

# Mastering Teacher Competencies through Collaborative Multimodal Teaching

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## Abstract

This study explored how student teachers master teacher competencies through collaborative multimodal teaching. In this case, the teaching-learning processes focused on vocabulary. Moreover, it investigated the difficulties encountered by student teachers in mastering teacher competencies through collaborative multimodal teaching. Teacher competencies cover pedagogical, professional, social, and personal (Ministry of National Education, 2007). This study applied qualitative design (multi-case study) involving 45 student teachers studying at three different study programs and 15 model teachers teaching at elementary schools in Cianjur, West Java. Three instruments were employed for the data collection of this study, i.e., observations, questionnaires, and interviews. The results indicate that collaborative multimodal teaching among the model teachers and the student teachers is conducted in five stages, i.e., observing, planning, simulating, practicing, and evaluating. In collaborative multimodal teaching, student teachers and model teachers are involved in groups of teaching using multimodal instructional media (e.g., VR) to apply the pedagogical knowledge and practice multimodal teaching directly in the natural teaching-learning processes.

**Keywords:** *teachers competencies, collaborative multimodal teaching*

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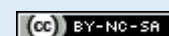
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## Introduction

In the 21st century, learners obtain information and knowledge in various modes. However, it is not congruent with the Indonesian teachers' competencies in teaching-learning processes in the digital era. Many research reports (e.g., Panggabean & Himawan, 2016) indicate that the competencies of Indonesian teachers still need improvements. Moreover, most of them need more guidance in implementing and integrating many modes of teaching-learning processes. It impacts Indonesian education quality. Ugbe and Agim (2009) state that the quality of teachers has a crucial and direct impact on the teaching-learning process, particularly on students' reception of the knowledge materials being taught.

In the digital era, teaching-learning processes are conducted by using different modes. The use of multiple modes to make meaning is called multimodality (Jewitt, 2005). It takes place as meaning is created, distributed, interpreted, and reconstructed through various communicational and representational resources (Kress, Jewitt, Ogborn, 2010; Kress, 2010). Jewitt (2008) states that actions and images represent modes from a multimodal point of view. Kress (2010) states that multimodality is a set of semiotic resources for making meaning through some different ways concurrently. Each mode has specific meanings. Besides, multimodality combines many different semiotic resources consisting of language, music, picture, and voice in a specific situation and an interactive event. Moreover, images have crucial roles in multimodal communication because of their attention capability (Unsworth, 2014; Kress & Van Leeuwen, 2006; Kress, 2010). Multimodal aspects consist of linguistic, visual, audio, gestural, spatial (New London Group, 1996).

Moreover, Amidon (1967; cited in Rajagopalan, 2019) argues that teaching is an interactive process, primarily involving classroom talk taking place between teacher and learners during particular definable activities. Teaching a particular subject is conducted by a single teacher or a group of teachers. A group of teachers teaching, working together, and taking responsibility for planning, teaching, and monitoring learners' success in a class called collaborative teaching (Dugan & Letterman, 2008; in Zhou, Kim, & Kerekes, 2011).

In conducting successful collaborative teaching, a group of teachers should master teacher competencies. Retour (2012, cited in Libanio, Amaral, & Migowski, 2017) proposes that competence is operational skills needed for someone to be able to conduct their duties effectively and successfully. Ministry of National Education (2007) proposes four teacher competencies covering the pedagogical, professional, social, and personal competencies. The pedagogical competence is defined as teachers' capability to comprehend and master the characteristic of learners and organize teaching-learning processes. The professional competence is the ability of teachers in mastering material, substance-related subjects and curriculum applied in teaching-learning processes. The social competence covers the capability of teachers to communicate with learners, other teachers, and other people coming from different social backgrounds empathically and politely. Meanwhile, the personal competence is the personality of the teachers consisting of some attitudes, i.e., confident, stable, mature, wise and dignified. In this case, they have work ethics and high senses of responsibility (Ministry of National Education (2007).

Concerning the teacher competences, many studies investigating the issue have been conducted to explore some different angles of the issue, e.g., the research examine teacher's competency assessment (TCA) in Indonesia as a new framework (Kuntarto, et.al., 2019); the role of Indonesian teachers' competencies in developing child-friendly school (Abduh & Zainudin, 2018); the development of Indonesia teacher competence (Panggabean & Himawan, 2016); how the preservice teacher integrated technology in teaching practice (Halimah & Syaddad, 2020). Regarding collaborative teaching and multimodal teaching, the issues have been developing as one of crucial aspects that should be master by student teachers and teachers. Many studies exploring collaborative teaching have been carried out, i.e., the research examined collaborative teaching of an integrated methods course (Zhou et al., 2011). Meanwhile, the research of multimodal teaching, the issue has been increasingly influenced the teaching-learning processes in the digital age. The studies of multimodal teaching explored the multimodal teaching and learning with the use of technology: meanings, practices and discourses (Papageorgiou & Lameris (2017); multimodal pedagogies in teaching English for specific purposes

in higher education: perceptions, challenges and strategies (Laadem & Mallahi, 2020); multimodal teaching, learning and training in virtual reality: a review and case study (Philippe, et. al., 2020), the implementation of multimodal teaching particularly in practicing and creating multimodal inference to develop students' reading skills (Nurviyani, Suherdi & Lukmana, 2020).

