Analysis of Learning Styles of Class X PPLG B Students at Surakarta State Vocational School Based on Bobby Deporter's Theory

[1]Mochkammad Tabah Syafi'uddin, [2*]Agus Efendi, [3]Sidik Pramono

[1]Teacher Profesional Education, Faculty of Teacher Training and Education,
Universitas Sebelas Maret, Indonesia

[2*]Departement of Informatic Education, Universitas Sebelas Maret, Indonesia

[3]Departement of Software and Game Development, SMK N 2 Surakarta, Indonesia

Corresponding Email: agusefendi@staff.uns.ac.id

Abstract:

The findings of observations at a school, specifically the learning preferences of the pupils in class X PPLG B at SMK N Surakarta, served as the impetus for this investigation. The goal of this study is to examine how students' learning styles in class X PPLG B at SMK N Surakarta are described in terms of the Bobby DePorter hypothesis. A qualitative methodology is employed with a descriptive-analytical method for the investigation. Ten pupils from class X PPLG B and two PPLG field teachers participated in this study. The approach of purposive sampling was employed in the selection of participants. Data for the study was gathered via interviews and observation. Ten participants—students enrolled in a basic computer assembly course at one of Surakarta's public vocational schools—were directly observed during the observation. When the students were working on their computer assembly subject practicum, the observation procedure lasted for around four hours of class time. Two participants were interviewed face-to-face, namely instructors of the core subject of the program of expertise at one of Surakarta's public vocational schools. The interview procedure with the teacher was conducted for roughly 20 minutes with 6 questions about the learning styles of pupils in class X PPLG B at SMK N Surakarta. There is a wide range of learning styles in class X PPLG B, including auditory, kinesthetic, and visual learning styles, according to the findings of the interview with the teacher. This is also evident in the observational data, which shows that each student uses a particular learning style based on their unique set of traits.

Introduction

In the 21st century, quality improvement in various aspects of life is getting higher. The development of science and technology encourages every nation to exert its mind and all its resources (Nugroho et al., 2020). Getting an education is one approach to learning new things. The goal of education is to help students become more able to adjust to their environment, which will transform them as individuals and make it possible for them to participate in social interactions. Humans can use education to think and comprehend new information that they have learned (Azis & Yuwono, 2020). Consequently, it follows that people will learn new things and alter their behavior as a result.

There is no doubt that learners and teachers are different in various ways. Gaining knowledge of students' learning styles can be very helpful for both teachers and learners. Involving learners in the active process of learning requires identifying and understanding learners learning styles and teachers teaching styles (Awla, 2014). Personal conduct is a reflection of need-satisfaction. Similarly, participation in school activities is one way that these unique demands are met. Teachers must be aware of and comprehend the requirements of their pupils to assist them in being met through

a variety of educational activities, such as learning activities. Even if educational institutions make use of management systems such as Module and Blackboard to make teaching easier, they don't have the tools necessary to analyze data and recognize patterns of behavior like learning styles and cognitive qualities. Rather, they utilize daily access records to produce only particular statistics reports (Lwande et al., 2021).

A way to describe how each person concentrates their attention on a process or learns is called their learning style. Every person or student has a unique learning style during the learning process. Children's learning styles refer to the methods and approaches they employ when taking in new information (Konilah et al., 2022). How pupils respond to and make use of the stimuli they are exposed to during the learning process is known as their learning style (Khoeron et al., 2014). Well-functioning learning styles can enhance students' learning outcomes during the learning process (Asriyanti & Janah, 2018). Consequently, learning new and challenging material through various concepts (Ghufron & Risnawati, 2014). Learning style is a means for everyone to learn lessons and information from their environment (Subini, 2011). A person's learning style refers to how they process information at different intensities to maximize their learning outcomes. Although numerous other aspects affect student learning outcomes, learning style is essentially one of the factors that determines student learning results (Amrianto & Fazlan, 2021).

