

## Student Involvement in Assessment: Learning Experiences for Behavior Change

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### ABSTRACT

The purpose of this study was to obtain data on the situation of learning experiences carried out by teachers in changing student learning behavior by involving students in assessment. The research method used is a qualitative survey method and uses a 5-choice questionnaire that was built and developed from the student assessment concept of David M. Johnson, with a population of primary school teachers in West Jakarta totaling 100 teachers. The research findings provide information that the structure of the learning experience carried out by the teacher to help student behavior learning outcomes through student assessments is in a condition that is not yet effective and a basic literacy assessment model needs to be developed. The conclusion of the study shows that the teacher's ability to condition student involvement in assessment as a learning experience for behavioral change is effective in aspects of academic learning and the focus of assessment.

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## Introduction

The results of the 2018 Program for International Student Assessment (PISA) survey placed Indonesia at 74th or sixth from the bottom, with literacy and numeracy indicator data covering students' ability to read at a score of 371 being in position 74, mathematics ability getting 379 being in position 73, and science ability with a score of 396 is in position 71. (Kemendikbudristek 2022). This appalling condition is a challenge for the government and schools as education providers to improve student literacy and numeracy, through various national movements, including the Independent Learning and Independent Campus (MBKM) Program, which integrates a focus on improving literacy and numeracy.

The pace of the MBKM program is moving fast and will enter the 4th batch is a synergy involving the Ministry of Education and Culture, Research and Technology with the empowerment of higher education, and the Education Sub-Department which integrates primary and secondary education with principals, tutors, field supervisors and Campus Teaching students. Educational transformation needs to be carried out through the role of students to help the change process. The involvement of students in teaching practice in schools with a focus on, among other things, the learning process for improving literacy and numeracy needs to be supported by an analysis of the study of how teachers' pedagogic abilities in conducting student assessments optimize student assessments.

The concept of student assessment is defined as a learning experience situation structure which is a method used by teachers to help change student behavior as a result of learning. (Walker and King 2002). The structure of the situation as a condition for students to have behavior that is emphasized at the beginning of students learning in elementary school must be integrated into the condition of critical and systematic thinking skills, creativity and ability to work together and problem solving skills according to the stages of development of elementary school age children. (Hartono et al. 2022). To support this, it is necessary to have a meaningful assessment that needs to be designed by teachers with student assessment coverage.

Characteristics of student assessment are realized if the teacher has assessment literacy skills, namely the teacher's ability to measure student profiles as a whole that describes students' abilities and this ability supports teachers to make decisions related to learning..(Clark 2022) One form that is still a problem in the ability of teachers is the emphasis on how teachers apply academic learning abilities, reasoning skills and competencies, attitudes, work habits, assessment focus, assessment procedures and places used in conducting assessments.(Chamdani 2019). The ability of teachers to maintain academic learning, especially in the era of the COVID-19 pandemic, is limited to how to optimize student knowledge, but it is low in terms of student understanding, especially in terms of students' ability to maintain knowledge and understanding.. (Mazyck 2021). The low ability to maintain knowledge and understanding has an impact on reasoning skills, students have difficulty in focusing on thinking concepts, the ability to use scientific thinking, ways to solve problems, and how to build argumentative abilities..(Mazyck 2021).

Teachers also need 21st century skills in carrying out their roles, especially with demands related to student assessment, where teachers are faced with skills and competencies that focus on oral and written communication skills. the ability to organize work, the ability to organize information, the ability to use technology, the ability to manage stress, the ability to manage differences and conflict management skills . (Agustina, Noni; Susanto 2021; Dymond et al. 2008; Setyono, Muslim, and Pujiastuti 2021; Sofyani and Susanto 2019; Susanto 2021, 2022b, 2022a; Susanto et al. 2018, 2021; Susanto and Rachmadtullah 2019; Susanto, Rachmadtullah, and Rachbini 2020). Not only that, the teacher's attitude is a factor that is needed and has not yet been measured in terms of interest in learning, commitment, responsibility, interest in reading, ability to reason, respect, and respect for differences.