Referring to the research, only few studies investigated the implementation of collaborative multimodal teaching to develop student teachers' competencies, e.g., the study investigated by Tuo & Long (2022) exploring constructing and application of a human-computer collaborative multimodal practice teaching model for preschool education. The issue of collaborative multimodal teaching is still rare. Thus, this study investigated the process of mastering teacher competencies through collaborative multimodal teaching. In this case, collaborative multimodal teachings were conducted by using VR (Virtual Reality) integrated by other instructional media. Besides, it examined the difficulties encountered by student teachers in mastering the teacher competencies through collaborative multimodal teaching.

## Method

This study employed a qualitative design. It was implemented by considering two reasons, i.e., the qualitative design explores specific phenomena in a particular social setting employed to gain participants' perceptions (see Miles, Huberman, & Saldana, 2014), and examines lives of individuals, groups, societies, and organizations, by employing focus groups or interviews generating from non-statistical data analysed primarily by non-numerical methods (Denzin & Lincoln, 2018; Creswell & Clark, 2007; 2008; Creswell & Creswell, 2018).

The qualitative design focused on case study. Miles et al. (2014) defines a case as a phenomenon occurring in a specific social context. The phenomenon is a situation, an event, a person, a process, a social unit, an event, or a program in real-life contexts (Yin, 2018; Denzin & Lincoln, 2018; Duke & Mallette, 2011). In line with the concept, Stake (2006) categorizes the case study, i.e., a) instrumental, b) intrinsic and c) collective or multiple. The collective case study is the multiple case study investigating more than one case is being explored. It is implemented to examine differences and similarities between cases. The research findings of the multiple case study are to restate results across cases (Stake, 2006; Yin, 2003).

Referring to the description, this research explored a particular phenomenon particularly the process of mastering teacher competencies conducted through collaborative multimodal teaching using VR (Virtual Reality) integrated with other instructional media. Besides, their troubles in developing the teacher competencies through the collaborative multimodal teaching using VR were explored. In the collaborative multimodal teaching, 45 student teachers and 15 model teachers teaching in 15 elementary schools in Cianjur Regency took part as the participants of this study. The 45 student teachers were studying in a private university in West Java, particularly at English education study program. The student teachers were categorized into 15 groups and involved in 15 different elementary schools. Therefore, each group practicing collaborative multimodal teaching consisted of 1 model teacher and 3 student teachers. The differences and the similarities between the groups or the cases were analysed to capture the research results.

Concerning the research participants (i.e., the student teachers and the model teachers), they were selected purposively by referring to some qualifications (see Merriam, 1991), i.e., a) they were ready to be participants of this study and took part in some data collection sessions, b) they have basic knowledge of TPACK and digital literacy, c) they often gain and read monomodal and multimodal information in their daily life.

In this research, all student teachers involved in four phases and the model teachers took part in three phases. The phases covered a) FGD-1 attended by all student teachers; b) FGD-2 attended by all participants (the student teachers and the model teachers); c) training of collaborative multimodal teaching using VR (Virtual Reality) integrated with other instructional media; d) the practices of collaborative multimodal teaching conducted by student teachers and model teachers.

Referring to the phases, the data collection of this research cover observations, interviews, and questionnaire. All data collection techniques were implemented to gain the answers of both research problems. Regarding observations, it was implemented during all phases of this research. The observations were conducted for answering the first and the second research questions. The observations were implemented by observing and exploring all participants' activities during all phases, i.e., FGD-1, FGD-2, the training of collaborative multimodal

teaching, and the practices of collaborative multimodal teaching including implementing TPACK and digital literacy.

The practices of the collaborative multimodal teachings were conducted in two meetings for each group. In the phase, the student teachers and the model teachers taught vocabulary concerning animals. The teaching learning processes were carried out by integrating some instructional media, i.e., VR (Virtual Reality), Youtube channels, multimodal worksheets, and games. In the collaborative multimodal teachings, the researchers were non participant observers (see Heigham & Croker, 2009). It was indicated as the researchers observed all participants by documenting, taking notes, listening, and examining everything happened to the participants during all phases (see Thomas, 2003; Flick, 2018). During the sessions of the observations, the researchers wrote detailed notes and filled in the observation rubrics immediately after accomplishing the sessions and the researchers' memories of the observations were still fresh (see Heigham & Croker, 2009; Dawson, 2009).

