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Building Habits of Mind And Ability Thinks Students Via Practicum

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Abstract

The study about building habits of mind and ability thinks students via practicum had been done. The aim of research to gain an overview of practicum magical power in building the habits of mind and thinking ability to improve the quality of learning. In contrast to the study habits of main another, this study focuses on practical, related to cognitive, affective, psychomotor, as well as the thinking ability. The method used was week experiment with design one group posttest only. The research subject were all students 5th semester, as much as 32, which followed the course of plant physiology lab at the Department of Biology UPI. The results showed that the habits of mind of the average men students in middle category, women in high, and combined in high. Each domain: cognitive, affective, psychomotor of students was high, the highest in the psychomotor. The average student's thinking ability both men, women, and their combined were moderate. The conclusion that practicum can build habits of mind of students in the category of middle to high, and can build student's thinking ability in middle category. The habits of mind of students that still low, needs to be improved: creating-imagining-and Innovating, persisting, and in the thinking ability include: chemical equations and calculations.

INTRODUCTION

Habits of mind is a thinking intelligent behavior characteristic of a person that can be used to solve problems encountered in daily life. Habits of mind is the basis of behavior that can be formed and can discipline the intellectual processes and building intelligence. Habits of mind have 16 indicators that can be summed [2,3]. The ability to think is a complex intellectual ability of individuals to solve all problems, whether related to comprehension, application, analysis, synthesis, and evaluation, both in the form of completion of test questions as well as the completion of the tasks. The ability to think can be supported by the habits of mind [4,6,8]. The habits of mind and thinking ability should continue to be built on the student. It is thus important investigated how habits of mind and thinking ability are built through practicum.

Has a lot of research related to the habits of mind, of which four studies [2,3,7,9], the research is very important and fundamental details associated with habits of mind and assessment. However, these studies do not focus on practicum, so it does not associate with cognitive, affective, and psychomotor [1], in addition to the ability to think.

The purpose of this study was to obtain an overview of the practical efficacy in building the habits of mind and ability to think on students, while also revealing connection between habits of mind with ability to think. The results could form the basis for the search for alternative learning, practicum in particular, are better able to develop the habits of mind and ability to think, remember practicum seen with regard to the development of habits and thinking ability.

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RESEARCH METHODOLOGY

This research was conducted in the Department of Biology Education FPMIPA UPI. Subject of this research were all S1 students 5th semester, as much as 32, including 7 men and 25 women, which followed the course of plant physiology practicum 2014/2015. The research method was week experiment with one group posttest only design [10].

Learning practicum (3 credits) in the form of guided inquiry [8], included the preparation phase (5-6 students flocking preparation procedure, determine the problem, purpose, hypothesis, tools, materials, execution (each group carry out lab), and reporting (presentation of the journal lab results in the classroom, then refined in the form of practical reports). Lecturers acted as mentors and facilitators. After six titles practicum completed (plant nutrients, water culture, diffusion, osmosis, plasmolysis, transpiration) in doing the test.

Instruments used in the form of inventory and testing. Inventory is used to capture the data habits of mind which includes 16 indicators [2,3] and in the form of essay test is used to capture the data the thinking ability. Research data both data habits of thinking and the ability to think, analyzed and grouped on very high (＞80), high (70-80), middle (59-69), low (39-58), and very low (＜39). Practical role in building the habits of mind and ability thinks categorized by category habits of mind and ability to think produced.

RESULTS AND DISCUSSION

Habits of Mind of Students

Habits of mind covering 16 indicators [2,3] are grouped in three domains namely cognitive, affective, and psychomotor [1]. As for each aspect and mean values were as follows. Cognitive aspect (high, mean =73.8) include: thinking flexibility (76); meta-cognition (74); questioning and problem possing (76); aplying past knowledge to new situations (76); creating imagining and Innovating (67). Affective domain (high, mean = 73.4) include: persisting (64); managing impulsivity (70); listening with understanding and empathy (76); striving for accuracy (74); responding with wonderment and awe (76); responsible risk taking (76); finding humor (76); remaining open to continuous learning (75). Psychomotor domain (high, mean = 77.7) include: thinking and communicating with clarity and precession (75); Data gathering through all sence (76); inter dependently thinking (82). There are differences in the habits of mind of men and women, men (mean = 61.5) is lower than women (77.8). In men there are habits of mind which is very low (3.1%) while the women was not found. The men and women combined was high (74.3). This may imply that women are more familiar, diligent and tenacious in thinking than men. As for the percentage of the value of the combined men and women breakdown were 43.8% very high, 25% high, 15.6% middle, 12.5% low, and 3.1% very low.