What also really supports work success are work habits, an ability to use time effectively, do work with responsibility, quality oriented, do work with targets that always improve better, emphasize the formation of values in doing assignments.. (Tajuddin and Rohman 2018). Teachers also need to have a focus and procedures and environments used to assess students as a whole. Teachers need to have an assessment focus that includes the learning process, teaching process, learning outcomes and how the teaching outcomes are achieved.(Jesús and Moldavan 2022). How does the teacher carry out the assessment procedure, whether using standardized tests, teacher-made tests, presentations, whether individual projects or classes, portfolios, observations, interviews, questionnaires, learning logbooks or journals and how they are composed. (Bouzeghrane and Zouaghie 2022; Hidayah et al. 2022; Jena et al. 2014) No less important is where is the place that is usually used to do the assessment. (Semken and Freeman 2008).

Conditions of teachers that include the application of academic learning abilities, reasoning skills and competencies, attitudes, work habits, focus of assessment, assessment

procedures and places used in conducting assessments do not get the full focus of attention as aspects in developing pedagogic competencies. This is very fundamental to carry out the Analysis of Pedagogic Ability of Elementary School Teachers in Conducting Student Assessments, considering that the focus of the low ability of students is very much based on the competence of teachers in conducting authentic and meaningful assessments to students.

The gap that occurs in reality in educational practice is that students do not get complete development. Learning development is not conditioned by the involvement of students physically and psychologically. The reality on the ground shows that educators are more likely to focus on what they do as teachers and how to conduct assessments. A modern pedagogic paradigm is urgently needed that involves students in assessment as a learning experience for behavioral change in learning outcomes. Student involvement becomes a motivation, which raises the total involvement of learning energy and time devoted to learning, (Astin 2014). This is a discussion that needs to be studied in educational research.

## Method

Research with a quantitative approach to the type of descriptive research. The respondents were 100 teachers from 10 schools in the education area of the West Jakarta Municipality. Sampling with total sampling. Data collection is done through an online platform. The Student Assessment research instrument was constructed and developed from the concept of David M. Johnson. Johnson, D. W., & Johnson, R. T. 2002) and using a five-option Likert scale to measure the frequency of behavior, namely always, often, rarely, never. The instrument consists of 8 dimensions which include academic learning, reasoning, skills and competencies, attitudes, work habits, assessment focus, research procedures and research sites. Academic learning dimensions include knowledge understand ability to retain knowledge and understanding. Reasoning dimensions include reasons for behaving, thinking concept, scientific way of thinking, how to solve the problem, how to argue. Skills and competencies dimension include verbal communication, written communication, organizing work, organizing information, using technology, managing stress, managing differences, managing conflict. Attitude dimensions include interest to learn, commitmen, responsibility, interest in reading, reasoning ability, respect and appreciate the difference. Work habits dimensions include iime effectiveness, job responsibilities, quality orientation, target achievement and value formation. Assessment focus dimensions includelLearning process, teaching process, learning outcomes and teaching results. Assessment procedure dimensions include standard test, teacher-made test, presentation, presentation individual/class, portfolio, observation, interview, questionnaire,Logbook/journal and composition. Place to do the assessment dimensions include class room, school environment, house and public facilities. The data analysis technique uses descriptive analysis method which is used to analyze the data by describing or describing the data that has been collected as it is

## Results and Discussion

Research findings from 100 respondents with 10 schools in the Region II Education Sub-Department of West Jakarta Administrative City provide data on student assessments that describe teacher abilities in the dimensions of academic learning, reasoning, skills and competencies, attitudes, work habits, assessment focus, research procedures and research place. The description of these dimensions can be summarized as follows:

Table 1. Academic Learning Data

No	Academic Learning	Always	Often	Seldom	Sometimes	Never	Amount
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1	Knowledge	100	0	0	0	0	100
2	Understanding	75	15	10	0	0	100
3	Ability to retain knowledge and understanding	50	20	15	10	5	100
	Average	75	12	8	3	2	100

Based on table 1, it can be explained that the ability of teachers to conduct academic learning assessments is 75 out of 100 teacher respondents or 75% of teachers.

The visual presentation through the funnel chart provides information about the applicability and student assessment and at the same time describes the teacher's ability to manage the meaningfulness of the assessment itself. An overview of the academic learning can be presented in the following funnel figure 1.

