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Teachers' Perceptions of the Physics Learning Process Using the Direct Instruction Model in Junior High Schools

Resky Yani[1], Ismail[2], Sing Huat Poh[3]
[1]Department of Physics Education, Universitas Islam Negeri Alauddin, Makassar, Indonesia
[2]Senior High School 1 Jeneponto, South Sulawesi, Indonesia
[3]Universiti Brunei Darussalam, Rimba, Brunei Darussalam

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ABSTRACT

Purpose of the study: This study aims to identify teachers' perceptions of the physics learning process using the direct instruction model at senior high school 1 Jeneponto.

Methodology: This research is a qualitative research that produces data presented in narrative form and describes what is from a variable, symptom or condition and does not intend to test the hypothesis. The data sources in this study were three physics teachers at senior high school 1 Jeneponto.

Main Findings: The results of the study showed that students and physics teachers of senior high school 1 Jeneponto have a positive perception of the Direct Instruction learning model. Teachers apply the Direct Instruction learning model according to the steps in the theory, while some teachers do not implement the steps of the direct instruction learning model in the practical section because there are no practical tools for class XII material, teachers have prepared the things needed in learning, teachers have the ability to teach according to the existing theory. By using this direct instruction learning model, students have been able to achieve several achievements and have played an active role in learning.

Novelty/Originality of this study: The novelty of this study lies in revealing physics teachers' contextual perceptions of the Direct Instruction model through a qualitative approach. Despite limited practical tools, teachers strive to follow the model, positively impacting student engagement and achievement. This offers a fresh perspective on its real-world implementation rarely explored in prior studies.

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Corresponding Author:
Resky Yani,
Department of Physics Education, Universitas Islam Negeri Alauddin,
Jl. H. M. Yasin Limpo No. 36, Samata, Kecamatan Somba Opu, Kabupaten Gowa, Sulawesi Selatan 92113, Indonesia.
Email: reskyyani1@gmail.com

1. INTRODUCTION

Learning is a complex process that involves interactions between educators, students, and the learning environment to achieve predetermined educational goals. In the context of Physics learning, the process becomes increasingly challenging given the abstract nature of the material and the need for high-level thinking skills [1]-[3]. Therefore, choosing the right learning model is one of the crucial aspects in supporting the effectiveness of delivering material and understanding concepts by students [4]-[7].

One of the learning models that is still widely used in the Physics learning process is the direct learning model (Direct Instruction) [8]-[10]. This model is based on the principle that learning can occur effectively through systematic, explicit and structured teaching, where the teacher plays a central role in teaching and learning activities [11]-[13]. Students are directed to observe, listen to explanations, and imitate the behavior exemplified by the teacher [14]-[16]. This requires teachers to have high communication skills and the ability to deliver material gradually and logically so as not to cause confusion due to the delivery of information that is too complex.

The main advantage of the Direct Instruction model lies in its ability to deliver information directly and efficiently, especially on procedural and conceptual material [17], [18]. However, in its application, this model is often associated with the lecture method which tends to be one-way, so that its effectiveness is highly dependent on the perception and active participation of students. Some people consider this model to be a rigid method and does not encourage optimal cognitive involvement of students, especially in developing critical thinking and problem-solving skills.

Various perceptions have emerged among educators regarding the effectiveness of using the Direct Instruction model in Physics learning. Some teachers assume that this model can significantly improve understanding of basic Physics concepts because the delivery of material is carried out systematically and structured. However, not a few also consider that this model is less appropriate for the characteristics of 21st century students who require active and collaborative learning. This difference in perception is important to examine further, because it can affect the teaching strategies applied by teachers in physics learning.

Previous research shows that the Direct Instruction model has a positive influence on learning outcomes, as found in a study by Tinungki [19] which shows a significant contribution of this model to the achievement of mathematics learning outcomes at senior high school 2 Bajo. The meta-analysis shows that direct instruction is one of the most effective approaches in improving learning outcomes, with a significant impact on students' academic achievement [20], [21]. Meskipun demikian, sebagian penelitian lain menunjukkan hasil yang berbeda, terutama dalam konteks pembelajaran yang menuntut partisipasi aktif dan eksplorasi konsep secara mandiri. Oleh karena itu, penelitian mengenai persepsi guru terhadap penggunaan model ini dalam pembelajaran Fisika menjadi relevan untuk memahami dinamika penerapannya di lapangan.

