

Profile About Initial Soft Skills Understanding of Pre-Service Science Teachers'

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ABSTRACT

Pre-service science teachers' understanding of soft skills is very important. Soft skills are skills closely related to intrapersonal abilities that determines the success of individuals in conducting their profession as teachers. This study aims to find out the initial profile of pre-service science teachers' understanding about soft skills. Design of the study is descriptive quantitative research with a survey method. The questionnaire is used as the instrument to find out the initial profile of pre-service teachers' understanding of soft skills, as well as urgency, and constraints. By the purposive sampling, 30 undergraduate students as pre-service science teachers from Tidar Magelang University were investigated. The result showed that pre-service science teachers understand soft skills literally, 78.1% students chose very important that a science teacher should qualified of soft skills. This study generates to produce insight into the importance of acquiring soft skills because it will contribute to improve the quality of teachers' teaching.

Keywords: *Pre-service science teachers, Soft skills in learning, Soft skill understanding*

1. INTRODUCTION

Educational institutions have the right to design and implement education to establish future generations who are ready to face all situations and conditions and have high competitiveness. Education management currently concern to quality, knowledge, competence, skills, learning readiness, life skills, facing problems and the use of ICT [1]. The learning process must provide opportunities for students to learn through their experiences, because each individual has their own talents or intelligence [2]. The learning process is not about delivering knowledge only, but must be able to create competent students in soft skills, both intrapersonal and interpersonal [3]. Therefore, establishing graduates with quality soft skills is teacher's responsibility [4]. In instructional process, have you ever met a teacher who was smart but boring in teaching? Our education is still struggling with learning that focuses on hard skill [5].

In Indonesia, the learning process is more emphasized on hard skills. However, along with the development of science, teachers are starting to be required to have soft skills [6]. When teaching soft skills, all teachers need to master the concepts, content, and components so teachers can teach soft skills accurately and thoroughly [7]. Soft skills are not taught in special courses, but can be trained intensively in every lesson [8]. The role of soft skills can establish individuals skills in managing themselves and others. In addition to having knowledge, pre-service science teacher students must also have soft skills such as problem solving; communication skills; team work; and decision-making skills. Consequently, higher education administrators need to ensure that all graduates are qualified to succeed in work and life in this global era [9], [10].

In practice, teachers also find it difficult to train soft skills in students due to lack of soft skills

understanding [11]. Therefore, efforts are needed to strengthen soft skills so pre-service science teacher students have the ability to create a pleasant learning atmosphere and can convey their scientific ideas to students. Eventually, higher education is expected to establish their graduate's characteristics as human resources who competent in their workplace [12]. Therefore, soft skills should be a main element in learning that scholars are expected to acquire these soft skills during their studies in higher education, which is a logical step that must be taken [13].

This study find out the understanding of pre-service science teachers about soft skills, because teachers have an important role in promoting soft skills in learning. Thus, this study can offer a significant contribution for understanding the importance of soft skills for pre-service science teacher. By knowing the initial understanding of pre-service science teachers' soft skills, it is hoped that it will be a starting point for teacher graduates to develop and integrate soft skills in science learning.

2. RESEARCH METHOD

This study was descriptive quantitative research with a survey method. The study aim was to find out the initial understanding of pre-service science teachers' about soft skills. The population of this research was all of the second-year science students in the 2018/2019 academic year at Tidar Magelang University. The sampling technique used was a purposive sampling technique, with a total sample of 30 students.

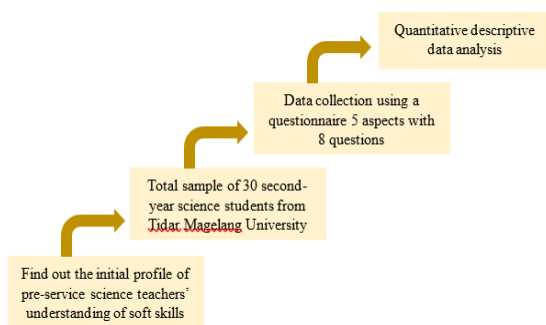


Figure 1 Research flow

The instrument to determine the initial profile of soft skills understanding was obtained from a questionnaire. The questionnaire contains 3 aspects which include: 1) understanding of soft skills, 2) the urgency of soft skills in science learning, 3) constraints. Each aspect consists of several questions, there are 8 items in total. Quantitative descriptive

analysis was performed to analyze the initial profile understanding of the soft skills of pre-service science teachers. For more details, the instrument can be seen in table 1.