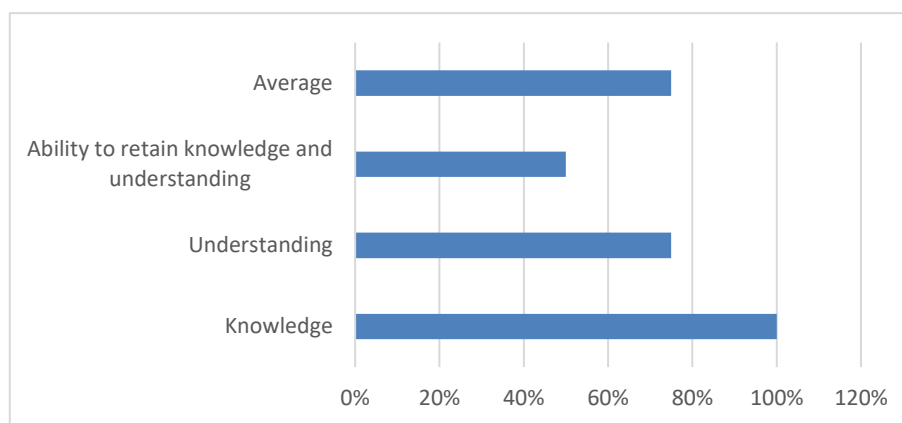


Figure 1. Academic Learning Chart

This means that the teacher's ability in academic learning is effective, especially in terms of knowledge assessment and understanding, but is still very ineffective in the ability to retain knowledge and understanding. This needs to be the attention and focus of teacher development. In line with Mazyck's research findings that teachers are still not effective in terms of students' abilities in maintaining knowledge and understanding. (Mazyck 2021). . This fact also supports the finding of the low pedagogic competence of teachers in DKI Jakarta Province which gave birth to the finding of the need for a model for developing teacher pedagogic competence in DKI Jakarta. (Susanto 2021)

Table 2. Data of Reasoning

No	Reasoning	Always	Often	Seldom	Sometimes	Never	Amount
1	Reasons for behaving	25	10	30	10	25	100
2	Thinking concept	30	15	20	15	20	100
3	Scientific way of thinking	30	15	20	10	25	100
4	How to solve the problem	25	15	20	15	25	100
5	How to argue	40	20	20	5	15	100
	Average	30	15	22	11	22	100

In table 2 it can be described that the ability of teachers in reasoning assessments is still very ineffective, namely 30 respondents out of 100 people (30%) conducted reasoning assessments.

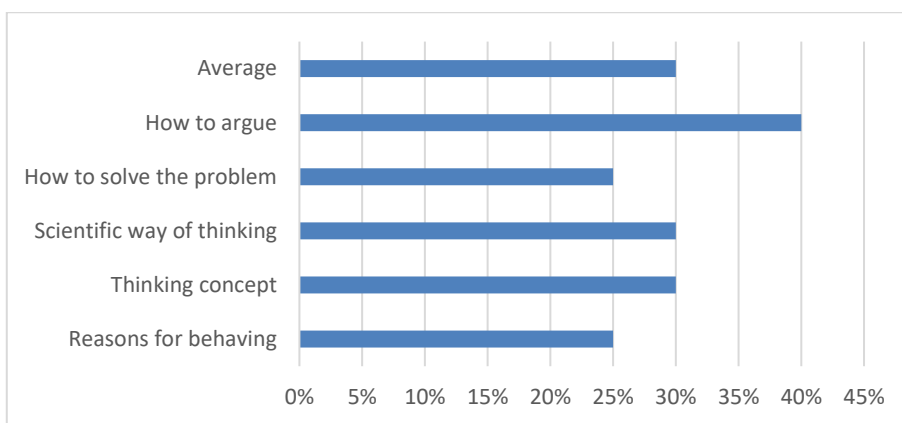


Figure 2. Reasoning Chart

Visualization through funnel chart 2 provides information about applicability and student assessment and at the same time describes the teacher's ability to manage meaningful assessment on reasoning is a very ineffective condition in all aspects, both in reason for behaving, thinking concept, Scientific way of thinking, how to solve the problem and how to argue. This data strongly supports the construct that the inability to retain knowledge and understanding will result in an inability to reason. (Mazyck 2021).

Table 3. Data of Skills and Competencies

No	Skills and Competencies	Always	Often	Seldom	Sometimes	Never	Amount
1	Verbal communication	100	0	0	0	0	100
2	Written Communication	80	20	0	0	0	100
3	Organizing work	70	10	10	10	0	100
4	Organizing Information	40	20	10	20	10	100
5	Using technology	70	20	10	0	0	100
6	Managing stress	60	30	10	0	0	100
7	Managing differences	55	20	15	5	5	100
8	Managing conflict	60	30	10	0	0	100
	Average	67	19	8	4	2	100

Table 3 illustrates the data that the skills and competencies assessment can be declared less effective with a total of 67 out of 100 teachers (67%) using it in student assessments

