

# Perceptions of Problem Solving and Communication Prospective Teacher

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**Abstract**—Problem solving and communication skills are needed by the teacher to support the success of the learning he does. This study aims to describe the perception of problem solving and communication of prospective elementary school teachers. This study uses a survey method. The research sample consisted of 335 prospective teachers. The survey was conducted using the online google form service method. The instruments used were problem solving questionnaires and communication. The data analysis used is descriptive statistics. The results of the research on the measurement of communication perceptions of prospective teachers obtained an average of 2.9 for men and 3.3 for women. Three aspects of communication, namely mental, emotional, and behavior in the sufficient category, so it can be concluded that the communication of prospective teachers in the category is sufficient. Measuring the perception of the problem solving ability of prospective teachers obtained an average score of 3.5 and 3.6 for women. Three aspects of problem solving, namely Problem Solving Confident, Approach Avoidance Style, and Personal Control. Three aspects of problem solving are in the sufficient category, so it is concluded that the perception of problem solving abilities of prospective teachers is in the sufficient category.

**Keywords:** Perception, Communication, Problem Solving, Prospective Teacher

## I. INTRODUCTION

The 21st century is an era of globalization that requires each individual to have multiple skills in order to be able to face competition [21]. Partnership for 21st Century Skills (2010) states that these skills are in the form of critical thinking, collaboration, communication and creativity skills which are important to be taught to students in the context of core subject areas and 21st century themes, including prospective teachers. The National Education Association (NEA) states that critical thinking and problem solving, communication, collaboration and creativity and innovation are four competencies that are demanded by each institution and needed by

every professional (including the teaching profession) [23]. Problem-solving skills for prospective teachers need to be developed through learning that presents problems in an effort to produce professional teacher graduates. Problem solving skills are a factor in the success of learning organized by the teacher. The results of the study provide information if the teacher does not have problem solving skills, does not train students to apply their knowledge in creative ways and builds deep understanding [7], does not develop problem solving skills in students (Robert et al., 2010), and in the end students are not able to solve complex problems in their daily life [27]. It is inseparable that the communication skills of prospective teachers are the achievements of higher education graduates. The role of communication skills cannot be separated from the thinking skills of a teacher. Good communication skills from a teacher influence a pleasant learning atmosphere, increase motivation, and the achievement of learning outcomes [8]; [17]. The importance of these skills, this study aims to describe the perception of problem solving and communication of prospective teachers. Problem solving as a cognitive skill that is used to solve problems related to real life [18] in new, creative, systematic, and analytical ways [4]. Problem solving skills are related to critical thinking, analytical thinking, and productive creation, all of which involve quantitative skills, communication skills, and the ability to respond critically [5]. Communication skills are skills to express new thoughts, ideas, knowledge, or information, both in writing and orally [11]; [9], conveyed well [16] and able to influence message recipients / listeners [17]. [28] states communication skills, as a system of knowledge, skills, abilities, motivational dispositions, attitudes and traits in communicative teaching and social interactions. Communication skills refer to understanding and applying the process of sending and receiving messages both verbal and nonverbal (Wilkins et al., 2015).

Problem Solving Inventory (PSI) is an instrument that is widely used to assess problem solving to measure individual perceptions [15]. PSI has three dimensions, namely belief, problem-solving strategies and self-control (Hapner et al, 2004). Confidence is the level of self-confidence or feeling qualified to solve a problem. Self-control is an attempt to present more reasons about a problem and evaluate it from a multidimensional perspective. Problem solving strategies are ways that individuals think broadly about gathering information to solve problems [4]. The PSI instrument has been used to measure perceptions of the ability to solve teacher candidates researched by Soliman (2014); [14]; Kourmusi et al (2016); [4].

Communication Skills Inventory (CSE) is an instrument used to measure communication in terms of individual perceptions. CSE has three dimensions, namely cognitive, behavioral, and emotional [26]. The CSE instrument was used by researchers to measure teacher candidates' communication perceptions conducted by Arinci (2018); [26]

Research that measures perceptions of problem solving, and teacher / teacher communication is conducted by. Meichenbaum (1981) quoted by [15]. emphasizing the role of self-assessment on problem-solving abilities is very important to predict the level of achievement. [26] communication skills of prospective teachers at a moderate level. Gulbahce (2010), prospective teachers have low communication skills and do not represent the communication science learned. This research has a novelty, namely measuring the perception of creative skills, problem solving, and communication of prospective teachers. Ercan (2016) found that the communication skills training program had a positive effect on the perception of problem solving skills of prospective teachers. This research has the novelty of measuring the perception of problem solving and communication skills of prospective teachers.

## II. METHOD

In order to examine preservice teachers' perceptions of problem solving, and communication, this study used a quantitative approach. The method of research used a descriptive survey. [24] Descriptive survey which concerns itself with the present phenomena in terms of conditions, practices beliefs, processes, relationships or trends invariably is termed as "descriptive survey study. The study was conducted on preservice science teachers, senior high school, junior high school, and elementary school. The research subjects were 333 preservice science

teacher. The sampling technique used cluster sampling. The sample selection was based on the category of universities in urban areas, between urban-rural and rural areas. The research instrument used was in the form of problem solving questionnaires and teacher candidate communication. This study used an instrument developed by Soliman (2014) and [2] which was used immediately after going through the language translation stage. The survey was conducted using an online questionnaire method using google form services. The survey is disseminated through the whatapps, facebook and Gmail services. The descriptive analysis was used to analyze the data. The analysis of the resulting data was converted and classified into five categories. [3] makes a classification with comparison to the ideal average score ( $X_i$ ) and the ideal standard deviation score (Sbi) as basis. The categorization of product assessment is presented in Table 1.

