

# Reconfirm The 21st-Century Teaching Skills Through Integrating Pedagogy And ICT

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**Abstract.** This article aims to reconfirm the construct in 21st-century teaching skills, through integrating pedagogy with ICT. Data were collected in 2019 with a total sample of 128 people divided into students, teachers, and lecturers spread across seven provinces in Indonesia. The methodology in this research is exploratory factor analysis with oblique rotation (varimax) method. Of the 38 variables analyzed, six factors were formed that represented integration between pedagogy and technology. However, further discussion is needed by future researchers regarding naming these six factors.

**Keywords:** teaching & learning; 4.0; education.

## 1 Introduction

Over the past decades, the question of how the ideal characteristics of the ideal teacher have been widely discussed by many researchers [1–4]. Bergman and Gaitskill (1990) explored the concept of an ideal teacher from three categories, namely professional competence, relationships with students, and personal attributes. Another case with Das, El-Sabban and Bener (1996) divides the conception of an ideal teacher in terms of teaching quality, professional quality, and personal quality. Stronge, Ward and Grant (2011) divide the teacher effectiveness dimension into four dimensions, namely the delivery of instructions, assessment of students, learning atmosphere, and personal qualities. Meanwhile, Rusu, Şoitu and Panaite (2012) divided the effectiveness of teachers in five main dimensions, namely: social skills, fair assessment, knowledge related to subjects, facilitators of students' intellectual development, and respect for students. Indonesia itself, through Law Number 14 of 2005 concerning Teachers and Lecturers in Article 10 paragraph (1) states that teacher competencies include pedagogical competencies, personality competencies, social competencies, and professional competencies.

This study seeks to renew the conception of teacher competence in Indonesia, which is stated in Law Number 14 of 2005 concerning Teachers and Lecturers in Article 10 paragraph (1) that the teacher competencies referred to in article 8 include pedagogical competencies, personality competencies, social competencies, and professional competence. Even though nowadays, with the rapid development of technology, those four things are not enough. There needs to be technology integration in classroom teaching. This is because students today who are already very familiar with technology, no longer rely solely on the teacher in the classroom. The teacher must be able to develop competence in the use of technology in order to further enrich the abilities of students

## 2. Method

The population in this study were teachers, students, and lecturers in Indonesia. This study uses convenience sampling in the population. Data analysis will use Exploratory Factor Analysis, or commonly referred to as factor analysis only. Factor analysis is an interdependence technique where the main objective is to find the structure behind the variables being analyzed [5]. After loading the factors of each variable is known, then to facilitate the determination of components/factors that form, the loading of these factors must be rotated. There are two ways of doing rotation, namely orthogonal rotation and oblique rotation. In this study, the rotation technique chosen was orthogonal rotation with the varimax method.

## 3. Results

After rotating the data, 6 factors were created, the details of which can be seen in Table 1.

Tabel 1. Rotated Component Matrix

	Component					
	1	2	3	4	5	6
The teacher is able to present learning materials that are in accordance with the goals / indicators that have been set	0.765					
The teacher is able to use methods that are appropriate to the learning material delivered in the learning process	0.679					
The teacher is able to use media that is suitable with the material presented in the learning	0.631					
The teacher gives a reference of learning material that will be given	0.6					
The teacher is able to allocate the time that is provided appropriately	0.581					
The teacher is able to use learning media skillfully	0.58					
The teacher is able to give a review of the material that has been given when closing the learning	0.572					

The teacher is able to carry out assessments that are relevant to the goals set	0.558					
The teacher is able to carry out learning in accordance with the steps planned in the lesson plan	0.552					
The teacher must pay attention to the principles of using media in carrying out learning	0.528					
The teacher can provide an assessment in accordance with the lesson plan	0.514					
The teacher is able to increase student attention in learning activities						
The teacher is able to prepare learning that is able to direct students to use IT for learning needs						
The teacher is able to carry out the learning process with clear voice articulation		0.81 5				
The teacher shows enthusiasm in displaying learning		0.66 4				
The teacher is able to provide clear examples in the delivery of subject matter		0.64 4				
The teacher is able to provide variations of body movements that do not interfere with students' attention		0.63 9				0.51 8
The teacher is able to teach with mobility in class positions well		0.60 8				
The teacher is able to explain learning material (material) clearly		0.59 2				
The teacher has broad insights in conveying learning material		0.53 9				
The teacher is able to provide motivation to students to continue learning						
The teacher has skills in responding and responding to student questions						

The teacher is able to utilize the use of IT to provide effective learning			0.76 6			
The teacher is able to use IT to monitor progress and evaluate student learning			0.72 6			
The teacher is able to use IT to collaborate with others related to learning and research activities			0.71 3			
The teacher is able to install software related to education and teaching on his computer			0.70 7			
The teacher is able to use the Internet (e.g., choosing an appropriate website, WA group / discussion forum, Google Classroom / Edmodo) to support student learning			0.67 8			
The teacher is able to find useful material / teaching materials on the Internet			0.55 6			
The teacher understands the learning situation or teaching material as to what is suitable for IT use	0.517		0.53			
The teacher can give apperception (the relation of the previous material to the material to be delivered)				0.79 6		
The teacher is able to provide motivation at the beginning of learning				0.77 3		
The teacher conveys the learning objectives that will be given before the learning takes place				0.69 1		
The teacher is able to attract the attention of students to start learning				0.65 7		
The teacher gives assignments to students both individually and in groups					0.78 2	
The teacher has given the opportunity to ask questions and answer questions when closing learning					0.64 9	
The teacher is able to provide a conclusion of learning activities when closing learning					0.60 2	
The teacher is able to inform the material / learning material that will be studied next						

The teacher is able to use a variety of forms and types of assessment							0.62 7
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Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 11 iterations.

#### 4. Discussion

Times continue to change, as well as patterns of teaching in the classroom must also continue to keep abreast of the times. From this study, it is known that six factors are formed on the integration of technology with ICT. However, the names of these factors have not been recognized. For this reason, further discussion is needed from the researchers to agree on the naming of these formed factors.

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