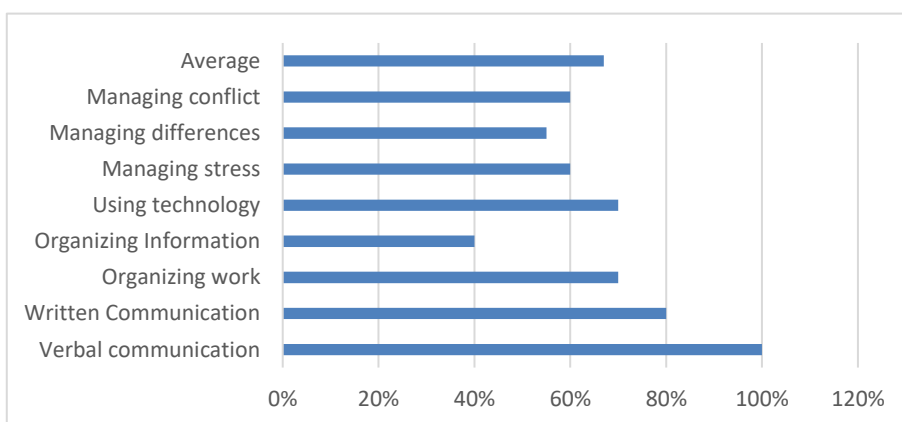


Figure 3. Skills & Competencies

Funnel Chart 3 shows a visualization of applicability and student assessment and at the same time describes the teacher's ability to manage the meaningfulness of the assessment on

Skills & Competencies. Some aspects that look very effective are verbal communication skills and effective written communication. Ineffective conditions of skills and competencies are organizing work, organizing information, using technology, managing stress, managing differences and managing conflict. Based on the relationship between the low Ability to retain knowledge and understanding of Reasoning, it also affects skills and competencies. (Calvin 2012; Gentry and Burns 1983; Gurău et al. 2018; Moje and Lewis 2020; Redding 2014)

Table 4. Data of Attitude

No	Attitude	Always	Often	Seldom	Sometimes	Never	Amount
1	Interest to learn	70	15	10	5	0	100
2	Commitment	70	10	10	10	0	100
3	Responsibility	75	20	5	0	0	100
4	Interest in reading	70	10	10	5	5	100
5	Reasoning ability	70	20	10	0	0	100
6	Respect	80	10	5	5	0	100
7	Appreciate the difference	70	10	10	10	0	100
	Average	72	14	9	5	1	100

Table 4 illustrates the data that attitude assessment can be declared quite effective with 72 out of 100 teachers (72%) using it in student assessment

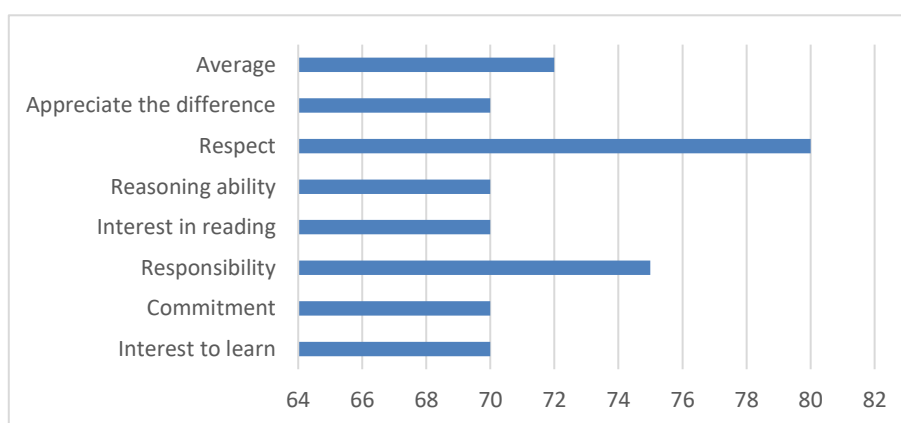


Figure 4. Attitude

Funnel Chart 4 shows a visualization of applicability and student assessment and at the same time describes the teacher's ability to manage the meaningfulness of the assessment on attitude. The teacher's ability to conduct an attitude assessment is in an effective condition in respect and responsibility and quite effective in other aspects which include aspects of interest to learn, commitment, interest to reading, reasoning ability, and appreciate the difference. The teacher's ability in attitude assessment will support the teacher's leadership ability. (Hailan et al. 2012). The focus of the teacher's attitude is the basis for the formation of students' values and character. (Susanto, Syofyan, and Rachmadtullah 2019)

