Uncovering Assessment Literacy of Elementary Teachers in Singaraja, Bali

A.A.I.Ngurah Marhaeni[1], A.A. Gede Yudha Paramartha[2], Dewa Gede Firstia Wirabrata[3], Nyoman Dantes[4],
I.K. Agus Susilawan[5], Dewa Ayu Puteri Handayani[6]
[1,2]English Education Department, [3,6]Early Childhood Education Department, [4]Counseling Department,
[5]Primary Education Department
Ganesha University of Education
Singaraja, Indonesia
[1]ngr.marhaeni@undiksha.ac.id, [2]yudha.paramartha@undiksha.ac.id, [3]dewagedefw@yahoo.com, [4]dantes@undiksha.ac.id,
[6]dewaayuputeri@yahoo.com

Abstract— **This study aimed at determining the teacher assessment literacy of elementary school teachers in Buleleng Regency. It was a descriptive study with the sample of 144 elementary school teachers selected by using multistage random sampling technique. The data were collected by using questionnaire and interview guide. The data were analyzed by using descriptive statistics to classify the assessment literacy of the teachers and two independent-sample t-test to find out the difference between lower-grade and higher-grade elementary school teachers. The results showed that in general, the assessment literacy of the teachers was categorized "fair", and there was no significant difference of classroom assessment literacy between teachers who taught students from upper classes (grade 4,5, and 6) and lower classes (grade 1,2, and 3) with df=142, t=0.852, p>0.05.**

Keywords—elementary school teachers; teacher assessment literacy.

I. INTRODUCTION

The assessment quality made by the teacher in teaching and learning process is a very vital factor in guaranteeing the quality of learning process and learning outcome of students. Seen from the three main tasks of the teacher, such planning, executing, and assessing; it is known that teachers in general only focus on the second task, which is carrying out learning, and generally forget assessment.

The quality of assessments done by teachers in Bali was still categorized low. A research conducted by Marhaeni et al. found that the gap between curriculum expectation and the assessment practice by English teachers in Bali, Indonesia, was categorized high [1]. The gap was found in three assessment aspects: assessment planning, assessment implementation, and assessment analysis and report.

Assessment is important for teaching and learning process because of the backwash effect of assessment on instruction [2]. The backwash effect describes the effect of assessment on the quality of instruction. If the assessment quality is good, it affects the learning practices. For example, if the chosen assessment is project-based assessment, the teacher should directly teach the students in a way that they will achieve the targeted criteria by using a project as well. Conversely, if the teacher assesses the students with traditional assessment, the learning will be directed on lower-order thinking skill only, that is, it only orbits around remembering, understanding, and factual knowledge only [3]. Therefore, this practice potentially causes negative backwash effects; for example, the teacher will guide students to attain low-level cognitive aspects only. This is very far from the expectation of achieving quality graduates.

It is necessary to look at teachers' insights and abilities about assessment practice of teachers, known as Teacher Assessment Literacy (TAL). Popham argued that TAL needs to be a substantial aspect of the teacher education curriculum [4]. In recent years, many countries have tried to set TAL standards, although the criteria were not the same [5]. They examined the TAL standard of 5 English-speaking countries. It was found that the TAL standard experienced changes over time because of educational demand and science and technology advancement.

TAL standard has not been studied before; in a matter of fact, it does not seem to have existed yet. The standard from the government has become the only guidelines. Currently, it is the Ministry of Education and Culture Regulation (Permendikbud) No. 023/2016 which describes what should be done in assessing students. Unfortunately, the regulation does not mention TAL at all, let alone the aspects that must be understood by teachers to be able to perform assessment practices that are in line with the demands stated in the Permendikbud. Likewise, research on TAL seems to be very limited in Indonesian context.

Considering that a low TAL will principally determine the teacher's assessment quality, as well as can affect the graduates' quality in general, it is urgent to do a study on TAL. This research is expected to be one of the preliminary studies on TAL, especially for teachers of elementary schools in Bali. It is expected to be helpful for the development of TAL's research and advantageous for related stakeholders in Bali, specifically for those who have an awareness on assessment practice quality by teachers in running their professional responsibility at school.