It was known from the data that the most prominent aspects was psychomotor. This was in line with the actual conditions, that in the learning lab is dominated by psychomotor activity. Practicum is implementing procedures to test or verify the theory in practice involve psychomotor practice. In the practicum, also requires affective aspects, such as meticulous, careful, honest, tenacious, persevering, do not give up easily. In the lab, can not be separated from the practice habits of cognitive thinking. The low value of persisting of assessment of students, it is in line with that not infrequently the data obtained from the lab does not fit with the theory, it can happen because of a lack of repetition or an error in the determination and data retrieval practicum, or incorrect execution of the procedure.

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practicum in which students. In this case, students are less diligent (persist) explore the cause and fix it.

**Ability Think of Students**

The ability think of student related practicum (plant physiology), the test results were vary. The ability think of combined students (men and women) mean: 65 (middle), include the average of men: 64.3 (middle) and women: 65.2 (middle). The details of the percentage of the combined ability thinks are grouped on the ability of very high 9.4%, high 21.9%, midle 40.6%, and low 28.1%. The ability thinking of students can be seen in figure 1.

![Percentage Graph Profile Data Ability Thinks of Students: Men, Women, and the Joint](image)

**Figure 1.** Percentage Graph Profile Data Ability Thinks of Students: Men, Women, and the Joint

The findings on aspects of thinking ability, it turns out conditions mean thinking ability of students in the position of middle, mean = 65 (men 64.3 and women 65.2). Only a few groups who occupy very high (9.4%) and many are in the low group (28.1%). This is partly because students are generally less able to solve problems related to problem solving chart and count, while also involving chemical equations and calculations. As related to aspects of the concept and the procedure is relatively not problematic.

There are three things that underlie the ability to think, namely operation, knowledge, and a tendency [11]. A person is able to use his brain to think of certain operations in accordance with the working mechanism of the brain. It uses cognitive and metacognitive. The ability to think is influenced by knowledge, ie prior knowledge either in the form of concepts, ideas, code, or symbol, called schemata [4.6] which can be synchronized with the concepts, ideas, or new ideas being studied. Tendencies related to environmental influences, work of the heart, and the feelgood factor [6.11].

**Practicum and Customs as well as the ability of Thinking**

Practicum can build habits and thinking ability of students. Practicum includes planning, execution, and reporting, which involves the interaction, both among fellow students, students with laboratory staff, students and faculty, as well as student with the environment, such as books, tools, and materials laboratory. Practicum facilitate students to develop the ability of observation, concept application, analysis, synthesis, and evaluation. Students are required to experience for yourself, seek the truth, to try and test the theory, and draw conclusions on the process that happened [5.8]. Practicum provide students the habit of using tools and materials, investigation, discovery, problem solving, explore and apply the concepts, underlying habits of scientific thought [5.8]. Practicum has the purpose, among others: (1) stimulate interest in learning; (2) teaching laboratory skills; (3) teaching science process; (4) teaching concept, and (5) to teach a scientific attitude [8]. This can have an impact on the habits and thinking skills.

In accordance with the purpose of the lab, habits of mind and thinking ability of students can be built through practical, partly because some things. First, lab develop generic skills, process skills, and experimenting skills. Second, the lab develop critical thinking skills, creative, diligent, honest, cooperative, open, and objective. Third, the lab can make the students are motivated to learn, because it is associated with learning by
doing. Fourth, facilitate the development of practical scientific investigation. Fifth, practicum students build confidence and facilitate scientific attitude. Sixth, establish practical understanding of the concept by not quickly forgotten. Seventh, lab equip students to become scientists or experts [6, 8].

CONCLUSION

Practicum can build habits of mind of students in the category of medium to high, and can build thinking ability of students in the middle category. The mean habits of mind of men students in the middle category, women in the high category, meaning that women are more diligent than men, while the combination is high. Domains of cognitive, affective, psychomotor is high and the highest in the psychomotor. The mean of ability think of men, women, and their combination was middle category. The Habits of mind and the ability think on men students were the same, in the medium category, but the women students are not comparable, the habits of mind in the high category, the ability thinks in the medium category. The lowest thinking ability that needs to be improved include: creating imagining and Innovating (cognitive) and persisting (affective), and In the thinking ability include: the problems solving involving chemical equations and calculations.

REFERENCES