication technology in student-centred instructional setting. This competency adopt the idea introduced by Koehler and Mishra, known as technological, pedagogical and content knowledge (Mishra & Koehler, 2014). Liz Kolb also introduced the idea of modern instruction as learning first and technology second. It means professional teachers need to understand pedagogical principles that are specific to the use of technology in an instructional setting (Kolb, 2017). Deploying ICTs tools in the classrooms and equipping teachers on how to use these tools for pedagogical purpose is very important (Mishra & Henriksen, 2018). Meanwhile, Schifter, Stewart and Selverian made two distinct ways to understanding modern instruction, i.e. "instructivist" and "constructivist" pedagogy. Instructivist pedagogy is a learning that occurs from technology, which means that the students are relatively passive participant in an instructional setting. In contrast, constructivist pedagogy means learning that occurs 'with' or "through" technology, which means that technology is used to help students solve problems, conduct research, develop concept and think critically (Stewart, Schifter, & Selverian, 2010). To address this competency through TPEs program, it is very important to understand the basic understanding of TPEs students' perception on how modern instruction looks like. This information is very crucial as a baseline information to design and develop TPEs curriculum. That is why this online survey is conducted to meet those needs.

II. METHOD

This study use online survey to investigate how in-service teachers perceive appropriate modern instruction. The sample of this study was in-service and pre-service teachers who were following TPEs program in Indonesia. Researchers used illustrative cases to find out respondent's perception on it. Therefore, researchers developed four different illustrative cases that show certain forms of technology integration in

instruction based on the works of TPACK and “instructivist v.s. constructivist” pedagogy described above. It can be illustrated on table 1 below:

Table 1. List of Illustrative Cases Developed

| Illustrative Case: | Instructional Approach | | | |
|--------------------|------------------------|----------------|------------------------|-----------------|
| | Modern Instruction | | Non-Modern Instruction | |
| | TPACK | Constructivist | Non-TPACK | “Instructivist” |
| 1 | V | V | | |
| 2 | V | V | | |
| 3 | V | V | | |
| 4 | | | V | V |

Table 1 describes four illustrative cases developed by researchers that represents modern and non-modern instruction. Illustrative case 1 developed as an example of modern instruction (constructivist and TPACK pedagogy), even though using low technology. Illustrative case 2 and 3 developed as two examples of modern instruction with high technology. Illustrative case 4 developed as an example of non-modern instruction (“instructivist” pedagogy), even though using high technology.

Given four illustrative cases mentioned above, respondents were asked to pick one or more case they perceived as modern instruction. These respondent’s choices are then analysed based on the criteria as shown on the table 2 below:

Table 2. Data Analysis Technique

| | |
|--|---|
| If respondents pick case as modern instruction, | then ... |
| illustrative case 1 | they perceived modern instruction correctly. |
| illustrative case: a) 1 and 2, or b) 1 and 3; or c) 2 and 3; or d) 1, 2 and 3 | they perceived modern instruction correctly. |
| illustrative case: a) 1 and 4; or b) 2 and 4; or c) 3 and 4; or d) 2, 3 and 4) or e) 1, 3 and 4; or f) 1, 2, 3 and 4 | they can not distinguish between modern and non-modern instruction. |
| illustrative case 4 | they perceived modern instruction incorrectly. |

III. RESULT

This online survey has been followed by 3,183 respondents, consist of 2,773 in-service teachers and 410 pre-service teachers who follow TPEPs. The result can be shown on table 3 below:

Table 3. Percentage of Respondent’s Perception on Modern Instruction

| Illustrative Case | Number of Respondents Choice | | Illustrative Case | Number of Respondents Choice | |
|-------------------------------|------------------------------|----|-------------------------------|------------------------------|-----|
| | Number | % | | Number | % |
| In-service Teachers | | | Pre-service Teachers | | |
| | Number | % | | Number | % |
| Illustrative Case 1 | 114 | 4 | Illustrative Case 1 | 23 | 6 |
| Illustrative Case 1 & 2 | 69 | 2 | Illustrative Case 1 & 2 | 4 | 1 |
| Illustrative Case 1, 2 & 3 | 83 | 3 | Illustrative Case 1, 2 & 3 | 15 | 4 |
| Illustrative Case 1, 2, 3 & 4 | 56 | 2 | Illustrative Case 1, 2, 3 & 4 | 11 | 3 |
| Illustrative Case 1, 2, & 4 | 2 | 0 | Illustrative Case 1, 2, & 4 | 0 | 0 |
| Illustrative Case 1 & 3 | 104 | 4 | Illustrative Case 1 & 3 | 29 | 7 |
| Illustrative Case 1, 3 & 4 | 4 | 0 | Illustrative Case 1, 3 & 4 | 4 | 1 |
| Illustrative Case 1 & 4 | 21 | 1 | Illustrative Case 1 & 4 | 11 | 3 |
| Illustrative Case 2 | 202 | 7 | Illustrative Case 2 | 33 | 8 |
| Illustrative Case 2 & 3 | 800 | 29 | Illustrative Case 2 & 3 | 132 | 32 |
| Illustrative Case 2, 3 & 4 | 540 | 19 | Illustrative Case 2, 3 & 4 | 45 | 11 |
| Illustrative Case 2 & 4 | 91 | 3 | Illustrative Case 2 & 4 | 12 | 3 |
| Illustrative Case 3 | 363 | 13 | Illustrative Case 3 | 69 | 17 |
| Illustrative Case 3 & 4 | 220 | 8 | Illustrative Case 3 & 4 | 16 | 4 |
| Illustrative Case 4 | 104 | 4 | Illustrative Case 4 | 6 | 1 |
| Total | 2773 | % | Total | 410 | 100 |

