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# Pedagogical Competence of Teachers in Responding to the Challenges of 21st Century Teacher Skills

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## **Abstract:**

This study aimed to describe teachers' pedagogical competence as evidenced through educator certification in responding to challenges of the skills of 21<sup>st</sup>-century teachers. A qualitative approach with descriptive methods was applied in this study. Data was collected through interviews, observations, and documentation studies. The research was conducted at a High School in Jakarta with participants including the Principal, Deputy Principal for Curriculum, and Teachers. Research shows that (1) teacher pedagogical competence in 21<sup>st</sup>-century teacher skills can facilitate the actualization of each student's potential; involve students in exploring real-world issues; designing or adapting appropriate learning experiences and integrating digital tools and resources in educational learning activities. (2) The teacher's pedagogical competence is strived for through training organized by the government and schools, participating in MGMP, workshops, IHT, and reading books; (3) Obstacles in developing pedagogical competence in 21<sup>st</sup>-century teacher skills include the difficulty of senior teachers in dealing with the technological era, time, lack of interest in reading teachers, psychological aspects of teachers, and the unavailability of a consultation room.

**Keywords: Pedagogical Competence, 21st Century Teacher Skills.**

## **Introduction**

Students in the 21<sup>st</sup> century have grown up online and surrounded by digital technology ever since they were born. As a consequence, students' demand to be digital literate has greatly impacted their educational settings and daily lives. On the other hand, there is an emergent consensus that the integration of digital technology can enhance students learning and, therefore, improve the centre of school's output: students' achievement. For these reasons, teachers are expected to be the architect of students' digital learning environment (Engeness, 2021).

To explore how teachers should answer the call of 21<sup>st</sup>-century teaching skills, it is essential to examine what has been expected from students as the future workforce. On the other hand, as the architect, teachers' responsibilities are to develop their potential to be proficient technology users who can easily adopt, adapt and integrate technology within their class (Amini & Kemal, 2021). This, for sure, has expanded the concept and definition of professional teachers. Hence, a discussion on how teachers can be considered professional is essential to provide an in-depth understanding of how technology proficiency matters to teacher professional development. Toh, Diong, Boo & Chia. (1996) affirmed that there are

four factors affecting teacher professionalism: academic qualifications, professional training, teaching experience, and professional development.

Teacher Certification is being implemented today to realize professional and competent teachers to improve the quality of education and the 21<sup>st</sup>-century learning process. Masnur Muslich (2007) defined Teacher Certification as the process of providing educational certificates to teachers who have met certain requirements, such as academic qualifications, competence, physical and mental health, and the ability to achieve national education goals, which is accompanied by an increase in decent welfare.

In the 21<sup>st</sup> century, the relevance of education and work must be adjusted to the advancement of the era, science, and technology while focusing on the humanities (Ahmad, 2019). According to Griffin and Care, as cited by Siti Zubaidah, 21<sup>st</sup>-century skills and attitudes are classified as ways to think (knowledge, critical and creative thinking), ways to learn (literacy and soft skills), and ways to learn with others (personal, social, and civic responsibilities). Meanwhile, the US-based Partnership for 21st Century Skills (P21) identified Critical Thinking Skills, Creative Thinking Skills, Communication Skills, and Collaboration Skills as 21st-century competencies. These are referred to as 4C competencies.

Professional teachers are built on effective, science-based know-how (Brante, 2011 Dodillet, Lundin & Krüger, 2019) They are pictured as experts who remain current on scientific breakthroughs and regularly evaluate their teaching to enhance their students' achievement (Dodillet, Lundin & Krüger, 2019).

Educator certificates are awarded to teachers who have met teacher professional standards. To obtain certification, a teacher must go through a competency test process designed to test mastery of competencies including pedagogic competencies (Sahudra, et. al, 2021). In other words, teacher certification is an acknowledgement that a teacher has the competence to carry out education and teaching. Gary and Margaret cited by E. Mulyasa (2007) in their book suggested that an effective and professionally competent teacher has the following characteristics: (1) ability to create a conducive learning climate, (2) ability to develop strategies and learning management, (3) ability to provide feedback and reinforcement, and (4) the ability to self-improvement.