Different terminology is used by many specialists to describe learning styles. Nonetheless, there are two commonalities between these learning styles generally. The first is the modality—the ease with which people assimilate information—and the second is how people arrange and process that information. Every individual or student has a unique way of learning, even if everyone has a different learning style. According to DePorter and Hernacki (2011), learning style is a blend of information absorption, organization, and processing. Different people have different learning styles based on how they process knowledge. So there are three learning types, notably learning styles that are typically shortened with V-A-K: Visual, Auditory, and Kinesthetic (Ruslamiarti, 2013).

A good teacher is one who can master the conditions and situations before teaching. When the teacher understands the conditions and situations in the classroom well, he will be able to determine in what way students will be given an understanding of the material (Suharto et al., 2019). To effectively choose strategies or learning methods that will be used to deliver the material, a teacher must be aware of the character or learning style that students find appealing. This will enable the teacher to deliver the material to students with varying learning styles in an engaging manner. The learning results for pupils will be ideal (Irawati et al., 2021). Everybody has a different learning style based on their personal preferences. Students who have the appropriate learning style can excel academically in whatever subject they choose to study (Omar et al,. 2015). The ability of video to provide a visual display of the teaching material being studied, facilitate students' ability to focus their attention, provide enthusiastic stimulation that encourages interaction between students and teachers, and make it easier for teachers to convey learning material, as stated by (Monitasari, 2020), can be said to improve learning outcomes and learning motivation overall.

It can be inferred from an earlier study (Pertiwi, I., Marlina, L., & Wiyono, K. 2023) that student learning styles have a major impact on learning results. Pupils with varying learning styles, the accessibility of instructional materials utilized by educators, and the ability to inspire pupils to comprehend and focus on the instructor during the learning process Conversely, the dearth of facilities in the classroom and the breakdown in teacher-student contact are the impediments. Based on the findings of a study conducted in 2021 by Nabela, D., Kasiyun, S., Rahayu, D. W., & Akhwani, A., most high achievers (94%) report having a visual learning style. In such cases, 0% of learners have an auditory learning style. Six percent of students have a kinesthetic learning style. The results of this research indicate that teachers can increase the efficacy of their instruction by having a better understanding of the learning styles of their pupils. Teachers can assist students in learning more efficiently and achieving better learning outcomes by implementing instructional strategies that are in line with their learning preferences.

Based on the aforementioned explanation and field fact, it is evident that every student in class X PPLG B at SMK N Surakarta uses a variety of learning approaches. Thus, in class X PPLG B at SMK N Surakarta, researchers are interested in examining how students' learning styles are described using Bobby Deporter's theory.

Students in SMK N Surakarta's class X Software and Game Development B served as the study's subjects. Purposive sampling was used to choose the subjects. Purposive sampling is a sampling strategy that is applied when the researcher already has a target individual with qualities that are ideal for the research, according to Dana P. Turner (2020). Through documentation, interviews, and observation, research data were gathered. Following that, methods for data reduction, data presentation, and conclusion drawing were used for the study data.

Generally, research discusses the use of technology in online teaching and learning activities (Yulisetiani & Hatta, 2021). The purpose of this study is to examine how students learn, particularly at vocational schools, in light of Bobby DePorter's idea. Future researchers, educators, schools, and students should all gain from this study. This study can advise students about acceptable learning styles and simulation-based computer assembly learning approaches. Teachers can benefit from this study by understanding more about student learning styles and simulation-based

computer assembly learning techniques. This study offers recommendations for raising the standard of instruction in information and communication technologies for educational institutions. This study can serve as a guide and source of inspiration for researchers in the future who wish to carry out comparable or related studies.

Research Method

The research approach used in this study was qualitative since the hypothesis it will generate will be supported by pre-existing theories and field data (Harahap, 2020). Analytical descriptive research is a method that aims to explain or provide an overview of the subject of study, using the collected data or samples as they are, without drawing any generally applicable conclusions. Subjects were selected using targeted sampling. The focus of qualitative research is on the relationship between what is collected as data and what occurs in the situation under study (Adlini et al., 2022). Research data were collected through observations, questionnaires, interviews, and documentation. The study data were then analyzed using data reduction, data display, and inference techniques. The presence of the researcher in this study is as a participant observer. The data collection techniques carried out are based on interviews and observations. Data analysis includes data collection, data compression, data presentation, and conclusions. The participants in this study were students in the class Participant details are listed in table number 1.1 and table number 1.3.