But, if we analyse it more deeply, we have four important findings that can be shown on table 4 below:

Table 4. Percentage of Respondent's Choices

| If respondents pick case as modern instruction, | then ... | Percentage | |
|---|--|------------|-------------|
| | | In-service | Pre-service |
| illustrative case 1 | they perceived modern instruction correctly. | 4% | 6% |
| illustrative case: a) 1 and 2, or b) 1 and 3; or c) 2 and 3; or d) 1, 2 and 3 | they perceived modern instruction correctly. | 64% | 75% |
| illustrative case: a) 1 and 4; or b) 2 and 4; or c) 3 and 4; or d), 2, 3 and 4) or e) 1, 3 and 4; or f) 1, 2, 3 and 4 | they cannot distinguish between modern and non-modern instruction. | 36% | 35% |
| illustrative case 4 | They perceived modern instruction incorrectly. | 4% | 1% |

As the first finding, unfortunately, only 4% of in-service teachers and 6% of pre-service teachers perceived illustrative case 1 as an example of modern instruction. The second finding, in contrast, fortunately only 4% in-service teachers and 1% pre-service teachers perceived illustrative case 4 as an example of modern instruction. The third finding, fortunately 64% of in-service teachers and 75% pre-service teachers perceived illustrative case: a) 1 and 2, or b) 1 and 3; or c) 2 and 3; or d) 1, 2 and 3 as examples of modern instruction. The fourth one, unfortunately, 36% in-service teachers and 35% pre-service teachers perceived illustrative case: a) 1 and 4; or b) 2 and 4; or c) 3 and 4; or d), 2, 3 and 4) or e) 1, 3 and 4; or f) 1, 2, 3 and 4 as examples of modern instruction. It can be concluded that, based on these four findings, most of respondent perceived student-centred learning with low technology as non-modern instruction. On the other hand, some respondent perceived modern instruction accordingly. But, in contrast, some respondent cannot distinguish appropriate and inappropriate modern instruction. In this case, researchers suspect that as far as high technology is not used in instruction, respondent considered it as a non-modern instruction. But, as long as high technology used in instruction, respondent considered it as a modern instruction.

These findings are interesting phenomenon to be discussed more deeply to gain insight or implication and further direction for TPEs program in the future. Basically, the essence of a good modern instruction is putting student as the subject, not as an object in instructional setting. A good modern instruction also is not about using modern technology, but how modern technology itself is used in it (Kilbane & Milman, 2014). If it is used to teach students with technology ("instructivist" pedagogy), then it is nothing. But, if it is used to make students learn with and or through technology, then it can be considered as modern instruction ("constructivist" pedagogy). That is why Stewart *et.al.* differentiate between "instructivist" and "constructivist" pedagogy (Stewart, Schifter, & Selverian, 2010). The main task of teachers is to facilitate students learning through active learning experiences by using any dynamic and various scenarios, strategies, tactics, etc. with or without technology. As long as students have sufficient opportunities to practice their inquiry skills in real life situations, it can be considered as modern instruction (Wang & Hsu, 2014). Therefore, as implication, it is important for TPEs students as professional teacher candidates to understand that modern instruction does not have to be related to the use of high technology. Therefore, it is highly recommended that TPEs program should introduce and provide sufficient opportunities for them to practice some skills in designing and implementing modern instruction with low technology.

When we talk about modern instruction using high technology, it should be noticed that the technology itself should be used to extend and enhance opportunities for students to learn (Doron, Mark, & Tamara, 2017). It means that the modern instruction with high technology characterized by how high technology itself is used to create students learning experiences. For this purpose, teachers need to understand the relationship among technology, pedagogy, and content knowledge (Mishra & Koehler, 2014). Professional teachers also need to have confidence in using technology as well as their understanding of pedagogical practice using technology. Most importantly, they should have willingness to commit to create a technology-saturated learning environments in their classroom (Wang & Hsu, 2014, p. 40). So, it is important for TPEs students as professional teacher candidates to have examples or models of modern

instruction. The integration of technology itself must show the transformation and enhancement of students learning experiences and lead them to high levels of achievements (Hunter, 2015, p. 49). So, TPEs students will be able to design and implement them in a real situation. Besides that, they also will have confidence in integrating technology in their classroom instruction appropriately.