Table 5. Data of Work Habit

No	Work Habit	Always	Often	Seldom	Sometimes	Never	Amount
1	Time effectiveness	70	20	5	5	0	100
2	Job responsibilities	80	15	5	0	0	100
3	Quality orientation	75	20	5	0	0	100

4	Target achievement	65	20	10	5	0	100
5	Value formation	75	10	5	10	0	100
	Average	73	17	6	4	0	100

Table 5 provides data that the teacher's ability to assess work habits is in a fairly effective condition, with an average of 73 out of 100 respondents (73%),

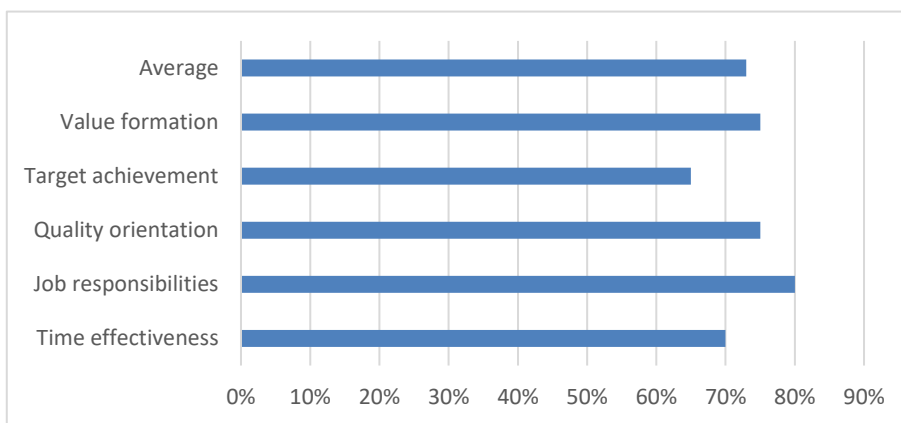


Figure 5. Work Habits

Visualization through funnel chart 5 provides information about applicability and student assessment and at the same time describes the teacher's ability to manage the meaningfulness of assessment on work habits, namely the dimensions of job responsibilities, quality orientation, value formation, time effectiveness. However, it is still not effective on the dimensions of the ability of the target achievement. Target achievement is the key support for teachers. (Jimenez 2020).

Table 6. Data of Assessment Focus

No	Assessment Focus	Always	Often	Seldom	Sometimes	Never	Amount
1	Learning process	80	10	10	0	0	100
2	Teaching process	80	5	5	5	5	100
3	Learning outcomes	100	0	0	0	0	100
4	Teaching results	80	10	5	5	0	100
	Average	85	6	5	3	1	100

In table 7, information can be drawn that the assessment focus is effective with 85 out of 100 respondents (85%).

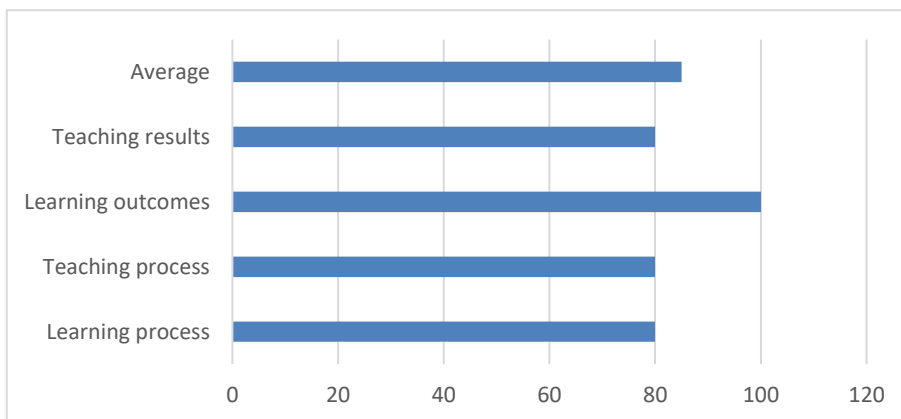


Figure 6. Assesment Focus

Funnel chart 5 visualization provides information on the applicability and student assessment and at the same time describes the teacher's ability to manage the meaningfulness of the assessment on the assessment focus is an effective condition. All aspects of learning process, teaching process, learning outcomes and teaching results. This ability is a key pillar, that student achievement becomes meaningful, among others, marked by effective instruction as well. (Jesús and Moldavan 2022)

