

Identifying Learning Styles of Biology Education Students

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ABSTRACT

It is necessary to identify student learning styles, especially by lecturers, to understand student characteristics before preparing learning plans. This research aims to identify types of learning styles of biology education students at Universitas KH. A. Wahab Hasbullah. The method used is a survey with an instrument in the form of a learning style questionnaire. The total population of biology education students is 67 and the respondents who filled out the questionnaire were 48 students. The data obtained was analyzed descriptively. There are five types of learning styles identified from the results of this research, namely visual, auditory, kinesthetic, visual auditory, and visual kinesthetic. The learning style that most students have is auditory, both male and female students. Only female students showed a combination learning style, namely visual auditory and visual kinesthetic.

Keywords: Learning styles; Students; Biology education.

INTRODUCTION

Education is the process of individual self-development to be able to live and continue their life (Alpian et al., 2019). Education is a primary need and everyone must fulfill it. The state is the party most responsible for ensuring that every citizen receives a proper education. The Indonesian government has shown its concern and attention to education through various regulations and legislation which are continuously updated to improve the quality of national education. One of the government programs to improve the quality of education is 12 years of compulsory education (Margiyanti & Maulia, 2023).

Education is realized in learning activities that are guided by the curriculum. Curriculum is a set planning that is arranged systematically and sequentially as an effort to achieve educational goals (Efendi et al., 2023). The curriculum currently implemented in Indonesia is the Independent Curriculum (Kurikulum Merdeka). The Independent Curriculum prioritizes the concept of independent learning and student-centered learning. One of the principles of learning in the Independent Curriculum is that learning is designed with consideration current stage of development and level of achievement of students, according with learning needs, and reflect the characteristics and development of diverse students so that learning becomes meaningful and enjoyable (Narunita & Kusuma, 2023).

Student characteristics, for example, are learning styles. Learning styles are the unique ways individuals best receive and process information (Shaidullina et al., 2023). Learning style is quite important for teachers (or lectures) to teach, organize students' learning experiences, and accomplish educational goals (Gayef et al., 2023). Students' learning styles can be divided into visual, auditory, and kinesthetic categories according to the brain's ability to absorb, transmit, and communicate information (Naibaho & Manik, 2023). Each category has several indicators that can be identified from individuals who have that learning style preference (Mugito et al., 2023).

Students with visual learning style: tends to see the attitudes, movements, and lips of the teacher/lecturer who is teaching; loved the written instructions, photos, and illustrations to look at; using body movements to express or replace a word when expressing something; dislike speaking in front of groups and dislike listening to others; unable to remember information given orally; and not interested in paying attention to new things in the surrounding environment. Students with auditory learning style: able to remember the teacher/lecture's explanation when explaining the material, really like group discussions, have a good memory and sometimes speak aloud and repeat sentences, inadequate in doing the task of

composing or writing, difficult to work quietly without making noise and is easily distracted by noise and also difficult to concentrate when there is no sound at all, and easy to learn by discussing. Students with kinesthetic learning style: like to touch everything he/she finds, like to do everything by hand, difficult to quiescent, usually have good body coordination, able to remember when physically involved actively in the learning process, and enjoy the opportunity to arrange or physically handle the learning materials.

Learning style is known to be related to student learning motivation (Saswandi et al., 2023). Learning style can also encompass the habits, strategies, or regular mental behaviors exhibited by an individual when engaging in deliberate educational learning (Sartika et al., 2023). Learning activities that are carefully designed based on students; learning style preferences can have a significant influence on increasing students' learning motivation (Singh, 2023). In the best of all the possible words, having a clear awareness and classroom practice of students differences in learning styles and proper management can also help for better academic achievement (Yotta, 2023). Therefore, teachers or lectures need to understand their students' learning styles.

Results of interviews with students in the undergraduate biology education study program at Universitas KH. A. Wahab Hasbullah in February 2024, revealed that there had never been an identification of student learning styles by lecturers or campus officials. This research aims to identify types of student learning styles through survey activities. It is hoped that the results of this research can provide scientific information for lecturers to improve the quality of their learning in order to improve student learning outcomes.

METHOD

This research is descriptive research with a survey method. The instrument used was a learning style questionnaire adapted from the Ministry of Education, Culture, Research and Technology. The questionnaire consists of 30 statements with three response options indicating the types of visual, auditory and kinesthetic learning styles. The type of learning style is determined based on the most frequently selected response options. If there are options with the same number of choices, then the learning style type is considered a combination of these options. Number of biology education students at Universitas KH. A. Wahab Hasbullah in the 2023/2024 academic year is 67 students, but the number of students who filled out the survey questionnaire was 48 students. The data obtained was analyzed descriptively to describe the learning styles of biology education students at Universitas KH. A. Wahab Hasbullah.

RESULT AND DISCUSSION

The respondents involved in this research were 48 students, with details of 8 male students and 40 female students. Respondent students came from semester 2, 4, and 6 students. Respondents fill out survey questionnaires directly accompanied by researchers to provide explanations about response options that they do not understand.

