Design of Psychomotor Domain Assessment Instruments in Indonesian Language Learning at Elementary Schools

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Abstract: The characteristics of psychomotor skills include sensory skills, alertness, and the ability to act in a complex manner. The psychomotor skills of students in learning Indonesian can be seen from the students' proficiency in writing stories. This study aims to describe how to create a design and assessment instrument in the psychomotor domain in Indonesian language learning. The method used in this study is descriptive qualitative research with library research as the type of research. Based on the research method and type, the data sources are books and scientific articles related to the topic. The results of the study show that the design and assessment instrument in the psychomotor domain in Indonesian language learning can be done in the form of tests and non-tests. Test assessment instruments can be conducted when the learning process has taken place, and non-test instruments can be conducted while the process is ongoing, namely when students are practicing.

Keywords: Assessment Instrument Design, Elementary School, Indonesian Language, Psychomotor.

INTRODUCTION

The results of students' learning can be categorized into three cognitive domains or realms: cognitive, affective, and psychomotor. These three realms are intertwined and mutually support each other, making them inseparable explicitly. The realm that is associated with skills is the psychomotor realm[1]. Skills are acquired by students after they have gained learning experiences. Psychomotor relates to the results of students' learning, which are achieved through skills as evidence of knowledge competence. Competence in these skills is an implication of the attainment of knowledge competence by the students.

Every subject or teaching material taught always contains these three realms, but the emphasis varies. Subjects that require students' skills naturally

[1] Sugiarti Sugiarti, 'Penilaian Psikomotor Siswa Pada Pembelajaran Fisika Melalui Model Pembelajaran Guided Inquiry', *PASCAL (Journal of Physics and Science Learning)* 2, no. 1 (30 June 2018): 78–84.

focus on the psychomotor aspect, unlike subjects with theoretical content that place more emphasis on the cognitive and affective realms.

Before explaining the concept of assessing skill competence, it is necessary to first clarify the concept of skills (psychomotor). Psychomotor skills consist of a series of movements to successfully complete a task. These movements are coordinated by perception or the organization and interpretation of information received through the senses. Therefore, psychomotor skills have several characteristics, including sensory perception, self-awareness, and complex actions[2]. This serves as evidence that skill competence is an implication of the fulfillment of knowledge competence by students[3]. These skills serve as proof of an individual's proficiency in successfully accomplishing a specific task or set of tasks.

Essentially, the results of psychomotor learning are a manifestation of cognitive and affective learning outcomes (which become apparent as tendencies to behave or act). Cognitive and affective learning outcomes become psychomotor learning outcomes when students demonstrate specific behaviors or actions in accordance with the meaning contained within the cognitive and affective realms. Research on the psychomotor realm has been widely conducted, including theoretical analysis, implementation, and the development of learning designs to improve learning outcomes in this realm. For example, Fivia Eliza et al.'s (2019) study titled "Improving Students' Psychomotor Competence through Project Based Learning (PjBL) Model at SMKN 5 Padang" is an action research that reveals the role of the PjBL learning model in enhancing students' psychomotor competence. The research found that this learning model can improve student learning outcomes, especially in psychomotor competence[4].

Another study by Kiki Miranti et al. (2022) titled "Training Students' Psychomotor Skills through the Use of Student Worksheets (LKS)" found that psychomotor skills can be developed by actively involving students in the learning process. One effective method used by teachers is to incorporate student worksheets (LKS) into

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[2] M. Army Akbar, Rahmadi Rahmadi, and Muhammad Mulhim, 'Intrumen Penilaian Harian Aspek Psikomotor Pendidikan Jasmani Olahraga Dan Kesehatan', *STABILITAS: Jurnal Pendidikan Jasmani Dan Olahraga* 1, no. 1 (30 June 2020): 56–62, https://doi.org/10.20527/mpj.v1i1.485.

[3] Ana Quthratun Nada and Andi Prastowo, 'Implementasi Evaluasi Kurikulum Sekolah (Studi Kasus Sekolah Dasar Di Kota Semarang)', *MODELING: Jurnal Program Studi PGMI* 10, no. 3 (27 September 2023): 396–406, https://doi.org/10.36835/modeling.v10i3.1674.

[4] Fivia Eliza, Suriyadi Suriyadi, and Doni Tri Putra Yanto, 'Peningkatan Kompetensi Psikomotor Siswa Melalui Model Pembelajaran Project Based Learning (PjBL) Di SMKN 5 Padang', *INVOTEK: Jurnal Inovasi Vokasional Dan Teknologi* 19, no. 2 (2019): 57–66.

the learning process. This is supported by the research findings that students' psychomotor skills can be effectively trained through repeated learning using LKS[5].