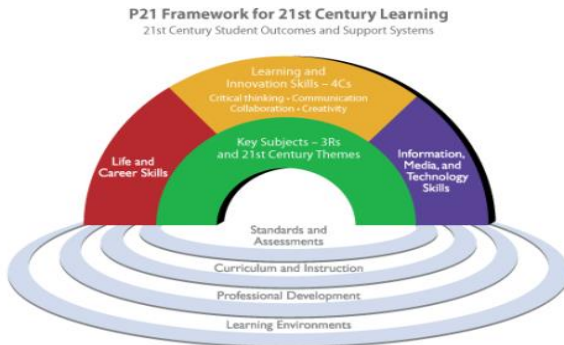
Moreover, Olorunsola (2019) defined teachers' pedagogical competence as teachers' ability to adopt diverse suitable strategies and teaching methods while imparting knowledge of the subject matter in a manner that makes sense to the students.

Thus, certified teachers should have good pedagogical competencies that can enable them to answer the challenges of teaching 21<sup>st</sup>-century skills. In other words, teacher certification as evidence of a teacher having pedagogical competence helps them maximize student learning experiences in the 21st century.

## Teachers of 21<sup>st</sup> century

### *21st Century Learning Concept*

The 21<sup>st</sup>-century learning was depicted in a scheme of 21<sup>st</sup>-century knowledge-skill rainbow by Bernie Trilling and Charles Fadel as (1) life and career skills, (2) learning and innovation skills, and (3) information media and technology skills.



Jennifer Nichols quoted by Siti Zubaidah (2016) suggested 4 main principles of 21<sup>st</sup>-century learning: 1) Instruction should be student-centred, 2) Education should be collaborative, 3) Learning should have context, 4) Schools should be integrated with society.

Thus, 21<sup>st</sup>-century learning emphasizes life and career skills, learning and innovation skills, and information technology and media skills in which applying a learner-centred approach to be able to collaborate and adapt to the surrounding environment.

### *21st Century Teacher Skills*

The International Society for Technology in Education categorizes 21<sup>st</sup>-century teacher skills into five points: 1) Facilitates and inspires student learning and creativity; 2) Designs and develops digital learning experiences and assessments, and 3) Serves as a model for how to learn and work in the digital era. digital, 4) Promote and be a role model for responsibility and digital society; and 5) Participate in professional development and leadership.

Therefore, teachers' understanding, skills, and abilities in operating technology-based facilities to support the learning process are required when carrying out modern learning processes.

### *The Role of the 21st Century Teacher*

Entering the twenty-first century, teachers must be able to organize a learning process based on the four pillars of learning established by the UNESCO International Commission for Education, namely: (1) Learning to know, where students learn about a knowledge material, deepen and utilize the material; (2) Learning to do, where students learn how to produce works from the knowledge they have acquired; (3) Learning to be, where students will become individuals with quality and identity who can work and learn together with various groups in various types of work and social environment and can adapt

to changing times; (4) Learning to live together where students can work cooperatively, can socialize, appreciate diversity and have a high tolerance for fellow human beings.

### *The 4C Competencies*

The 4C (Critical Thinking and Problem Solving, Creativity, Communication Skills, and Collaboration) competencies that students must-have in the 21st century are in line with strengthening character education in schools launched by the Indonesian government where students must be able to think critically, creatively, able to communicate, and collaborate.

### *Literacy*

According to Pages, there are six basic literacies: literacy, numeracy literacy, scientific literacy, information and communication technology literacy, financial literacy, cultural literacy, and citizenship. Other literacy skills that must be mastered include health literacy, safety literacy (roads, disaster mitigation), and criminal literacy (known as "safe school" for elementary school students). Literacy skills must be mastered along with the times so that students can filter the information they receive and distinguish between true and false information.