It was relevant with the concept of observation proposed by Croker and Heigham (2009), Charters (2003), and Thomas (2003). In this case, they argue that observation is a conscious and specific investigation process of participants' behaviour in natural settings and less intimidation to participants conducted by observing and listening to events, recording and documenting them (Croker and Heigham, 2009; Charters, 2003; Thomas, 2003).

The second data collection technique of this study was questionnaire. It was conducted to find out the answers of both research problems. In this case, all participants (the student teachers and the model teachers) involved to response twenty open-ended questions concerning collaborative multimodal teaching including teacher competencies and the implementation of TPACK, digital literacy. It was conducted after they accomplished all collaborative multimodal teaching. In the open-ended questionnaires, they had no options to response the questions but they had to fill the blank space. It intended to allow them free in expressing their ideas. Moreover, the questions were presented in Indonesia to make them comprehend the questions more easily (see Dornyei, 2007; Dawson, 2010).

The last data collection was the interview. The interview was employed to obtain the answers of all research questions. Only six student teachers and three model teachers were selected to take part in the interview session. It was conducted in a classroom where they conducted the collaborative multimodal teaching. Each participant was posed twenty Indonesian questions concerning the teacher competencies and the collaborative multimodal teaching (including TPACK and digital literacy) after accomplishing collaborative teaching practices. It is relevant to the statement that all participants are asked several questions orally in interview session (see Thomas, 2003; Dawson, 2009; Denzin & Lincoln, 2018; Flick, 2018). Moreover, a recorder was used to obtain full data of the interview and allow the researchers to transcribe the data later (see Dawson, 2009; Heigham & Croker, 2009; Dornyei, 2007).

Having gained all data, the analyses of the data were conducted qualitatively. Regarding the data gained from the observations, the data analysis was conducted in the following stages. The stage 1 was organizing data of the observations into file folders. The stage 2 was transcribing data. It was conducted by listening and watching the videotapes and then reading the field notes of the observations. The stage 3 was converting data from videotapes into text data. The stage 4 was marking the text data by hand and segmenting the data into two part by referring to the themes of the research problems. The themes were 1) the process of mastering of student teachers' competencies through collaborative multimodal teaching using VR (Virtual Reality) combined with other instructional media, and 2) their difficulties in developing the teacher competencies through collaborative multimodal teaching. The stage 5 was describing and developed the data for gaining deep understanding of the phenomenon. The stage 6 was reporting and interpreting the research results (see Creswell and Creswell, 2018).

Concerning the data sources gained from the open-ended questionnaire, it was analysed by referring to the theory of qualitative data analyses but in different ways (see Creswell and Creswell, 2018; Denzin & Lincoln, 2018). The data obtained from the questionnaire were analysed by segmenting the answers based on the research problems. Then the data were described and interpreted as the research findings.

Regarding the data of the interviews, it was analysed in some stages based on the statement proposed by Kvale (2007). The stage 1 was transforming the data from oral to written language. Then, the transcripts of the interviews were read. Moreover, some notations were made to find out the statements representing the answers of both research questions. The stage 2 was coding the data. The codes were applied as categories to organize

the data referring to the research problems. The stage 3 was interpreting and concluding the data into the research findings. Finally, all data obtained from the observations, the questionnaire and the interviews were triangulated by making comparison and contrast to extend the conclusion validity of this research.

## Results

This study employing qualitative design explored the process of mastering teacher competencies through collaborative multimodal teaching. Besides, the student teachers' difficulties in developing the teacher competencies through the collaborative multimodal teaching were investigated. The data sources covered observations, questionnaires, and interviews. All data were collected through four phases, i.e., a) FGD-1, b) FGD-2, c) the training of collaborative multimodal teaching, and d) the practices of collaborative multimodal teaching. Each stage is elaborated below.

In the first stage (i.e., FGD-1), all student teachers involved in the activities together with the lecturers. In this stage, they discussed and analyzed the student teachers' needs for being professional teachers in digital era. In this case, the student teacher need to master four teacher competencies, i.e., pedagogical, professional, social, and personal (Ministry of National Education, 2007). The results show that most student teacher comprehend the teacher competencies and had practiced it (particularly social and personal competencies) in their daily life.