I Putu Suarbawa's study (2019) with the title "Application of Problem-Based Learning (PBL) Model in CorelDraw Learning to Improve Psychomotor Learning Outcomes" found that the Problem-Based Learning (PBL) model is effective in enhancing psychomotor skills, specifically in the context of CorelDraw learning[6].

Prior research indicates that the upcoming study is a novel one, as no prior research has investigated the design of assessment instruments for psychomotor learning in Indonesian language teaching at the elementary school level.

FIND AND DISCUSSION

Definition of Psychomotor Domain

The term "Psychomotor" is related to the words motor, sensory-motor, or perceptual-motor. So, the psychomotor domain is closely related to movements, skills, and behaviors that lead to bodily motion or its parts[7]. Psychomotor refers to the assessment of the domain related to skills or the ability to act after someone receives specific learning experiences. In other words, the psychomotor domain is the intricacies that occur due to the coordination of muscles by the mind, resulting in specific physical skills[8]. Psychomotor skills are a series of movements to successfully complete a task. These movements are coordinated by perception or the organization and interpretation of information received through the sensory organs. Psychomotor skills have several characteristics, including sensory perception, self-awareness, and complex actions[9]. Psychomotor skills are defined as: (1) A series of integrated muscle movements to complete a task; (2) Skills that primarily require the coordination of motor nerve and muscle functions; (3) Professional skills consciously developed through the educational process

[5] Kiki Miranti, Ahmad Rusyadi, and Fahmi Fahmi, 'Melatih Keterampilan Psikomotorik Siswa Melalui Penggunaan Lembar Kerja Siswa (LKS)', *Journal of Banua Science Education* 2, no. 2 (2022): 93–98.

[6] I Putu Suarbawa, 'Penerapan Model Problem Based Learning (Pbl) Pada Mata Pembelajaran Corel Draw Untuk Meningkatkan Hasil Belajar Di Ranah Psikomotor', *Indonesian Journal Of Educational Research and Review*, 2019, 162–71.

[7] Nur Aeni, 'Pengembangan Psikomotorik Peserta Didik Materi Ajar Al-Qur'an Melalui Metode Snowball Throwing Di Kelas X. 2 MAN Pinrang', 2020.

[8] Rizki Dinar Febrianti, 'Evaluasi Aspek Psikomotorik Siswa Kelas X Pada Metode Bandongan Dalam Mata Pelajaran Al-Qur'an Hadis (Studi Kasus Di MA Darul Huda Ponorogo)', 2021.

[9] Akbar, Rahmadi, and Mulhim, 'Intrumen Penilaian Harian Aspek Psikomotor Pendidikan Jasmani Olahraga Dan Kesehatan'.

(Yuliarto, 2014). Psychomotor abilities are related to skills or the ability to act after someone has received specific learning experiences [10]. From the definitions provided earlier, it can be concluded that psychomotor abilities are related to muscular work and manifest in the form of actual actions by students after receiving learning experiences.

Designing and Designing Psychomotor Domain Instruments

A. Assessment of Psychomotor Learning Outcomes

There are several experts who explain how to assess psychomotor learning outcomes. Ryan, as explained by Agus Dudung, stated that the learning outcomes of skills can be measured through (1) direct observation and assessment of students' behavior during the practical learning process, (2) after completing the learning, by giving tests to students to measure their knowledge, skills, and attitudes, (3) some time after the completion of learning and in their work environment. Other opinions on the assessment of psychomotor learning outcomes include: (1) the ability to use tools and work attitudes, (2) the ability to analyze a task and arrange the sequence of work, (3) speed in completing tasks, (4) the ability to read drawings and/or symbols, (5) conformity of shape with expectations and/or predetermined sizes[11].

From the explanations above, it can be summarized that the assessment of psychomotor learning outcomes or skills should include preparation, process, and product. Assessment can be done during the process, that is, when students are practicing, or after the process, by testing the students.

B. Classification of Psychomotor Domain Objectives

The classification of psychomotor learning outcomes that is widely used is Simpson's formulation, which is divided into seven levels: (1) perception, (2) readiness, (3) guided movement, (4) mechanism of habituated movement, (5) complex movement, (6) adaptation, and (7) origination or creativity (Munip, 2017).