Result

Figure 1 shows the frequency of learning style types based on student gender. Female students show five types of learning styles, namely visual, auditory, kinesthetic, visual auditory, and visual kinesthetic. Male students show three types of learning styles, namely visual, auditory, and kinesthetic. The majority of respondents, both male and female, have an auditory learning styles (35,42%). Visual and kinesthetic learning styles have the same number of male students, but more female students have a visual learning style than kinesthetic. The percentage of student respondents who have visual and kinesthetic learning styles are 29,17% and 27,08% respectively. The percentage of student respondents who have visual auditory and visual kinesthetic learning styles are 2,08% and 6,25% respectively.

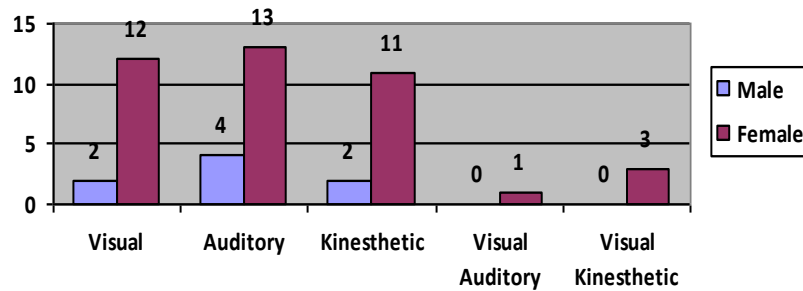


Figure 1. Frequency of Learning Style based on Student Gender

Discussion

The types of learning styles identified in this research are visual, auditory and kinesthetic (VAK model). VAK model is the most popular adopted by educators due to its simplicity and intuitiveness (Wininger et al., 2019). Student with a visual learning style favours seeing or observing things, will work from lists and written directions and instructions; auditory learners enjoy listening to themselves and others, enjoy verbal instructions and remember everything they hear; while kinesthetic students prefer hands-on, physical learning, learn best by doing and never look at the instructions first (Nanaware & Baviskar, 2023). Learning styles play an important role in the learning process, so lecturers must adapt teaching methods to students' learning styles (Sukmayani et al., 2023).

The type of learning style that most students in this study have is the auditory learning style. Auditory learning style is an individual's preference for listening to and repeatedly processing spoken information style that have strong predisposition for auditory learning might be effective at remembering what they hear, but might struggle with kinesthetic or visual learning techniques such as reading books, popular activities for auditory learners are attending group discussions and listening to lectures (Palupi et al., 2024). Students with auditory learning style are able to absorb information from the description they hear well, and usually read aloud so that they can listen to the text they read (Fahrudin et al., 2023). Teacher-centered teaching methods may be more effective for students with an auditory learning style, because lecturers generally provide oral explanations of learning material.

Visual learning style ranks second among the types most frequently possessed by biology education students at Universitas KH. A. Wahab Hasbullah. Visual learners tend to be more effective in processing and remember that information when presented in visual form such as pictures, diagrams, graphics or written text, they prefer to observe and see (Hijriati et al., 2024). Visual learners are able to handle information better when they can see it (Alfarsi et al., 2023), so lecturers better to use charts, diagrams, mind maps, videos, etc to teach them. Visualization of biological concepts that students learn does not always have to be in the form of pictures, live or preserved specimens will be better in helping students with a visual learning style. Reading activities are also important activities for visual learners, so lecturers need to recommend or provide relevant reading materials to support their learning process.

Kinesthetic learning style is the third type most often possessed by students in this study. Kinesthetic learners acquire knowledge through hands-on experiences and comprehend without the aid of reading or listening (Cavite & Gonzaga, 2023). Students with kinesthetic learning style easily understand the learning material by touching the learning media directly (Lestari & Munahefi, 2023). Biology learning is closely related to hands-on activities. Lecturers can facilitate the learning needs of students with a kinesthetic learning style through practical activities, either in the laboratory or in the field. Lecturers can use role-playing strategies for kinesthetic learners to teach concepts that are theoretical or difficult to put into practice (Rahmi et al., 2023).

Respondents also showed two types of bimodal learning styles, a combination of two models from VAK model (Hardiyanto, 2023), namely visual auditory and visual kinesthetic. Visual-auditory students have a tendency towards visual and auditory learning styles. They can learn well through learning activities that visualize objects or through hearing explanations. Students with a visual kinesthetic learning style can learn well through reading or practical work. The results of this research show that students can have more than one learning style. Student learning styles can be influenced by physical, emotional, sociological and environmental factors (Kurniati et al., 2023). The diversity of student learning styles is information that lecturers need to know and understand. Lecturers can mix and match learning methods so that they can accommodate the different learning styles of their students (Rahman & Firman, 2019).

CONCLUSIONS

Identification of the learning styles of biology education students at Universitas KH. A. Wahab Hasbullah shows that the auditory learning style is the type most often possessed by students, both male and female. Visual learning style is the second place, followed by kinesthetic learning style. Female students also show a combination learning style, namely visual auditory and visual kinesthetic, while male students do not. Lecturers need to know the type of student learning style at the beginning of the academic year, so they can plan learning appropriately and efficiently to facilitate student learning needs and help students achieve the expected learning goals.

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