II. LITERATURE REVIEWS

A. Teacher Assessment Literacy

Little is known from Indonesian literature that examines about TAL. Popham stated that TAL is an important principle in teacher training programs [4]. According to Popham, there are two forms of assessment where teachers must be proficient; they are classroom-based assessment and standard assessment.

TAL is significant in light of the fact that it is considered as a key to connect between assessment and students' learning outcomes [4]. Popham referred to a report from the Assessment Reform Group to support this idea. It is said that students will have the option to accomplish high learning results when five things are done in the classroom: a) the presence of significant feedback during the learning procedure, b) make students as active individuals, c) the utilization of students information to assess learning progress and figuring out what the students need, d) the use assessment information to motivate students along the learning process, and e) chances given to students to self-assess their learning progress and decide follow-ups to accomplish expected learning outcomes [4]. When these five things are possessed and conducted by teachers, they can be said having a TAL that supports the quality of their teaching performance.

Supporting the above idea was Newfields who stated there are three primary purposes behind TAL related to learning and research [6]. To start with, assessment is wide in the instruction framework, where teachers spend up to 50 percent of their time doing assessment [7]. Besides, it is significant for teachers to have an expansive understanding of the assessment through studying assessment literature. Third, TAL is required when teachers communicate the result of the assessment to the stakeholders.

There are three primary components of TAL [8]. The first one is the knowledge, skill, and capacity to design and develop both standard and classroom-based assessments. The second one is understanding the way to assess the students as well as understanding the principle of assessment, including the ethics of doing an assessment. The third one is the capacity to utilize the above ideas into a more extensive framework socially, politically, and rationally as well as to comprehend why such assessment practices need to be done.

Moreover, Khadijeh and Amir proposed a TAL model comprising of three fundamental viewpoints: a perspective on learning, assessment standard, and four subject matters about the assessment (assessment objective, assessment strategies, assessment result interpretation and decision making, and aspects that need to be assessed) [8].

B. Classroom Assessment Literacy Inventory

To evaluate the teacher's assessment competency, The American Federation of Teachers design a questionnaire named Classroom Assessment Literacy Inventory (CALI) [18]. This inventory defines assessment as a process of collecting information that can be used to make a decision about students, to give feedback for students' development, and to assess the instruction and curriculum effectiveness.

There are seven standards that need to be fulfilled by classroom teachers.

1. choosing assessment methods appropriate to instructional decisions;
2. developing assessment methods appropriate to instructional decisions;
3. administering, scoring, and interpreting the results of both externally produced and teacher-produced assessment methods;
4. using assessment results when making decisions about individual students, planning to teach, developing curriculum, and school improvement;
5. developing valid pupil grading procedures;
6. communicating assessment results to various stakeholders, and;
7. recognizing unethical, illegal, and inappropriate assessment methods and uses of assessment information.

CALI has been used in several pieces of research and adapted to match the need and context of the countries. Among others was [14] who did a research about teacher assessment literacy for primary school teachers in Thailand. The instrument used was developed based on CALI which was adapted to the Thailand education system context. The instrument had 35 items with 4 options for every question.

Mertler in [19] used a survey adapted from CALI to evaluate the difference of TAL between pre-service and in-service teachers. The result showed that in-service teachers achieved better than pre-service teachers. Nevertheless, both groups had a poor competency in developing valid assessment instrument.

The seven standards of CALI were used to evaluate the teacher assessment literacy for this research. The standard were interpreted into a 30-item questionnaire that was given to 144 teachers in Buleleng, Bali, Indonesia.

C. Empirical Studies

Specific studies about TAL in Indonesia is difficult to be found. Some studies which were relevant to TAL are as follows. Marhaeni et al. analyzed the usage of authentic assessment by secondary school English Teachers in Bali [9]. The study included three assessment stages; they are assessment planning, assessment implementation, and assessment analysis and report. The authentic assessments analyzed were self-assessment, project assessment, performance assessment, and portfolio assessment. Generally, the study showed that there was a wide gap (more than 60%) between what was practiced by the teachers and the standard of assessment as requested by K-13 (current Indonesian curriculum framework) and the idea of authentic assessment. The gaps were found in the assessment planning, assessment implementation, and assessment analysis and report. Besides, this study found that among the types of authentic assessment, the most exceedingly worst assessment practice happened in self-assessment.