1. Perception

Perception is the lowest-level psychomotor learning outcome, which is the ability to distinguish one phenomenon from another, the ability to perceive stimuli, receive signals, and translate them into action.

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[10] Sela Marselyana Abadi, 'Pengembangan Instrumen Penilaian Aspek Psikomotor Siswa Pada Praktikum Kimia Materi Termokimia', 6 January 2016, https://repository.uinjkt.ac.id/dspace/handle/123456789/29989.

[11] Agus Dudung, 'Penilaian Psikomotor', *K a RIMA*, 2018, 1–220.

In elementary school Indonesian language learning, the perception level of students' psychomotor domain is reflected in (a) students' ability to form letters, words, and sentences clearly and neatly using writing tools such as pencils or pens. (b) Students' ability to read text fluently and expressively, reflecting the understanding and use of psychomotor skills in reading correctly. (c) Students' ability to participate in conversations, presentations, or drama, involving body movements, intonation of voice, and facial expressions. (d) Students' ability to draw pictures or illustrations that support their text understanding and creativity. (e) Physical activities in Indonesian language learning: for example, drama, language games, or other physical activities that allow students to interact with the Indonesian language in the psychomotor domain.

2. Readiness

Readiness is the ability to prepare oneself to start an activity. For example, readiness to prepare before running, dancing, typing, demonstrating prayer, demonstrating the use of a thermometer, mastering the sequence of steps in an activity, demonstrating the correct position, and so on.

In elementary school Indonesian language learning, the readiness level of students' psychomotor domain is reflected in their ability to perform physical activities related to the Indonesian language. This includes the ability to write correctly, draw, and participate in activities such as reading with appropriate expression. The readiness level of the psychomotor domain is also reflected in students' ability to follow the teacher's instructions, participate in group activities, and apply these physical skills in the context of Indonesian language learning.

3. Guided Movement

Guided movement is the ability to imitate modeled movements. For example, following the correct tooth brushing technique.

In elementary school Indonesian language learning, the guided movement level of the psychomotor domain is reflected in students' ability to perform physical tasks that support the development of language skills. This includes students' ability to write, draw, arrange words into sentences, and follow the teacher's instructions related to physical activities that support Indonesian language learning. So, students' ability to express themselves in writing and visually is part of the psychomotor domain in elementary school Indonesian language learning.

4. Mechanism of Habituated Movement

Mechanism is the ability to perform movements without a model or example. This ability is acquired through repetitive practice and becomes a habit. For example, the ability to demonstrate how to search for the shadow of an object using a microscope, demonstrate how to use a slide projector, demonstrate how to paint, and so on.

In elementary school Indonesian language learning, the mechanism of habituated movement in the psychomotor domain is reflected in students' ability to perform various activities involving physical movements necessary for writing, reading, and speaking in Indonesian. This includes students' ability to write letters and words correctly, read fluently and expressively, and participate in activities such as dictation, group speaking, and role-playing to understand and effectively apply the Indonesian language.

5. Complex Movements

Complex movements are the ability to perform a series of movements with the correct method, sequence, and rhythm. For example, demonstrating how to saw wood using a power saw, demonstrating how to drive a vehicle.

In the learning of the Indonesian language in elementary school, the levels of complex movements in the psychomotor domain are reflected in students' abilities in various aspects, such as: (a) the ability of students to combine letters, words, and sentences into more complex texts, such as essays, reflecting higher-level psychomotor skills. (b) Students who can produce detailed and diverse illustrations or drawings in relation to their stories or writings demonstrate complex movement abilities in drawing. (c) The ability of students to participate in drama activities, express emotions, and read poetry with good expression indicates complex movement abilities in conveying Indonesian language more deeply.

6. Adaptation

Adaptation is the ability to adjust to new situations that one faces. For example, demonstrating how to drive a car when faced with obstacles, and how to swim in fast-flowing water. The levels of psychomotor adaptation in the learning of the Indonesian language in elementary school are reflected in students' abilities in various activities involving physical skills and movements related to the Indonesian language. This includes students' ability to write, read, pronounce words and sentences correctly, draw illustrations that are suitable for the text, participate in drama or performances, and perform physical tasks that support the

understanding and use of the Indonesian language[12]. The higher the level of psychomotor adaptation, the better students' ability to carry out these activities effectively. This adaptation reflects students' ability to apply their physical skills in the context of language and communication in the Indonesian language.