In the second phase, the student teachers and the model teachers took part in FGD-2 together with the lecturers. In this phase, they discussed the criteria of professional teachers by referring to the teacher competencies and the student teachers' readiness of being future professional teachers. In the third phase, all participants (the student teachers and the model teachers) participated in the training of collaborative multimodal teaching using VR (Virtual Reality) combined with other instructional media, i.e., YouTube channels, print-based multimodal worksheets, laptop, LCD projector, and games. In the training, all participants obtained more knowledge of pedagogy, digital literacy, and the implementation of digital instructional media particularly VR (virtual reality). In the last activity, all participants (the student teachers and the model teachers) conducted collaborative multimodal teaching. In the teaching learning process, they conducted multimodal teaching-learning processes by using VR integrated with other multimodal instructional media. In the teaching-learning processes, the teachers played the role as the main educators, and the student teachers as the co-educators. They taught English vocabulary concerning land and water animals.

## Discussion

Referring to the four phases conducted in this study, the research results indicate that the collaborative multimodal teaching among the model teachers and the student teachers is conducted in five stages, i.e., observing, planning, simulating, practicing, and evaluating. Observing was conducted in the training session. In the session, the student teachers watched and listening all teaching-learning process using VR as the instructional media integrated with other multimodal learning resources simulated by lecturers as the trainers. Then, the model teachers and the student teachers jointly designed the plan for collaborative multimodal teaching processes. Next, the student teachers conducted teaching simulation. Afterwards, the model teachers and the student teachers carried out collaborative multimodal teaching in classroom. In collaborative multimodal teaching using VR combined with other instructional media, students teachers participated in a group of teaching using multimodal instructional media naturally. In this case, VR is one of multimodal learning resources presenting learning materials (i.e., vocabulary) in various modes, i.e., visual, linguistics, spatial, auditory, and gestural (see New London Group, 1996).

Moreover, the student teachers gained the transformation of pedagogical knowledge, and practiced multimodal teaching directly in the real teaching-learning processes. Besides, it fostered the student teacher to master the teacher competencies optimally, such as practicing teaching methodology and implementing multimodal teaching using VR (Virtual Reality) and other multimodal instructional media in real-life contexts (pedagogic competence), expanding digital knowledge particularly some multimodal instructional media (i.e., Virtual Reality), and employing it in teaching-learning processes (professional competence), showing pride in being future teachers (personal competence), interacting and communicating with the teachers and learners naturally (social competence) (see Ministry of National Education, 2007). Thus, they are more ready to be future professional teachers in the millennial era.

However, in the collaborative multimodal teaching, the student teachers encountered some difficulties. For instance, they needed more practices in recognizing their learners' characteristics, and teaching organization. Moreover, they have to keep learning and practicing concerning material evaluation for selecting the most appropriate material for their learners, as well as the curriculum development and assessment.

Having accomplishing the collaborative multimodal teaching, all participants were posed twenty questions of questionnaire. The questions concerned the teacher competencies and the collaborative multimodal teaching including TPACK and the participants' knowledge of digital literacy. Moreover, the questions of interviews were responded by three student teachers concerning the teacher competencies and the implementation of the collaborative multimodal teaching. The findings are congruent with the results of the observations that the collaborative multimodal teaching facilitates the student teacher to master and develop the teacher competencies (i.e., pedagogic, professional, social, and personal competencies) applied in teaching-learning processes in the real classrooms. Thus, it makes the student teachers to be more ready for being future professional teachers in the digital era.

## Conclusion

In this study, collaborative multimodal teaching is an interactive, effective, cooperative process of communication among a group of teachers and learners during particular definable activities in classrooms using multiple modes (i.e., visual, gestural, audio, linguistics, and spatial). In collaborative multimodal teaching, a group of teachers works together in a team teaching. In this case, they simultaneously plan, teach, monitor, and evaluate the teaching-learning process of a group of learners.

Referring to the data sources gained from the observations, questionnaires, and interviews, the results indicate that the collaborative multimodal teaching among the model teachers and the student teachers is conducted in five stages, i.e., observing, planning, simulating, practicing, and evaluating. In collaborative multimodal teaching using VR or virtual reality, student teachers involve naturally in groups of teaching using VR and other instructional media, gain the transformation of pedagogical knowledge, and practice multimodal teaching directly in the natural teaching-learning processes.

Moreover, it facilitates the student teacher to develop the teacher competencies optimally, such as practicing teaching methodology and implementing multimodal teaching using VR in real-life contexts (pedagogic competence), expanding digital knowledge (e.g., VR), and utilizing it in teaching-learning processes (professional competence), showing pride in being future teachers (personal competence), interacting and communicating with the teachers and learners naturally (social competence). However, in mastering some teaching issues covering learner characteristics, teaching management, curriculum development, and assessment, they encountered some difficulties. They need more enhancement and guidance related to the main issues. Thus, they are more ready to be future professional teachers in the millennial era.

This study explored the process of mastering teacher competencies through collaborative multimodal teaching by involving student teachers and model teacher. Moreover, it investigated the student teachers' difficulties in the collaborative multimodal teaching. For further studies, it is better to examine some factors contributing in the process of mastering teacher competencies through collaborative multimodal teaching.

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