Table 7. Data of Assessment Procedure

No	Assessment procedure	Always	Often	Seldom	Sometimes	Never	Amount
1	Standard test	60	20	10	10	0	100
2	Teacher-made test	80	20	0	0	0	100
3	Presentation	45	30	10	10	5	100
4	Presentation Individual/class	70	10	10	10	0	100
5	Porfolio	30	20	40	5	5	100
6	Observation	20	10	30	40	0	100
7	Interview	0	0	0	5	95	100
8	Questionnaire	0	0	0	10	90	100
9	Logbook/journal	10	10	30	25	25	100
10	Composition	0	0	0	0	100	100
	Average	32	12	13	12	32	100

Table 7 shows that the assessment procedure is very ineffective with 32 out of 100 respondents (32%) conducting the assessment with due regard to the procedure.

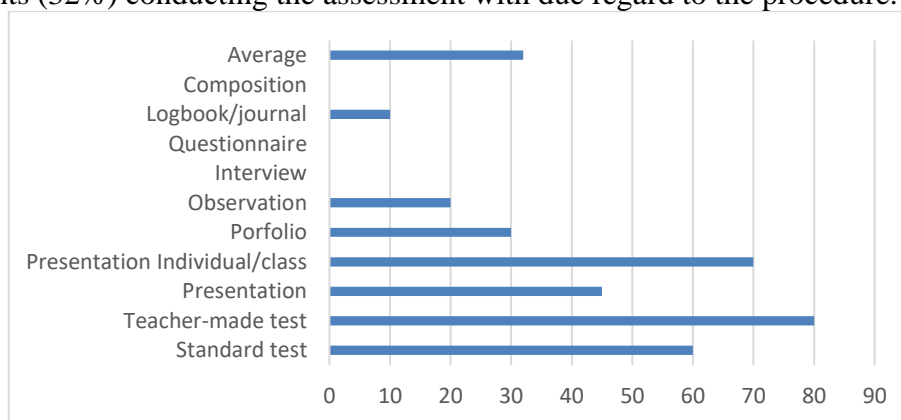


Figure 7. Assessment Procedure

Funnel chart 7 visualization provides information on the applicability and student assessment and at the same time describes the teacher's ability to manage the meaningfulness of the assessment in the assessment procedure, which is a very ineffective condition. The information shown in the tables and charts explains that teachers tend to use teacher-made tests compared to standard tests. Teachers are quite effective in using individual/class presentation procedures and not effective in presentations made by the teacher as a procedure. Very ineffective conditions also occur in the aspects of portfolio, observation, logbook/journal. Concern is also seen in the use of interviews, Questionnaires and Compositions which are at the zero point of application.



Table 8. Data of Place to do The Assessment

No	Place to do the assessment	Always	Often	Seldom	Sometimes	Never	Amount
1	Class room	60	20	10	10	0	100
2	School environment	80	20	0	0	0	100
3	House	45	30	10	10	5	100
4	Public facilities	70	10	10	10	0	100
	Average	64	20	8	8	1	100

Table 8 shows that the place/setting used by the teacher in conducting student assessments is high in the school environment. Another setting that is also often used is in public facilities, and often in class rooms, but less when at home. The composition of the use of place/setting is shown by Funnel chart 8 as follows