7. Origination or Creativity

Origination is the ability to create new movements that did not exist before or to combine existing movements into original combinations. In the learning of the Indonesian language, this skill can be seen in the form of: (1) creative writing, (2) artistic activities, (3) drama and performances, (4) voice readings such as poetry. While Dave divides the psychomotor learning outcomes domain into five levels, namely (Nurwati, 2014):

1) Imitation is the ability to perform simple and identical activities to what was seen or observed before.
2) Manipulation is the ability to perform simple activities that have never been seen before but are based on guidelines or instructions only.
3) Precision is the ability to perform accurate activities that can produce precise work products.
4) Articulation is the ability to perform complex and precise activities so that the work produced is something whole.
5) Naturalization is the ability to perform reflex activities, which involve only the physical aspect, so the work's effectiveness is high.

Here is a summary table of psychomotor stages proposed by Dave.

No	Psychomotor Level	Behavioral Description	Measured Activity Examples	Operational Verbs
1	Imitation	students can mimic the pronunciation of words and sentences in the Indonesian language	imitating teachers or audio recordings in saying words or sentences	Imitating, following
2	Manipulation	students can combine letters	arrange letters into simple words or sentences	combine

[12] Noptario Noptario et al., 'Application of the Skilbeck Model Curriculum Development in Elementary Schools in School Quality Assurance Efforts', *JIP (Jurnal Ilmiah PGMI)* 9, no. 1 (28 August 2023): 82–92, https://doi.org/10.19109/jip.v9i1.17101.

		to form words and sentences		
3	Precisely	students are able to write letters and words correctly	write letters and words neatly and in accordance with the rules of Indonesian writing	write correctly, write neatly
4	Articulation	Students are able to pronounce sounds, words, and phrases clearly and correctly	Practice pronouncing Indonesian language sounds, such as consonants and vowels, correctly	Pronouncing, enunciating, and pronunciating
5	Naturalization	Students can use the Indonesian language fluently and naturally in everyday communication situations	Speaking in Indonesian with peers or teachers in everyday contexts, such as discussing activities, news, or specific topics	Using it naturally in conversation

Table 1. Psychomotor Stages by Dave

C. Types of Psychomotor Assessment Instruments

To measure learning outcomes in the psychomotor domain, educators need to perform two essential tasks: creating questions and developing tools or instruments to observe students' performance. Questions for psychomotor learning outcomes can take the form of worksheets, task sheets, work instructions, and experiment sheets. Instruments for observing student performance can be in the form of observation sheets or portfolios.

Observation sheets are used to observe the presence of an object or the emergence of the observed skill aspects[13]. Observation sheets can take the form of checklists or rating scales. A checklist consists of questions or statements where the answer is simply marked with a checkmark corresponding to the observed aspect. A rating scale is a sheet used to assess student performance or the quality of the observed skill aspects with a specific scale, for example, a scale from 1 - 5. A portfolio is a collection of students' work organized systematically and continuously to track the improvement of students' abilities towards a specific competency.

[13] Dudung, 'Penilaian Psikomotor'.

D. Construction of Psychomotor Assessment Instruments

Similar to cognitive domain questions, psychomotor assessment questions should also align with the specified competency standards that have been broken down into basic competencies [14]. Each basic competency item should be further elaborated into at least two basic competencies, and each basic competency item can be broken down into two or more indicators, each of which can be used to create question items. Indicators for psychomotor questions can encompass more than one operational verb.

Furthermore, to assess student learning outcomes in the psychomotor domain, observation checklists, rating scales, or portfolios need to be prepared. There is no fundamental difference between constructing observation checklists and rating scales. The development of both instruments should be based on the questions or instruction sheets/task sheets/work sheets given to students. Based on the questions or instruction sheets/task sheets/work sheets, observation checklists or rating scales are created. In general, both observation checklists and rating scales consist of three parts: (a) preparation, (b) execution, and (c) results.

E. Preparation of Psychomotor Assessment Design

It is advisable for teachers to design a written assessment system that will be implemented over the course of one semester. This assessment design is open in nature, allowing students, other teachers, and school principals to view it. The steps in writing the assessment design include: 1) Examining the existing syllabus, 2) Creating an assessment system design based on the prepared syllabus.

Subsequently, this assessment design is communicated to students at the beginning of the semester. Thus, the assessment system conducted by teachers becomes more refined and adheres to the principles of assessment. According to Muslich in Alanisa, the specific steps in creating psychomotor assessment instruments include[15]:

1) Identify all the essential steps needed or that will influence the best final output.
2) Write down the specific abilities required to complete tasks and produce the best final output.