### *Strengthening Character Education*

Character education can be defined as changing or shaping a person's character, behaviour, temperament, character, and personality according to specified criteria. The movement of Strengthening Character Education which was launched by the Ministry of Education and Culture of the Republic of Indonesia in 2017 identified five main character values that need to be developed as priorities; those are religious values, nationalism, independence, cooperation, and integrity (Komara, 2018).

### *ICT Based Learning*

CT-Based Learning is the use of computer devices and their connections in the delivery of learning, allowing for time efficiency, ease of access to the subject matter, and cost savings.

Sutrisno believes that the demands for responding to the globalization of education are insight. When used correctly and appropriately, various computer devices and their connections enable students to learn quickly and accurately. As a result, human resources that are responsive to ICT developments are required. Alessi and Trollip contend that ICT-based learning has numerous advantages. One of them is that by making better use of time, subject matter materials become more accessible, interesting, and affordable. The use of information technology can be a helpful and facilitating tool for teachers in the learning process.

Relevant studies on pedagogical competence of certified teachers and 21st teachers' skills were conducted by Bachtiar Dwi Kurniawan (2011) whose study aimed to determine the implementation of teacher certification policies in positions, especially the portfolio path to improve teacher professionalism. Etistika Yuni Wijaya, et al. (2016) described the 21<sup>st</sup>-century competencies needed in the industrial world in the field of work as network technicians. Eneng Martini (...) found that with 21<sup>st</sup>-century skills and attitudes, skills, and knowledge, must be balanced with technology; besides, the students are required to think critically (HOTS). Meanwhile, E.O. Olorunsola (2019) investigated teachers' pedagogical competence as a determinant of students' academic performance in secondary schools in Ekiti State. Based on her findings, she recommended that teachers strive to keep up to date with new skills and knowledge in their diverse subject areas by attending refresher courses and engaging in professional development. They are also advised to improve their classroom management skills to positively influence students' academic performance. Teachers should work hard to improve their pedagogical skills so that they can deliver even the most complex and abstract concepts with ease.

This research will address the issue of teacher pedagogical competence in the implementation of 21<sup>st</sup>-century learning. Teachers' pedagogical competence was chosen to be studied without jeopardizing other competencies. Pedagogical competence is determined by each teacher and how they can apply and develop the pedagogic competencies already possessed in carrying out the learning process.

The research questions are based on the problem's background:

1. How is the pedagogic competence of certified educators in applying the skills of 21<sup>st</sup>-century teachers at SMA Negeri 68 Jakarta?
2. How are efforts being made at SMA Negeri 68 Jakarta to develop the pedagogic competence of certified educators in the skills of 21<sup>st</sup>-century teachers?
3. What are the challenges, and how will they be overcome, in developing certified educators' pedagogic competence in 21<sup>st</sup>-century teacher skills at SMA Negeri 68 Jakarta?

In conclusion, the importance of this research is that provide deeper information and insight into the pedagogical competence of certified teachers in carrying out 21<sup>st</sup>-century teacher skills. It is expected to be a new useful material regarding the pedagogical competence of certified teachers in carrying out the process of teacher skills in the 21st century.

## **Methods**

The research was conducted at SMA Negeri 68 Jakarta. The competence of teachers in schools has been fulfilled, as can be seen from UKG data published by the education office,

and from the results of a quality meeting issued by the ministry called EDS (School Self Evaluation) which is held once a year.

### *Research Method*

A qualitative approach with a descriptive method is applied to this research. Bogdan and Taylor (1992:21-22) suggest that qualitative research is a research procedure that produces descriptive data in the form of speech or writing and the behaviour of the people being observed. It began with the assumptions that high school teachers in Indonesia must embrace the requirement of 21<sup>st</sup> teachers' century when the challenges of digital technology being integrated into the students' learning emerge and the development of digital pedagogical competence has been one of the teachers' main skills (Creswell & Poth, 2018).