Developing professional teachers knowledge and skills of modern instruction for teachers is not easy. It has some consequences. In this case, based on some previous relevant studies, researchers tried to provide some recommendations. First, it should be followed by the integration of technology into all TPEPs courses (Harvey & Caro, 2017). Second, TPEs program faculty members should model technology-integrated instruction in their own classroom (Nasir, 2016). Third, the TPEs program students as well as the TPEs faculty members should be provided with sufficient ICT-related equipment, content and resources (Liu & Pange, 2015). Fourth, TPEs program students who are able to show a good modern instruction with technology should be valued, rewarded and appointed as a model for the others (Langub & Lokey-Vega, 2017). Fifth, it is important for TPEPs to improve teacher's pedagogical readiness as well as technological readiness to integrate technology in their teaching process (Y., V., & Keicher, 2018).

IV. CONCLUSION

This study investigated how do teachers perceive modern instruction. Result of the study showed some important findings. First, most respondents considered student-centred instruction using low technology as non-modern instruction. Second, some of respondents also could not be able to differentiate between appropriate and inappropriate modern instruction. They consider it as modern instruction as long as it uses modern technology. Third, on the other hand, some of respondents also are able to perceive modern instruction accordingly. As an implication, it is important for TPEs program students as the candidate of a professional teacher to understand appropriate and inappropriate modern instruction. Therefore, this study provides some important insight, implications and further directions to improve TPEs program.

This study has some limitations, of course. It was conducted using an online survey. It also used only one open question to pick one or more options related to the illustrative cases provided. Illustrative cases provided in this study may not provide sufficient information for respondents to make a decision which options they should pick. But, a huge number of samples on this study can strengthen the findings. So this study can be used as a baseline information to improve TPEs program in the future. Especially, some implications and recommendations described on the discussion above.

References

- Doron, Z., Mark, W., & Tamara, T. (2017). *www.researchgate.net*. Retrieved June 2019, from www.researchgate.net/publication/320270142_learning_and_Teaching_with_Technology_Technological+Pedagogy_and_Teacher_Practice
- Harvey, D. M., & Caro, R. (2017). Building TPACK in Preservice Teachers Through Explicit Course Design. *TechTrend (2017) 61*
- Hunter, J. (2015). *Technology Integration and High Possibility Classrooms: Building from Tpack*. New York: Routledge
- Kilbane, C. L., & Milman, N. B. (2014). *Teaching Models: Designing Instruction for 21st Century Learners*. Boston: Pearson
- Kolb, L. (2017). *Learning First Technology Second: The Educator's Guide to Designing Authentic Lessons*. USA.
- Langub, L. W., & Lokey-Vega, A. (2017, July). Rethinking Instructional Technology to Improve Pedagogy for Digital Literacy: A Design Case in a Graduate Early Childhood Education Course. *TechTrends (2017) 61:322*, pp. 322 - 330.
- Liu, X., & Pange, J. J. (2015). Early Childhood Teacher's Perceived Barriers to ICT Integration in Teaching: a Survey Study in Mainland China. *Comput. Educ (2015) 2:61*.
- Mishra, P., & Koehler, M. J. (2014). Introducing Technological Pedagogical Content Knowledge. *American Educational Research Association*, 24 - 208.
- Mishra, P., & Henriksen, D. (2018). *Creativity, Technology & Education: Exploring user Convergence*. USA: Springer.
- Nasir, B. (2016, January). Technology and Teacher Education: A Brief Glimpse of the Research and Practice that Have Shaped the Field. *TechTrends 60(1)*. Retrieved June 2019, from https://www.researchgate.net/publication/291419181_Technology_and_Teacher_Education_A_Brief_Glimpse_of_the_Research_and_Practice_that_Have_Shaped_the_Field
- Stewart, C. M., Schifter, C. C., & Selverian, M. E. (2010). *Teaching and Learning with Technology: Beyond Constructivism*. UK: Routledge.

- Wang, S.-K., & Hsu, H.-Y. (2014). Preparing Teachers in Science through Technology for STEM Education. In S. L. Green, *STEM Education: How to Train 21st Century Teachers* (p. 47). New York: Nova Publisher.
- Y., L., V., G., & Keicher, A. (2018, March 29). Predicting High School Teacher Use of Technology: Pedagogical Beliefs, Technological Beliefs and Attitudes, and Teacher Training. *Tech Know Learn (2018)*, pp. 1 - 18.