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[14] M. Ferry Irawan and Alia Latifah, 'The Implementation of Kahoot! Application as a Hots-Based Evaluation Media for Elementary School Students', *Al-Aulad: Journal of Islamic Primary Education* 6, no. 2 (16 October 2023): 72–83, https://doi.org/10.15575/al-aulad.v6i2.26389.

[15] Asbin Pasaribu, 'Implementasi Manajemen Berbasis Sekolah Dalam Pencapaian Tujuan Pendidikan Nasional Di Madrasah', *EduTech: Jurnal Ilmu Pendidikan Dan Ilmu Sosial* 3, no. 1 (25 April 2017), https://doi.org/10.30596/edutech.v3i1.984.

3) Strive to keep the criteria for the measured abilities from being overly numerous so that they can be observed while students perform the practical test.
4) Clearly define the criteria for students' abilities that must be observable or the characteristics of the produced product.
5) Arrange the criteria for the measured abilities in the order they will be observed.
6) If available, review and compare them with the criteria for abilities previously created by others.

F. Preparation of Assessment Matrix

The assessment matrix is a grid that contains the specifications for the questions to be created. The assessment matrix serves as a reference for question writers, ensuring that anyone writing questions will produce questions with content and levels of difficulty that are relatively consistent.
Example of a psychomotor domain assessment matrix for Indonesian language learning.

Basic Competence	Class/Semester Materials	Subject Matter	Indicator	Question Type	Question Number
Using the right vocabulary, grammar, and proper storytelling structure in writing a short story	IV/1	Developing the plot	Students can design a short story with a clear plot	Essay	1

Table 2. Psychomotor Domain Question Framework

G. Setting up Psychomotor Assessment Instruments

Psychomotor assessment instruments consist of questions or instructions and scoring guidelines to assess the performance of students in carrying out those instructions or answering questions.

a. Formulating Questions

The first step that a psychomotor domain question writer must take is to carefully examine the instrument's blueprint that has been created. Questions must be derived from indicators while considering the learning material. In the

example blueprint above, questions can be formulated as follows: "Write a short story titled 'Adventure in the Forest' that includes at least three interconnected events or incidents." Psychomotor domain questions for mid-semester and end-of-semester exams usually involve several indicators.

b. Scoring Guidelines

Scoring guidelines can take the form of observation checklists or assessment scales that should be referenced to the questions. These questions or task sheets/work orders are then broken down into the observed skill aspects. For the example blueprint questions, here's how to write the observation checklist or assessment scale:

1) Observing the question
2) Identifying key skill aspects. In this case, the key skill aspects are: (a) Theme and plot suitability, (b) character development, (c) Language usage, (d) narrative structure, (e) Grammar errors.
3) Identifying skill aspects within each key skill aspect
4) Determining the type of instrument for observing students' abilities, whether it's an observation checklist or an assessment scale
5) Writing skill aspects in the form of questions/statements in a table
6) Reviewing the assessment scale or observation checklist to ensure that the instrument written is accurate
7) Asking others to read or review the instrument that has been written to ensure that it is easily understood by others.

No	Evaluated Aspect	Score
1	Suitability of theme and plot	20
2	Character development	20
3	Language usage	20
4	Narrative structure	20
5	Grammar errors	20
Total Final Score		**100**

Table 3. Example of scoring for assessment aspects

No	Name	The scores obtained for each aspect					The obtained scores
		Theme/plot	Characters	Language	Narrative	Grammar errors	
1	AP	10	12	12	15	20	69

2	KR	15	20	18	20	20	93

Table 4. Example of performance observation sheet

CONCLUSION

Psychomotor ability is an ability related to muscle work and is evident in the form of tangible actions by students after receiving learning experiences. Assessment of psychomotor learning outcomes or skills must encompass preparation, process, and product. Assessment can be done while the process is ongoing, such as when students are practicing, or after the process has taken place by testing the students. Simpson divides it into seven levels: (1) perception, (2) readiness, (3) guided movement, (4) mechanism-habitual movement, (5) complex movement, (6) adaptation, and (7) origination or creativity. Meanwhile, Dave divides the psychomotor learning outcomes domain into five levels: (1) Imitation, (2) Manipulation, (3) Precision, (4) Articulation, (5) Naturalization. Assessment of psychomotor learning outcomes or skills must encompass preparation, process, and product.

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