Table 1. The instrument for understanding soft skills of pre-service science teacher

No.	Aspects	Questions
1	Understanding of soft skills	Definitions of soft skills
		Soft skills needed in science learning
		Soft skills development strategy
2.	Urgency of soft skills	The important of soft skills for science teachers
		The reason why science teacher should have soft skills
		Soft skills needed by science teachers
3.	Constraints	Constraints in understanding soft skills
		Constraints in integrating soft skills

3. RESULT AND DISCUSSION

3.1. Soft Skills Understanding

Soft skills are related to interpersonal skills in individual. Understanding soft skills of pre-service science teachers regarding the definition of soft skills as much as 81.25% chose soft skills are life skills, both for themselves, in groups, or in society, as well as with God. As many as 50% chose soft skills as abilities that are inherent in individual, as a complement to hard skills. 34.3% chose soft skills are someone's skills in dealing with other people. Some of these definitions are in line with Aryanti et al. [14] which states that soft skills are personal advantages related to non-technical skills, including the ability to communicate, socialize and the ability to control themselves so it is very important to provide student pre-service teachers through learning. Soft skills can also be interpreted as skills related to the ability for working with others [15], [16]. Soft skills are a basic factor for someone to work better in their workplace, soft skills are also associated with success, if the focus is more on

developing these skills in education and proven to improve individuals performance in carrying out their profession [17].

Regardless from soft skills literally, pre-service science teacher students must also know some of the soft skills needed in science learning. Communication and collaboration were the most chosen, that are 93.8%, critical thinking 87.5%, problem solving 81.3%. These four skills are also presented in Tang's research [1] to reveal the improvement of students' employability in higher education and to find associations between embedding soft skills in courses or as stand-alone courses. Good communication skills with diferrent people in oral and written forms, data, perception, understanding and intuition, show a broad vocabulary, maintain good eye contact, and adjust our language to the audience [18]. Good collaboration is able to work competently in a team and receive positive advice when working with other people. Thus, it is beneficial to an effective division of work and increased creativity and quality of solutions that are driven by the ideas of other group members [19]. Critical thinking and problem-solving skills are abilities that help to find answers or solutions to individual's problems and prepare students to be able thinking critically is one of the main goals in higher education [20]. Not only the four components above, some of the following components are also needed in science learning, namely creativity 78.1%, leadership 65.6%, research inquiry and responsibility 62.5%, curiosity 59.4%, organizing information and honesty 53.1 %. Pre-service science teacher students are not only sufficient with their understanding, but also have to develop soft skills in themselves, because soft skills have important role for their future work.

Soft skill development can be carried out in various ways, such as integrated into learning, through organizational activities and student activity units (UKM), through learning models, and daily activities. The data are presented in table 2.

Table 2. soft skills development strategy

No.	The strategy used to develop soft skills	(%)
1.	Through organizational activities and student activity units	34.4
2.	Through integration in learning	31.3
3.	Through the learning model	18.8
4.	Through daily application	15.6

Based on data, soft skill development through organizational activities and student activity units received the most votes, as much 34.4%. Student activities can be used as a means to develop character by analyzing their activities related to the development of soft skills for pre-service teacher students [8]. Soft skill development through integration in learning was chosen as much 31.3%. Soft skill development can be done by integrating it into subjects such as research conducted by Wagiran [3], where observation and data collection were carried out for 2 years, using a model of strengthening the soft skills of pre-service teachers which focused on two main subjects, namely micro teaching and practical field experience with result that indicate the soft skills in good category. The development of soft skills through the learning model was chosen as much 18.8%, such as the research by Santia [16] where applying the 'lesson study' learning model to improve student soft skills. Grimard and Pellerin [21] also suggest that learning should be complemented by action to enable students gain knowledge as well as an understanding of soft skills, and give them time to develop their skills. Soft skills can also be developed through daily activities, by practicing communication and speaking in public, expressing opinions, and maintaining good manners.

Most of the students literally understand what soft skills are and know several kinds of soft skills needed in science learning, but are they aware the importance of soft skills for pre-service science teachers?