### *Participants*

Purposive sampling was used as the strategy to collect the data in this research. The strategy was chosen to select instances that are information research (Patton, 2015). There were 5 informants chosen. They are all national-certified teachers serving at the same public high school. One of them is the school principal.

### *Research Procedures*

Data sources are divided into primary data and secondary data. Primary data sources come from interviews with the main informants and several supporting informants. Secondary data sources are documents related to school profiles such as school history, vision, mission, goals, data related to teacher certification, data related to the learning process such as syllabus and lesson plans, and the use of ICT Based Learning such as the application page.

Data collection techniques are carried out through Field Observation, interviews, and Documentation studies. Qualitative data is obtained from the results of data and information collection using various data collection methods, such as observation, interviews, drawing, and others. In conducting the data analysis process, the following things are being considered: (1) Interview transcript, (2) Field notes from observations, (3) Researcher's diary, (4) Notes of important field events, (5) Researchers' memos and reflections, and (6) Audio recording.

Data were collected through semi-structured interviews and analyzed using the qualitative three concurrent flow of activity: (1) data condensation, (2) data display, and (3) conclusion drawing/verification (Miles, Huberman, & Saldaña, 2014).

### **Findings**

Data exposure, data display, and research findings are presented in this section. The results of the data reduction show several findings related to the Pedagogic Competence of

Certified Educators in 21st Century Learning which can be presented based on the following sub-focuses:

### ***Pedagogical Competences of Certified Educator Teachers***

Some of the findings are as follow:

1. Teacher certification for teachers at SMA Negeri 68 Jakarta contributes to improving teacher competence, especially for teachers' professional and pedagogic competencies; achieving students' learning goals because the learning process carried out by the teacher goes well and the transfer of knowledge is right on target; improving teacher performance, the standard of living of teachers due to the provision of incentives, and the experience and skills of teachers in teaching.

2. Based on the documentation study, the number of certified teachers at SMA Negeri 68 Jakarta is 40 out of a total of 52 teachers; those who have not followed the certification are honorary teachers.

3. The teacher certification process is carried out through the teacher professional education program (PPG), PPG in Position, and teacher professional education and training (PLPG).

4. The incentives received are allocated for the benefit of teachers, such as attending paid training, writing scientific papers, producing teaching tools and materials for learning, spending on books and laptops, and continuing education.

5. To find out the extent of the pedagogic competence of the teachers, the principal is assisted by the core teachers to carry out academic supervision which is run every semester in the form of class visits, checking learning tools (RPP, lattice questions) and teacher administration.

6. The average teachers already use ICT Based Learning and refer to 21<sup>st</sup>-century learning and 21<sup>st</sup>-century teacher skills, such as the application of 4C competencies, the strengthening of character education in the learning process, lesson plans (RPP) have been arranged according to existing standards, the learning process is by those in the supervision instrument, and teachers improve their teaching competencies by using various learning models.

7. Based on class observations, teachers' pedagogical competencies are assessed in 7 areas, namely: 1) mastering the students' characters as seen by the teacher who provides opportunities for students to participate actively in class. 2) mastery of learning and learning theory as seen from the teacher ensuring the level of students' understanding towards the subject matter explained. 3) being able to develop a curriculum seen in making lesson plans and learning materials that are by learning objectives. 4) implementing educational learning

activities where the teacher explains the material by relating it to real-world problems. 5) facilitating the actualization of each student's potential through learning activities that foster creativity and critical thinking skills; demonstrated by students' ability to answer the questions posed by the teacher. 6) conducting educative communication by asking questions to find out the extent of student comprehension and participation in answering these questions. 7) conducting an assessment and evaluation in which the teacher creates an assessment tool by the learning objectives in the lesson plans and uses suggestions or input from students as material for self-reflection.

### ***21st Century Teacher Skills***

It was found that:

1. To develop teacher pedagogical competence in 21<sup>st</sup>-century teacher skills, teachers participate in training organized by agencies and schools such as STEM (Science, Technology, Engineering and Mathematics) training, MGMP, workshops, IHT, and reading books. Workshops and training organized by schools must be attended by all teachers; carried out 1-2 times each semester and designed according to the needs of the teacher.