Steps were taken to determine student's learning styles

At a public vocational school in Surakarta, data for the study was gathered either concurrently with or following a practical learning session led by the teacher in the computer assembly topic. There were two stages to the data collection process. The observation phase was the first stage, during which the students' interactions and behavior during the hands-on learning activities were observed. The purpose of the second phase, which involved conducting interviews and questionnaires, was to discover more about the students' preferred methods of learning. The following are the specifics of the data collection:

Interview

Interviews were used to get data for the initial round of research. Two participants, namely the basic subject teachers of the vocational program at a public vocational school in Surakarta, were directly interviewed for the procedure. The teacher's interview lasted about twenty minutes, and throughout that time, a cellphone was used to capture every interaction. The purpose of the interviews was to learn more about the student's learning preferences and the teacher's pedagogical application of those preferences. During the about 20-minute interview, the items from the results are described and the following questions are addressed:

Table 1.1. Interview Participants

Participants	Position
Participants 1	Basic Skills Program Teacher
Participants 2	Basic Skills Program Teacher

Table 1.2. Interview Question Indicators

Number.	Interview Question Indicators
1.	Are students actively involved during learning? In what form is student involvement in this learning?
2.	If yes, how do teachers motivate students to engage in learning?
3.	If not, why are students not motivated to learn?
4.	Do you capture the enthusiasm for learning from the students?
5.	Do students actively respond to teacher questions during learning?
6.	The learning style of class X PPLG B students?

Observation

Observation was used to acquire the second set of data. Ten participants—students who completed the foundational course for the computer assembly vocational program at one of Surakarta's SMK Negeri schools—were directly observed during this process. When the students completed a laboratory practice for the computer assembly subject, the observation procedure lasted for around four hours throughout the session. The observation lasted for around 180 minutes in all, and everyone was using a cell phone to record everything. The following observation items were included on the observation sheet that was used to conduct the observation:

Table 1.3. Research subject

Participants	Learning Style
Participants 1	Visual
Participants 2	Visual
Participants 3	Visual
Participants 4	Visual
Participants 5	Visual
Participants 6	Visual
Participants 7	Auditory
Participants 8	Auditory
Participants 9	Kinesthetic
Participants 10	Kinesthetic

Result and Discussion

Result

Learning styles are the methods in which a person learns in a time and sensory-efficient manner that makes them feel safe, easy, and comfortable. Learning styles are the methods that individuals select to acquire knowledge or information during a learning process. Because every individual has different learning needs, there will be times when someone finds it difficult to assimilate information unpleasantly. Everybody has distinct learning needs, and diverse learning and information-processing styles also exist. The following is the mapping of learning styles based on Bobby DePorter's theory:

Visual learning style

The eyes are crucial for visual learning since it is a form of learning that relies on sight. When someone processes knowledge by looking at images, graphs, maps, posters, diagrams, and so forth, they are engaging in visual learning. Another way to do it is to examine textual material, such as letters and writings. Individuals who learn best visually have a strong desire to perceive and retain knowledge visually before they can comprehend it. Lessons using visual aids are easier for them to understand. They also grasp art well and have a strong sensitivity to color. In this instance, the visualization technique teaches the brain to picture many scenarios and objects—both real and imagined—until eventually get what they want.

Auditory learning style

A person who learns by using their sense of hearing does so using an approach known as auditory learning. As a result, they mostly rely on their hearing to succeed in learning. For instance, through taking in talks, debates, and lectures. It can also be heard through tones, which is singing. For those who learn best by hearing, auditory learning is the preferred method of instruction. They favor listening to audio recordings, taking part in debates, and attending lectures. While learning, kids could also find it beneficial to read aloud or listen to music.

Kinesthetic learning style

A person who learns by performing activities, motions, and touch is said to have a kinesthetic learning style. Furthermore, practice or first-hand learning experiences are linked to kinesthetic learning. Learning is best done by doing for those with a kinesthetic learning style. They like to take part in practical exercises, experiments, and shows. When studying, they might also find it beneficial to take short pauses to exercise or do other physical activities.