3.2. Urgency of Soft skills in Science Learning

Hard skills are very important in carrying out a job competently and efficiently, but soft skills also play an important role in building and developing the overall personality and increasing career prospects in the future [22]. Students need to be actively involved in managing their own careers as early as possible, therefore students need to increase their awareness about the importance of soft skills for their future careers [23]. Soft skills can be conceptualized as qualities that are useful for developing self-potential and reflecting self-quality in order to be able improving individuals performance both during learning and interacting in vast environment [24], [25]. Therefore, the idea of soft skills is a main element in learning, that pre-service science teachers are expected to acquire soft skills development in learning to support in achieving academic goals and careers after graduation. In line with Ngang's research [26] which states that an individual with high soft skills has several additional skills, for example good leadership

skills, having good communication and relationships with others when working under pressure, carrying out more effective planning and organizing tasks, which mean that they are not only good at planning, but also good at implementing and achieving the planned goals.

Why do soft skills have to be trained while in higher education, when actually soft skills are included in the scope of work organizations? Soft skills need to be taught or trained for students, because when they enroll in higher education they will be more focused on being taught about their hard skills. Whereas the skills that are needed and will ensure they can become successful workers in the future work fields are not only hard skills but also soft skills [27] Based on the survey results, 21.9% of students chose important and 78.1% chose very important that a science teacher should qualified of soft skills. Soft Skills competency development is an important factor to improve the teacher competence quality in teaching [28]. Most of the individual's success in work and life comes from a mindset rather than a skill (hard skills), because the hard skills required for careers will change over time, but the mindset (soft skills) will be remain [29].

Based on the survey results, the reason most students chose why science teachers should have soft skills, namely being able to establish good communication between teachers, students, parents and other parties as much 78.1%. For a pre-service teacher student, it is not enough just to get a bachelor's degree in education, because in the work fields what is sought is not only knowledge and technical skills, students who can show that they have developed communication skills are more valued and needed [30]. A teacher's job deals with many people, such as teaching and learning activities with students, interaction with other teachers, communication with parents of students, and the external community. Apart from teaching skills, teachers need other skills to facilitate their work [31]. Being able to manage learning better, as well as to understand the various characters of students and to treat them appropriately was chosen as much as 56.3%. Teachers face many challenges such as student problems, learning preparation and implementation, and demands from parents. This challenge can be overcome by teachers who have strong soft skills beside of hard skills. This is important to ensure that teachers are able to manage their daily work in challenging conditions [32]. The teacher is the ideal role model in the values of soft skills for students, chosen as much as 50%, because the teacher is not only responsible for teaching the subjects, but also educates morals, ethics, integrity,

and student character. The reason why teacher must have soft skills is to establish the character of students in accordance with the objectives of the 2013 curriculum in Indonesia was chosen as much as 46.9%.

In line with Ngang's research [33] the components of soft skills needed for novice teachers referred accordingly to the Ministry of Higher Education Malaysia are communication skills, critical thinking and problem solving skills, team work, lifelong learning and information management skills, entrepreneurship skills, ethic and professional morals, leadership skills.

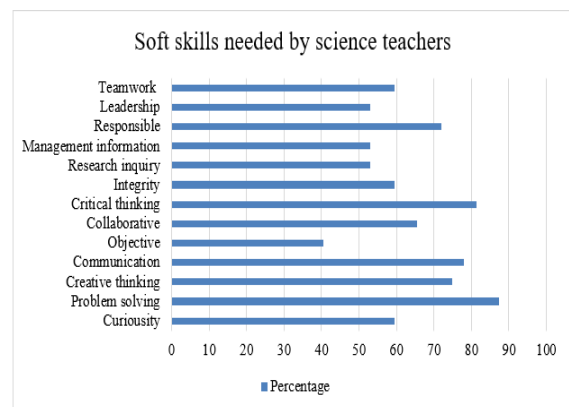


Figure 2 Soft skills most needed for the science teacher profession.

Based on the survey results (can be seen in Figure 2), problem solving is the most chosen component as much as 87.5%, followed by critical thinking as much as 81.3%, with reflective thinking that makes sense or based on reason that is focused on determining what to believe and do [34]. Communication skills get 78.1%, the importance of communication for teachers is expected to be fluent and able to communicate effectively and be able to convey their thoughts clearly and confidently both in oral and written. Creative thinking was chosen by 75%, responsibility 71.9%, collaboration 65.5%. Curiosity, cooperation & integrity 59.4%, The ability to work together has a crucial role, because teachers will definitely meet and cooperate with people with various social and cultural backgrounds to achieve common goals. Research inquiry, managing information & leadership 53.1%, teachers must have knowledge of basic leadership which will enable them to lead a project. It is also important for them to be able to understand the roles of the leader and group members and to be able to perform these roles in turn. The importance of the skills to find relevant information from various sources and to be able to manage it efficiently, as well

as accept new ideas and be able to develop their mindset [35]. while Objective only got 40.6%.