However, some other studies show different results, especially in the context of learning that requires active participation and independent exploration of concepts. Therefore, research on teacher perceptions of the use of this model in Physics learning is relevant to understand the dynamics of its application in the field. The novelty of this study lies in the focus of the study on teacher perceptions as the main actors in instructional decision-making in Physics classes. Most previous studies have emphasized more on student perceptions or the impact of learning models on learning outcomes [22], [23]. In this context, the study of teacher perceptions provides an important contribution to understanding how the Direct Instruction model is viewed from the perspective of the designers and implementers of learning itself, including the factors that influence its acceptance and rejection at the high school level.

The urgency of this study is based on the importance of mapping teacher perceptions in order to design adaptive and contextual learning strategies. In an era of education that emphasizes flexibility, creativity, and innovation in learning, understanding teacher perceptions of conventional learning models such as Direct Instruction is key to supporting pedagogical transformation. Therefore, the purpose of this study is to explore in depth the teachers' perceptions of the Physics learning process using the Direct Instruction model at senior high school 1 Jeneponto as a basis for recommendations for improving the implementation of learning in the future.

2. RESEARCH METHOD

This study uses a qualitative approach with a phenomenological design, which aims to deeply understand teachers' perceptions of the Physics learning process using the Direct Instruction model. Qualitative research allows researchers to explore the meaning, experiences, and subjective interpretations of participants in a particular social context. In the phenomenological approach, the main focus is on individual experiences described through their own narratives, so that reality is understood through the perspective of the participants [24]-[26].

Data collection was carried out using a purposive sampling technique, with a maximum variation sampling strategy. This strategy was chosen to obtain diverse representations from informants based on certain previously determined criteria. The informants in this study consisted of three Physics teachers who taught at senior high school Jeneponto, selected based on their teaching experience and direct involvement in the implementation of the Direct Instruction model [27]-[31]. The selection of diverse informants was intended to enrich the data and broaden understanding of the phenomena being studied.

The main data collection method in this study was through in-depth interviews. Interviews were conducted in a semi-structured manner, allowing flexibility in exploring relevant themes during the data collection process. This technique was used to obtain comprehensive, exploratory, and contextual information

from teachers' perspectives on their learning practices and perceptions of the direct instruction model [30], [31]. All interviews were recorded and transcribed verbatim to ensure data accuracy. The data obtained were analyzed using the Miles and Huberman qualitative analysis model which consists of three main stages: data reduction, data presentation, and drawing conclusions/verification [32].

The first stage, data reduction, involves the process of selecting, simplifying, and transforming raw data from interviews, field notes, and other documents into more organized information. Next, the reduced data is presented in the form of a matrix, narrative, or other visualization to facilitate the identification of patterns and relationships between data. The final stage is drawing conclusions, where researchers interpret the analyzed data to produce valid findings that are relevant to the research objectives.

Data credibility is maintained through source triangulation and member checking techniques, to ensure that the interpretation results are in accordance with the real experiences of participants. With this design, the study is expected to be able to authentically describe teachers' perceptions of the implementation of the Direct Instruction learning model in the context of Physics learning in secondary schools.

3. RESULTS AND DISCUSSION

This study aims to explore teachers' perceptions of the implementation of the Direct Instruction learning model in Physics learning at senior high school 1 Jeneponto. The results of in-depth interviews with three Physics teachers showed that their perceptions of this learning model were divided into six main categories, namely: (1) Direct Instruction syntax, (2) teacher readiness in learning, (3) classroom management skills, (4) learning effectiveness, (5) student learning achievement, and (6) student activities. In this section, the focus is directed at the first category, namely the steps or syntax in implementing the Direct Instruction learning model.

Table 1. Synthesis of interview results related to the steps of the direct instruction learning model.

Teacher	Learning Steps	Additional information
Teacher 1	- Attendance and readiness check -Initial motivation - Review of previous material - Delivery of objectives and new material - Provision of sample questions - Questions and answers - Assignment giving - Demonstration and practicum - Presentation and conclusion drawing	Practicums are carried out if time permits
Teacher 2	- Check student readiness - Review last week's material - Ask about homework - Provide motivation - Deliver learning objectives - Explanation of concepts and examples - Q&A and practice questions - Demonstration and group practicum - Presentation of practicum results	Encourage students to do independent practicums
Teacher 3	- Initial attendance and motivation - Review of previous learning - Delivery of objectives - Explanation of material and sample questions - Questions and answers - Provision of practice questions	The practicum was not carried out due to limited equipment.

Based on the results of in-depth interviews, all three teachers consistently implemented the basic syntax of the Direct Instruction model, although there were variations in the implementation practices. The initial steps that were commonly taken were checking the attendance and readiness of students to learn, followed by providing motivation. Motivation is considered an important element in creating a conducive learning atmosphere and increasing students' interest in Physics material.