Discussion

Based on data analysis, the following results were obtained:

Learning styles of students in class X PPLG B at SMK N Surakarta through interviews

Based on the results of interviews with class teachers in class X PPLG B at SMK N Surakarta regarding students' learning styles, it was stated that

("Learning styles in class X PPLG B SMK N 2 Surakarta are varied. Some students learn more quickly through audio and visual, but some students learn more quickly through direct explanations from the teacher. The variety of learning styles in class X PPLG B itself has led to the availability of several learning resources, such as video tutorials, PPTs, reading materials, and direct explanations from the teacher. Usually, if a student is having difficulty, they will ask questions and be helped by the teacher to understand the material they have not yet mastered.") Basic Skills Program Teacher

Observational data from SMK N Surakarta's class X PPLG B supports this as well, showing that each student's learning style varies based on their unique qualities. Every student follows the ongoing lessons in class in a different way depending on their learning preferences. To comprehend the material presented by the teacher more rapidly, the pupils employ their learning styles to assimilate the information.

Dunn, a pioneer in the subject of learning styles, is quoted by DePorter and Hernacki as saying that a person's learning style is influenced by a variety of elements, including environmental, psychological, physiological, and emotional aspects. The physical environment in which learning occurs is one of the physical elements. A few key factors are posture, seating, temperature, noise level, and light. An additional aspect of the learning process is emotion. The brain's memory system depends on emotions. Students may find it much simpler to take in knowledge and concepts while they are experiencing the emotional high of achievement. A person's social needs are referred to as sociological factors. While some people learn best working in a group or with a partner, others prefer to study alone. The foundation of Dunn's learning style model is the notion that every individual possesses a distinct set of learning preferences. Teachers can improve the learning environment for every student by taking these preferences into account.

Learning styles of students in class X PPLG B at SMK N Surakarta through observation

Based on observations of students in class X PPLG B at SMK N 2 Surakarta, Bobby DePorter's learning styles literature can be utilized to map students learning styles into three categories.

Visual learning style

Six out of the ten students seen in class X PPLG B at SMK N Surakarta were deemed to be visual learners, according to the findings of observations made of the students on their learning preferences. This is supported by Bobby DePorter's learning theory, which states that visual learners exhibit the following traits: (1) Learning materials must be visible, (2) Easier to remember by seeing, (3) During learning activities, will try to sit in front, (4) Must see the body language and facial expressions of the teacher to understand the lesson material, (5) Likes to scribble something that sometimes doesn't make sense in class, (6) When bored, usually looks for something to see, (7) Will be easier to understand learning materials that are packaged attractively using illustrations such as pictures, diagrams, color maps, and so on. As per Bobby DePorter's analysis, six pupils in class X PPLG B at SMK N Surakarta exhibit visual learning style characteristics. Using a range of visual aids in their instruction, teachers can support students who are visual learners. Additionally, they can design a classroom setting that helps visual learners learn. This entails giving them lots of room and light as well as removing any distractions that can impair their vision or impair their ability to concentrate.

Auditory learning style

Observations of the student's learning styles revealed that two of the ten students in class X PPLG B at SMK N Surakarta were auditory learners. Bobby DePorter's learning theory, which claims that auditory learners have the following characteristics, lends credence to this: (1) They will seek a seating position where they can hear even if they cannot see what is happening in front of them, (2) They absorb information more quickly by listening, (3) They are good at speaking and storytelling, (4) They enjoy discussions, talking, asking questions, or explaining at length, (5)

Learning materials are easier to understand if they are read aloud, (6) They can remember material well during discussions, (7) When they feel bored, they usually talk to themselves or their friends next to them, or they may even sing a song. Two students in SMK N Surakarta's class X PPLG B meet the requirements for auditory learning styles, according to Bobby DePorter. Using a range of auditory aids in their instruction, teachers can support students who learn best by hearing. Additionally, they can design a classroom atmosphere that helps auditory learners learn. This entails giving them lots of space and quiet as well as avoiding distractions that can impair their hearing and concentration. Teachers can design a learning environment that works better for auditory learners by knowing their features.