3.3. Constraints in Implementing Soft Skills

As many as 75% of students agree that a lack of understanding soft skills is the main constraints in implementing them into learning. This means that

before becoming a science teacher, pre-service teachers must first understand and be equipped with mature soft skills. Generally, weaknesses in soft skills are in the form of characters inherent in an individual. It takes a lot of effort to change it, however, soft skills are not something that is patent, this ability can be honed and improved along with experience [36].

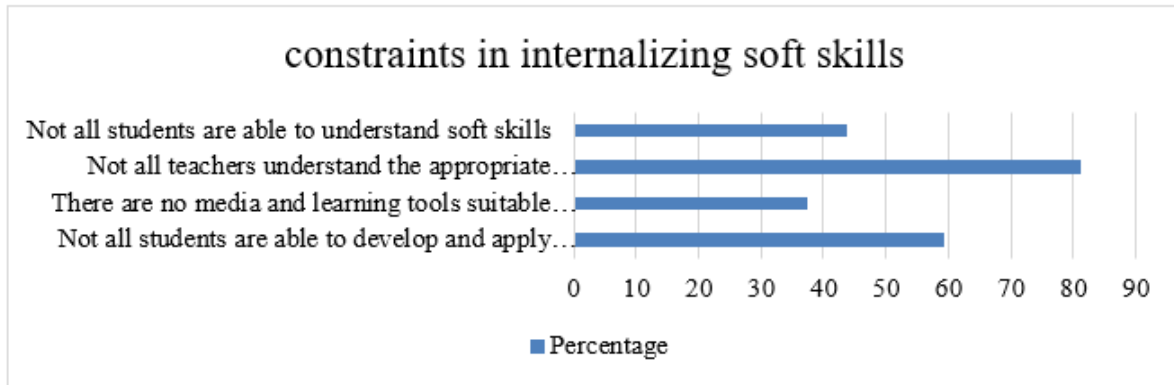


Figure 3 Constraints in internalizing soft skills into learning

Based on the data (can be seen on figure 3), not all teachers understand the right strategies and methods in internalizing soft skills, this is a constraints with the highest percentage, as much as 81.3%. Most of the teachers are difficult in integrating soft skills into teaching materials and evaluation tools, this condition effects the slack of the improvement of soft skills [4]. In lectures, soft skills can be developed together with hard skills, however, the data show that as much as 59.4%, not all students are able to develop and adjust soft skills. Meanwhile, according to Firdaus [37] soft skills can be internalized into the classroom, such as practice speaking skills in front of the class, skills in leading classes or groups, building relationships with lecturers, and communication skills. Even though students know the definition of soft skills, they do not necessarily understand the method of applying and integrating soft skills in science learning, so the constraint in understanding soft skills in science learning are only 43.8%. the constraint that the absence of suitable media and learning tools to develop soft skills was chosen as much as 37.5%.

Some soft skills in learning practice, difficult or even un-teachable. As it is very difficult to define them because they can assume different forms in different contexts and they keep developing all the time. [38]. Cukierman & Palmieri [39] identifies a hierarchy of skills, with hard skills at the bottom, denoting their connection to down to earth physical reality. The next level covers conventional soft skills including foreign language proficiency, communication abilities and

attitude to team work. level of soft skills can only be acquired through self-realization, an act that she believes is currently beyond the reach of generic education strategies. So, although universities are teaching conventional soft skills, no one seems to be addressing the higher levels of human qualities. In order to achieve an advantage, graduates need to develop and acquire a combination of hard skills and soft skills [40].

4. CONCLUSION

Based on the result of the analysis and discussion, pre-service science teachers understand soft skills literally, however, they do not necessarily understand the method of applying and integrating soft skills in science learning and only a few of students are able to develop and adjust soft skills. This study seeks to produce insight into the importance of acquiring soft skills because it will contribute to improve the quality of teachers' teaching. To overcome the challenges of globalization, the acquisition of soft skills needs to be highlighted by all educators. This is because the lack of soft skill mastery can affect the quality of teaching and student achievement.

The limitation in this study is the lack of question scopes regarding soft skills. It would be better if researchers expand the scope of questions to learn soft skills that are important for teachers in the future. Then, the results of this study should be developed into a development program, using several principles of

action research to improve the pre-service teacher soft skills. Regardless of its limitations, this study provides evidence that the importance of understanding and implementing the soft skills of pre-service science teachers into learning becomes the initial basis for teaching in the future.

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