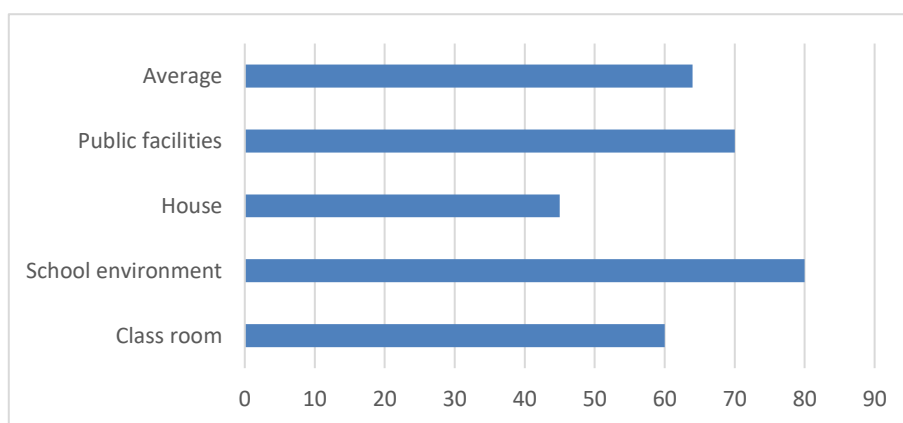


Figure 8. Place to do The Assessment

Based on the research data and discussion, the research findings show that: (1) 75% of teachers conduct academic learning assessments, (2) 30% of teachers conduct reasoning ability assessments (reasons/basics), (3) 67% of teachers conduct skills and competence, (4) 72% of teachers conduct attitude assessments, (5) 73% of teachers conduct work habits assessments, (6) 83% of teachers focus on assessment focus, (7) 32% of teachers use assessment procedures, and (8) places used The teacher in conducting the assessment is the school environment, public places, classrooms, and homes

## Conclusion

The conclusion of the study shows that the teacher's ability to condition student involvement in assessment as a learning experience for behavioral change is effective in aspects of academic learning and the focus of assessment. Ability still has to be developed in the dimensions of reasoning, skills and competencies, attitudes, work. habits, and assessment procedures. It can be concluded that teacher assessment literacy is still very low and needs to be the focus of educational research studies. A common thread can be drawn from the research findings that the low literacy and numeracy skills of Indonesian students from the 2018 PISA assessment were contributed to the low literacy of teacher assessments. The government's efforts through the Independent Learning and Campus Independent Program (MBKM) which integrates the focus on improving literacy and numeracy through the involvement of teachers, lecturers and students can be a strategic means of increasing assessment literacy.

## References

- Agustina, N., Susanto, R., Lestari, S., Chelsea, C., Yona, Y., Selindah, S., & Diana, D. (2021). Distance Learning During Covid-19 Pandemic: Students' Engagement in English Foreign Language Class. *Alsuna: Journal of Arabic and English Language*, 4(2), 125-138.
- BOUZEGHRANE, N., & ZOUAGHIE, S. (2022). The difficulties faced by primary school teachers in using the modern techniques of pedagogic assessment according to the theory of multiple intelligences (MI) in teaching physical education (PE).
- Calvin, J. R. (2012). *Crucibles of leadership (how to learn from experience to become a great leader)*.
- Chamdani, M. Problem Analysis of Elementary School Children as Planning Assesment Program Guidance and Counseling. In *Social, Humanities, and Educational Studies (SHEs): Conference Series (Vol. 2, No. 1, pp. 310-314)*.
- Clark, A. K., Nash, B., & Karvonen, M. (2022). Teacher Assessment Literacy: Implications for Diagnostic Assessment Systems. *Applied Measurement in Education*, 35(1), 17-32.
- De Jesús, A., & Moldavan, A. M. (2022). Book Review: *Going Gradeless, Grades 6–12: Shifting the Focus to Student Learning*. *Excelsior: Leadership in Teaching and Learning*, 14(2), 150-157.
- Dymond, S., Roche, B., Forsyth, J. P., Whelan, R., & Rhoden, J. (2008). Derived avoidance learning: Transformation of avoidance response functions in accordance with same and opposite relational frames. *the Psychological record*, 58(2), 269-286.
- Gentry, J. W., & Burns, A. C. (1983, March). Do we learn from experience?. In *Developments in Business Simulation and Experiential Learning: Proceedings of the Annual ABSEL conference (Vol. 10)*.
- Gurău, C., Rao, D., Tong, C. H., & Posner, I. (2018). Learn from experience: Probabilistic prediction of perception performance to avoid failure. *The International Journal of Robotics Research*, 37(9), 981-995.
- Hartono, H., Putri, R. I. I., Inderawati, R., & Ariska, M. (2022). The strategy of Science Learning in Curriculum 2013 to Increase the Value of Science's Program for International Student Assessment (PISA). *Jurnal Penelitian Pendidikan IPA*, 8(1), 79-85.
- Hidayah, N., Fauzan, L., Wahyuni, F., & Hanafi, H. (2022). Conceptual Development of Online Psychological Assessment Training Design for Guidance and Counseling Teachers on the Academic Life of High School Students. *International Journal of Interactive Mobile Technologies*, 16(6).