Reviewing previous material is a transitional step that connects prior knowledge with new material. All teachers conveyed learning objectives before entering the core of the lesson. The delivery of the material was carried out explicitly with applicable examples. After that, the teacher provided a question and answer room and practice questions to test students' understanding. In the final stage, two of the three teachers mentioned demonstration practices and practical activities. Practical work is used to improve conceptual understanding

through direct experience. However, one teacher stated that practical work was not carried out due to limited laboratory facilities, indicating structural constraints in the implementation of the Direct Instruction model as a whole.

In the context of learning motivation, all three teachers had a personal approach by telling personal experiences that were relevant to physics learning [33], [34]. This strategy is believed to be able to foster emotional closeness and increase the relevance of the material in students' lives [35]. Teachers also emphasize the importance of showing that Physics concepts are present in everyday life to foster functional awareness of science.

The Direct Instruction learning model has been widely studied as an effective approach to improving student learning outcomes [36]. identified seven main steps in this model, starting from planning learning objectives, setting success criteria, increasing student involvement, presenting material systematically, guided exercises, closing learning, to providing opportunities for independent practice [37], [38]. This finding is reinforced by interviews conducted with Physics teachers at senior high school Jeneponto, which indicated that they apply the Direct Instruction model in the learning process. However, limited practice facilities are an obstacle to the comprehensive implementation of the model, especially in the practicum aspect. Previous research also shows that the success of this model is highly dependent on teacher readiness and the conditions of the learning environment.

This study has novelty in the context of the real implementation of the Direct Instruction model in Physics learning in high schools, especially at senior high school 1 Jeneponto. Different from previous studies that focused on the influence of models on learning outcomes quantitatively, this study emphasizes practical aspects such as motivation, readiness, understanding, and feedback provided by teachers in real classroom situations. In addition, this study revealed a discrepancy between the theory of Direct Instruction as explained by experts and practice in the field, which was caused by various contextual factors such as limited facilities and infrastructure.

Learning motivation is an important component in the successful implementation of this model. Physics teachers at senior high school 1 Jeneponto actively provide motivation to students through stories of experiences, reinforcement of the importance of learning Physics, and invitations to always be ready in the learning process. This is in line with the view of educational psychologists that motivation is the driving force that determines the active involvement of students. Providing motivation also has a direct impact on learning readiness, which according to Slameto, is a significant factor in achieving optimal learning outcomes.

The aspect of student readiness is ensured through various approaches, such as asking about readiness before learning begins, paying attention to the completeness of stationery, and observing students' attitudes when greeting [39]. Teachers also try to connect the subject matter with concrete examples that are relevant to everyday life, especially in the context of physics learning [39], [40]. This approach not only supports the process of understanding, but also strengthens the transfer of knowledge from the theoretical to the practical realm, as explained in constructivist learning theory.

Student understanding is measured through various strategies such as asking questions, asking to re-explain the material, and giving problems that must be completed immediately [41]. This strategy is in line with the principle of Direct Instruction in ensuring that each student understands the material before proceeding to the next stage [43]. In addition, teachers provide various forms of feedback to students, either in the form of praise, additional marks, or positive motivation for inappropriate responses. This shows the application of four types of feedback according to Schunk, which include performance, motivational, attributional, and strategy feedback.

Although teachers have applied the principles of Direct Instruction, the results of the analysis show that the implementation in the field is not fully in accordance with the ideal theoretical framework. Learning practices at senior high school 1 Jeneponto still face limitations in aspects of laboratory practice and depth of reflection at each stage of learning. This study is limited to one school and one subject, so the results cannot be generalized widely. In the future, further research can examine this model in the context of other schools with different conditions, as well as explore the integration of educational technology to overcome the limitations of learning facilities.

4. CONCLUSION

students and Physics teachers at senior high school 1 Jeneponto have a positive perception of the implementation of the Direct Instruction learning model. Students assess that teachers carry out learning in a structured and systematic manner according to the steps in the Direct Instruction theory, such as setting learning objectives, providing motivation, ensuring readiness, and providing feedback. Although the implementation of the practicum has not run optimally due to limited tools, students still feel helped by this learning method and show active involvement and proud achievements. On the other hand, teachers also feel that Direct Instruction supports the learning process because it provides a clear framework and allows them to manage the class effectively. Teachers stated that they prepared the learning process carefully and followed the pedagogical

principles that were in accordance with the theory, although the implementation of the practicum was a challenge in itself due to limited facilities. As a recommendation, it is suggested that the school equip laboratory facilities to support Physics practicum activities, especially for class XII. In addition, ongoing training for teachers in adapting the Direct Instruction model with a contextual practice-based approach is also important so that Physics learning becomes more applicable and interesting for students. Further research can also be directed at developing technology-based Direct Instruction learning models or blended learning to improve the effectiveness of learning in the digital era.

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