Kinesthetic learning style

Two out of the ten students seen in class X PPLG B at SMK N Surakarta were deemed to be kinesthetic learners, according to the findings of observations made of the students on their learning styles. This is supported by Bobby DePorter's learning hypothesis, which states that kinesthetic learners possess the following traits: (1) When expressing opinions, they usually accompany their movements with hand gestures or body language that involve other body parts, such as the face, eyes, and so on, (2) They easily understand learning materials that have been done, but will find it difficult to remember materials that have been said or seen, (3) When they feel bored, they will go and move from place to place, (4) They enjoy learning materials that involve engineering a material, (5) They are fond of touching everything they encounter, (6) They like to use real objects as learning aids, (7) They prefer to demonstrate something with a demonstration or movement rather than explaining it. Bobby DePorter states that two pupils in class X PPLG B at SMK N Surakarta fit the description of kinesthetic learners based on these features. By allowing kinesthetic learners to learn by doing, teachers may support their needs. Additionally, they can design a classroom setting that helps kinesthetic learners learn. This entails giving them lots of room to move around and opportunities to do so, as well as minimizing distractions that can make it difficult for them to concentrate and move. Teachers can design a more effective learning environment for kinesthetic learners by recognizing their features.

Conclusion

It is possible to deduce from the data analysis that each student has a unique learning style, with each style having its own particular characteristics. The learning styles of the students in class X PPLG B SMK N 2 Surakarta are diverse, according to the findings of the teacher's interviews. While some students pick up information more quickly when presented with audio and visual aids, others pick up information more quickly when the teacher provides clear explanations of the content. The learning styles of the pupils can be mapped into three types of learning styles, namely visual learning styles, auditory learning styles, and kinesthetic learning styles, according to Bobby DePorter's observational data.

As a result, the study's findings support Bobby DePorter's theory that class X PPLG B of SMK N 2 Surakarta has a variety of learning styles. Six of the ten children that were observed tended to learn best visually, two preferred auditory learning styles, and two preferred kinesthetic learning styles. The learning styles of the class X PPLG B pupils at SMK N 2 Surakarta are grouped according to Bobby DePorter's suggested features for each learning type. This study is significant because it sheds light on the learning preferences of the pupils in SMK N 2 Surakarta's class X PPLG B. Teachers can utilize this knowledge to design more engaging learning activities for these pupils.

References

Adlini, M. N., Dinda, A. H., Yulinda, S., Chotimah, O., & Merliyana, S. J. (2022). Metode Penelitian Kualitatif Studi Pustaka. Edumaspul: Jurnal Pendidikan, 6(1), 974–980. https://doi.org/10.33487/edumaspul.v6i1.3394

Amrianto, A., & Fazlan, M. (2021). Analisis Gaya Belajar Peserta Didik SMP Al-Azhar 32 Padang Sebagai Kriteria Penentuan Pemilihan Strategi Pembelajaran. Research and Development Journal of Education, 7(1), 70-79. https://doi.org/10.30998/rdje.v7i1.8004

Asriyanti, F. D., & Janah, L. A. (2018). Analisis gaya belajar ditinjau dari hasil belajar siswa. Ilmu Pendidikan: Jurnal Kajian Teori Dan Praktik Kependidikan, 3(2), 183-187. https://doi.org/10.17977/um027v3i22018p183

Awla, H. A. (2014). Learning styles and their relation to teaching styles. International journal of language and linguistics, 2(3), 241-245. https://doi.org/10.11648/j.ijll.20140203.23

Azis, F. R. N., Pamujo, P., & Yuwono, P. H. (2020). Analisis Gaya Belajar Visual, Auditorial, Dan Kinestetik Siswa Berprestasi Di SD Negeri Ajibarang Wetan. Jurnal Mahasiswa BK An-Nur: Berbeda, Bermakna, Mulia, 6(1), 26-31. https://ojs.uniska-bjm.ac.id/index.php/AN-NUR/article/view/2658/2089

Costa, R. D., Souza, G. F., Valentim, R. A., & Castro, T. B. (2020). The theory of learning styles applied to distance learning. Cognitive Systems Research, 64, 134-145. https://doi.org/10.1016/j.cogsys.2020.08.004

Ghufron, M. Nur & Rini Risnawati S. 2014. Teori-Teori Psikologi. Jogjakarta: Ar-Ruzz Media

Harahap, N. (2020). Penelitian Kualtatif. *Repository.Uinsu.Ac.Id*, 7823–7830.