- Jena, S. K., Misra, A. K., Mohanty, A., & Acharya, M. (2014). Assessment of stress and correlation with EEG in medical students. *Res J Pharm Biol Chem Sci*, 5, 1345-55.
- Jimenez, E. (2020). Emotional quotient, work attitude and teaching performance of secondary school teachers. *Journal of Pedagogical Sociology and Psychology*.
- Johnson, D. W., & Johnson, R. T. (2002). *Meaningful assessment: A manageable and cooperative process*. Pearson College Division.
- Kemendikbudristek. (2022). "Berita Pendidikan." (April). <https://radioedukasi.kemdikbud.go.id/read/3341/kemendikbudristek-harap-skor-pisa-indonesia-segera-membaik.html>.
- Mazyck, D. (2021). Cultivating student belonging and school connectedness. *NASN school nurse*, 36(4), 191-193.
- Moje, E. B., & Lewis, C. (2020). Examining opportunities to learn literacy: The role of critical sociocultural literacy research. In *Reframing sociocultural research on literacy* (pp. 15-48). Routledge.
- Redding, S. (2014). *Personal Competency: A Framework for Building Students' Capacity to Learn*. Center on Innovations in Learning, Temple University.
- Salamun, H., Ahmad, R. H., Abdullah, Z., & Rashid, R. H. (2012). Pengupayaan kepemimpinan guru di sekolah.
- Semken, S., & Freeman, C. B. (2008). Sense of place in the practice and assessment of place-based science teaching. *Science Education*, 92(6), 1042-1057.
- Setyono, L., & Pujiastuti, Y. (2021). Strategies for Facing Environmental Dynamics in the Industrial Age 4.0 Using Learning Organization. *PROFIT: JURNAL ADMINISTRASI BISNIS*, 15(2), 14-23.
- Sofyani, N., & Susanto, R. (2019). Analisis Keterkaitan Kecerdasan Emosional (Emotional Quotient) Dan Ketahananmalangan (Adversity Quotient) Dalam Pembentukan Motivasi Belajar Siswa Kelas VA Di Sekolah Dasar Negeri Jelambar Baru 01. *Dinamika Sekolah Dasar*, 1(1), 1-13.
- Susanto, R. (2021). The construction of a quick TPACK evaluation tool and comparison of an integrative and transformational model. *COUNS-EDU: The International Journal of Counseling and Education*, 6(2), 44-54.
- Susanto, R. (2022). Analisis dukungan emosional dan penerapan model kompetensi pedagogik terhadap keterampilan dasar mengajar. *Jurnal EDUCATIO: Jurnal Pendidikan Indonesia*, 8(1), 26-31.
- Susanto, R. (2022). Readiness for learning ability through experiences. *COUNS-EDU: The International Journal of Counseling and Education*, 7(1), 1-8.

- Susanto, R., & Rachmadtullah, R. (2019). Model of pedagogic competence development: Emotional intelligence and instructional communication patterns. *International Journal of Scientific and Technology Research*, 8(10), 2358-61.
- Susanto, R., Febrianti, N., Husna, N. I., Putri, A. A., Umri, C. A., Ramadhanti, D., & Dwiyantri, K. (2018). Gerakan Literasi Pedagogik Bagi Guru Untuk Peningkatan Mutu Pembelajaran Di Sdn Duri Kepa 17 Pagi Dan Sdn Jelambar Baru 01 Pagi. vol, 5, 40.
- Susanto, R., Rachmadtullah, R., & Rachbini, W. (2020). Technological and pedagogical models: Analysis of factors and measurement of learning outcomes in education. *Journal of Ethnic and Cultural Studies*, 7(2), 1-14.
- Susanto, R., Syofyan, H., & Rachmadtullah, R. (2020, March). Teacher Leadership in Class on The Formation of School Values and Characters of School-Ages. In *Proceedings of the Third Workshop on Multidisciplinary and Its Applications, WMA-3 2019*, 11-14 December 2019, Medan, Indonesia.
- Susanto, R., Syofyan, H., Febriani, E., Nisa, M. A., Oktafiani, O., Yolanda, Y. D., ... & Nurlinda, B. D. (2021). Pemberdayaan Keterampilan Model Komunikasi Instruksional Guru SD. *International Journal of Community Service Learning*, 5(2), 84-94.
- Tajuddin, M. Z. M., & Rohman, I. (2018, April). The Impact of Broadband Penetration on the Student Performance in Primary and Secondary School in Malaysia. In *Proceedings of the 11th International Conference on Theory and Practice of Electronic Governance* (pp. 111-117).
- Walker, J., & King, P. (2002, June). Concept mapping as a form of student assessment and instruction. In *2002 Annual Conference* (pp. 7-322).