Table 1 Categorization of Teacher Candidate Perceptions

| No | Interval Score                            | Category  |
|----|---|-----------|
| 1  | $X > X_i + 1,5 S_{bi}$                    | Very Good |
| 2  | $X_i + S_{bi} < X < X_i + 1,5 S_{bi}$     | Good      |
| 3  | $X_i - 0,5 S_{bi} < X < X_i + 1,5 S_{bi}$ | Enough    |
| 4  | $X_i - 1,5 S_{bi} < X < X_i - 0,5 S_{bi}$ | Bad       |
| 5  | $X < X_i - 1,5 S_{bi}$                    | Very Bad  |

## III. RESULTS AND DISCUSSION

3.1 Prospective Teacher Communication Perceptions  
The score for female teacher candidates' communication perceptions is higher than that of male teachers. The maximum score, minimum score, and mean score of women are higher than men from the perception of communication. Table 2 presents descriptive data on the communication perceptions of men and women.

Table 2. Descriptive Data of Teacher Candidate Communication Perceptions

| Gender | Score Max. | Score Min. | Average |
|--------|------------|------------|---------|
| Male   | 3,0        | 2,5        | 2,9     |
| Female | 4,3        | 3,0        | 3,3     |

Communication skills have three dimensions, namely mental, emotional, and female behavior, which is higher than that of men. The category of communication perception from three aspects is at a sufficient level. Teacher candidate communication perception data is presented in table 3.

Table 3. Data on the Communication Dimensions of Prospective Teachers

| Gender   | Aspect of Communication |           |          |
|----------|-------------------------|-----------|----------|
|          | Mental                  | Emotional | Behavior |
| Male     | 3,0                     | 2,4       | 2,7      |
| Female   | 3,8                     | 2,9       | 3,2      |
| Average  | 3,4                     | 2,7       | 3,0      |
| Category | enough                  | enough    | enough   |

### 3.2 Teacher Candidate Problem Solving Perceptions

The score of problem solving perceptions of female teacher candidates was higher than that of men. The maximum score, minimum score, and mean score of women are higher than men in terms of problem solving perceptions. Table 4 presents descriptive data on the communication perceptions of men and women.

Table 4. Descriptive Data of Teacher Candidate Problem Solving Perceptions

| Gender | Score Max. | Skor Min. | Average |
|--------|------------|-----------|---------|
| Male   | 4,1        | 2,9       | 3,5     |
| Female | 4,4        | 3,3       | 3,6     |

The dimensions of the Problem Solving Confident of women are higher than that of men. Personal Control scored higher on males than females. Approach Avoidance Style, women and men have the same score. Perception categories of problem solving from three aspects are at a sufficient level. Teacher candidate communication perception data is presented in table 5.

Table 5. Descriptive Data of Teacher Candidate Problem Solving Perceptions

| Gender   | Aspect of Problem Solving |                          |                  |
|----------|---------------------------|--------------------------|------------------|
|          | Problem Solving Confident | Approach Avoidance Style | Personal Control |
| Male     | 3,4                       | 3,4                      | 3,8              |
| Female   | 3,8                       | 3,4                      | 3,5              |
| Average  | 3,6                       | 3,4                      | 3,7              |
| Category | Cukup                     | Cukup                    | Cukup            |

### Discussion

Measurement of teacher candidate communication perceptions obtained an average of 2.9 for men and 3.3 for women. Three aspects of communication, namely mental, emotional, and behavior in the sufficient category, so it can be concluded that the communication of prospective teachers in the category is sufficient. The results of this study are in line with the research of [26] and [2]. Research by [10] on teacher candidate communication is in good

category. Measuring the perceptions of prospective teachers as a way to describe communication skills so that they can be used as a basis for developing these skills. Teachers are individuals who play a role in the communication process with students, between students, and parents so that communication skills are very important to support the success of their assignments. Teachers who have low communication skills have an impact on not being able to convey information clearly, failing to be good mentors [8], unable to solve problems and have difficulty expressing emotions, solving problems, making decisions [17].

Measuring the perception of the problem solving ability of prospective teachers obtained an average score of 3.5 and 3.6 for women. Three aspects of problem solving, namely Problem Solving Confident, Approach Avoidance Style, and Personal Control. Three aspects of problem solving are in the sufficient category, so it is concluded that the perception of problem solving abilities of prospective teachers is in the sufficient category. The results of this study are in line with [25]; [27]; Soliman (2014). The problem-solving skills of prospective teachers are one of the factors for the success of effective learning and developing student problem-solving skills. Teachers who have good problem skills are able to carry out effective learning and improve learning outcomes ([1], train students to construct their knowledge and take a role in knowledge acquisition (Karatas & Baki, 2013) and train student independence (Snyder & Snyder, 2008 in [6]. Measuring teacher candidates' perceptions as a way to describe problem-solving abilities so that it can be used as a basis for developing these skills.

## IV. CONCLUSION

Measurement of teacher candidate communication perceptions obtained an average of 2.9 for men and 3.3 for women. Three aspects of communication, namely mental, emotional, and behavioral categories are sufficient so that it can be concluded that the communication of prospective teachers in the category is sufficient. Measuring the perception of the problem solving ability of prospective teachers obtained an average score of 3.5 and 3.6 for women. Three aspects of problem solving, namely Problem Solving Confident, Approach Avoidance Style, and Personal Control. Three aspects of problem solving are in the sufficient category, so it is concluded that the perception of problem solving abilities of prospective teachers is in the sufficient category.

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