Irawati, I., Ilhamdi, M. L., & Nasruddin, N. (2021). Pengaruh gaya belajar terhadap hasil belajar IPA. Jurnal Pijar Mipa, 16(1), 44-48. https://doi.org/10.29303/jpm.v16i1.2202

Khoeron, I. R., Sumarna, N., & Permana, T. (2014). Pengaruh gaya belajar terhadap prestasi belajar peserta didik pada mata pelajaran produktif. Journal of Mechanical Engineering Education, 1(2). https://doi.org/10.17509/jmee.v1i2.3816

Konilah, K., Sunarsih, D., & Purnomo, A. (2022). Analisis Gaya Belajar Peserta Didik Pada Pembelajaran Matematika Kelas V Mi. Jurnal Ilmiah Kontekstual, 3(02), 141-149. https://doi.org/10.46772/kontekstual.v3i02.664

Lwande, C., Muchemi, L., & Oboko, R. (2021). Identifying learning styles and cognitive traits in a learning management system. Heliyon, 7(8). https://doi.org/10.1016/j.heliyon.2021.e07701

Monitasari, L. (2020). Efektivitas Penggunaan Media Pembelajaran Videoscribe Untuk Meningkatkan Motivasi Belajar Dan Hasil Belajar Siswa Pada Mata Pelajaran Dasar Desain Grafis Di SMK Negeri 5 Surakarta. https://doi.org/10.20961/jiptek.v14i2.46406

Nabela, D., Kasiyun, S., Rahayu, D. W., & Akhwani, A. (2021). Analisis Gaya Belajar Peserta Didik Berprestasi selama Pandemi Covid-19 dalam Pembelajaran Tematik di Sekolah Dasar. Jurnal Basicedu, 5(4), 2653-2663. https://doi.org/10.31004/basicedu.v5i4.1301

Nugroho, R., Basori, B., & Maryono, D. (2020). Combining Flipped Classroom and Mind Mapping in Indonesian Vocational Schools: Their Influence to Students' Critical Thinking Ability. Indonesian Journal of Informatics Education, 4(1), 24-31. https://doi.org/10.20961/ijie.v4i1.44727

Omar, N., Mohamad, M. M., & Paimin, A. N. (2015). Dimension of learning styles and students' academic achievement. Procedia-Social and Behavioral Sciences, 204, 172-182. https://doi.org/10.1016/j.sbspro.2015.08.130

Pertiwi, I., Marlina, L., & Wiyono, K. (2023). Analisis Profil Gaya Belajar Peserta Didik Sebagai Data Pembelajaran Berdiferensiasi di Kelas VII. JIIP-Jurnal Ilmiah Ilmu Pendidikan, 6(10), 8173-8177. https://doi.org/10.54371/jiip.v6i10.2250

Ruslamiarti, F. R. (2013). Hubungan Gaya Belajar Dengan Hasil Belajar Bahasa Indonesia Siswa Kelas V SDN 17 Kota Bengkulu. Pendidikan Guru Sekolah Dasar. Jurusan Ilmu Pendidikan. Fakultas Keguruan dan Ilmu Pendidikan Universitas Bengkulu. https://doi.org/10.33369/pgsd.11.1.35-42

Subini, N. (2011). Rahasia gaya belajar orang besar. Yogyakarta: PT Buku Kita.

Suharto, A. A., Efendi, A., & Maryono, D. Effectiveness of Project-Based Learning Model Implementation with Peer Tutor Method in terms of Students' Active and Learning Outcomes in Graphic Design Subjects. Journal of Informatics and Vocational Education, 2(2). https://doi.org/10.20961/joive.v2i2.37974

Yulisetiani, S., & Hatta, P. (2021). Conceptual IoT Implementation in Post-Pandemic School Activities: A Case Study in Elementary Schools. IJIE (Indonesian Journal of Informatics Education), 5(2), 46-58. https://jurnal.uns.ac.id/ijie/article/view/57215/pdf