2. Obstacles in developing teacher pedagogic competence in 21<sup>st</sup>-century teacher skills are the difficulties of old teachers in dealing with the technological era, time in conducting training, lack of interest in reading, psychological aspects of teachers, and the unavailability of a special consultation room.

3. Efforts to overcome obstacles made by the Principal and Deputy Head of Sector are: supervising, directing teachers, involving teachers in training, finding a time that has been mutually agreed upon, assisting older teachers. While things done by the teachers are: read more, conduct discussions, maximize and manage time, participate in MGMP.

4. It was discovered that the implementation of 21<sup>st</sup> century learning at SMA Negeri 68 Jakarta includes 4C competencies, literacy, strengthening character education, and ICT Based Learning. 4C competencies are applied through classroom learning. Literacy is applied by reading activities in the field on Tuesdays, Wednesdays, and Thursdays, and reading the Qur'an on Fridays. To increase students' reading interest, the teacher requires students to read books/articles every day. Students' character education is strengthened through a learning process including praying before beginning to learn, and the prohibition of cheating to practice honesty. ICT Based Learning is applied in PTS (Middle Semester Assessment) and PAT (End of Year Assessment) using the Moodle AIOCBT system. Teachers also apply ICT Based Learning through the use of power points in class as well as several online learning platforms such as google classroom and create discussion groups on WhatsApp.



5. The pedagogical competence of teachers in implementing 21<sup>st</sup>-century learning has been good since teachers have participated in various training and MGMP; besides that, teachers are also accustomed to carrying out 21<sup>st</sup>-century learning.

## **Conclusion**

This current study is aimed to describe certified teachers' pedagogical competence in responding to challenges of the skills of 21<sup>st</sup>-century teachers, especially at SMA Negeri 68 Jakarta.

Teacher certification has an important role in shaping and improving teacher competence at SMA Negeri 68 Jakarta, especially in professional and pedagogical competence. Good teacher competence enables the achievement of students' learning goals, improves teacher performance, improves teachers' standard of living, increases teacher experience and skills in teaching. Teacher certification enables teachers to design the learning process according to the demands of the times. The pedagogical competencies of educator-certified teachers in 21<sup>st</sup>-century teacher skills based on the opinion of the Society for Technology in Education include encouraging, supporting and modelling students' creative thinking and innovative inventions; involving students in exploring real-world issues; designing or adapting appropriate learning experiences and integrating digital tools and resources. Teachers at SMA Negeri 68 Jakarta have implemented ICT Based Learning, 4C competences, and strengthening character education; carry out learning implementation plans (RPP) according to standards, learning processes according to supervision instruments, and applying various learning models. This description answers research question 1 on how the pedagogic competence of certified educators in applying the skills of 21<sup>st</sup>-century teachers at SMA Negeri 68 Jakarta.

To develop teacher pedagogic competence in 21<sup>st</sup>-century teacher skills, teachers participate in training organized by the government and schools, participate in MGMP, workshops, IHT, and read books. This point answers research question 2 on efforts being made at SMA Negeri 68 Jakarta to develop the pedagogic competence of certified educators in the skills of 21<sup>st</sup>-century teachers.

The obstacles in developing the pedagogic competence of certified educators in 21<sup>st</sup>-century teacher skills include old teachers who are quite difficult to deal with in the technological era, time constraints, low interest in reading, psychological aspects of teachers, and unavailability of a consultation room.

Efforts to overcome obstacles made by the Principal and Deputy Head of Sector are: supervising, directing teachers, involving teachers in training, finding a time that has been mutually agreed upon, assisting older teachers. While things done by the teachers are: read more, conduct discussions, maximize and manage time, participate in MGMP.

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The last two paragraphs answer research question 3 on the challenges, and how to overcome the obstacles in developing certified educators' pedagogic competence in 21<sup>st</sup>-century teacher skills at SMA Negeri 68 Jakarta.

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