DeLuca had directed research on TAL in several nations [5]. The motivation behind these studies was to investigate the TAL guidelines in every nation and the development of these guidelines. He observed 15 TAL standards found in the five nations. His explorations found that there have been improvements in these standards, and the instruments used were similar to existing TAL conceptions.

Newdields developed a 100-item instrument to measure TAL after establishing assessment concepts and operationalizing them for English TAL [6]. Those items were then looked into by various experts, which at last discovered 70 items that were viewed as fitting to be utilized to measure English TAL.

Marhaeni et al. through R&D have created valid assessment instruments for learning English in middle schools [1]. This instrument incorporated the design of the usage of assessment included in the lesson plan, the development of authentic assessment instruments, and the guidance of how the assessment needs to be done.

III. RESEARCH METHODS

This research aimed at determining the classroom assessment literacy of elementary school teachers in Buleleng Regency. It was a descriptive study which data were collected by using a 30-item Classroom Assessment Literacy Questionnaire (CALI) consisting of 7 indicators and 30 questions. The instrument had been validated before it was used to evaluate the assessment literacy of teachers. The sample was 144 teachers in Buleleng, Bali, Indonesia, taken by using multi-stage random sampling from 9 regencies in Buleleng as shown In Table I.

TABLE I. RESEARCH SAMPLE

No	Regency	Sample
1	Tejakula	12 teachers
2	Kubutambahan	12 teachers
3	Sawan	12 teachers
4	Buleleng	18 teachers
5	Sukasada	24 teachers
6	Banjar	24 teachers
7	Seririt	18 teachers
8	Busungbiu	12 teachers
9	Gerokgak	12 teachers
	Total	144 orang

The data were analyzed descriptively and followed by inferential statistics of two-independent t-test to find out teacher assessment literacy difference between lower- and upper-class teachers.

IV. RESULTS

This study aimed at mapping which of the assessment literacy indicators is weak among elementary school teachers. Based on the finding, a design of intervention on improving teacher assessment literacy will be developed further, which will then be developed into an intervention model for improving teacher assessment literacy in elementary schools. In this report, only the results of the mapping will be presented.

The research sample was 144 elementary school teachers in Buleleng Regency from 9 districts. Teacher assessment literacy was measured by Classroom Assessment Literacy Questionnaire (CALI) consisting of 7 indicators and 30 questions. Each indicator consists of 3-5 questions. Table II describes the details of the indicators measured.

TABLE II. INDICATORS IN CLASSROOM ASSESSMENT LITERACY QUESTIONNAIRE (CALI) INSTRUMENT

Indicators	Item number
Choosing assessment methods appropriate to instructional decisions.	1, 8, 14, 19, 26
Developing assessment methods appropriate to instructional decisions.	2, 9, 15, 20, 27
Administering, scoring, and interpreting the results of both externally produced and teacher-produced assessment methods.	3, 10, 16, 21
Using assessment results when making decisions about individual students, planning teaching, developing curriculum, and school improvement.	4, 11, 22, 28
Developing valid pupil grading procedures.	5, 12, 23
Communicating assessment results to various stakeholders.	6, 13, 17, 24, 29
Recognizing unethical, illegal, and inappropriate assessment methods and uses of assessment information.	7, 18, 25, 30

This questionnaire has been validated both content and empirically, in which it is known that all questions are valid and the instrument reliability value is r = 0.830. This shows that the results of measurements made can be trusted.

The analysis included a description of the data for each measurement variable and an independent sample t-test to find out the literacy score of the teacher's assessment in the upper and lower classes. Based on the results of the analysis, it will be evaluated on which of the assessment literacy indicators that is weak among elementary school teachers in Bali. Table III is a summary of data description from the teacher assessment literacy in this study.

Table III illustrates the description of the primary school teacher's assessment literacy data from 144 teachers. The data shows that the mean is in the range of 1.15 - 2.60, where the mean for Standard III for teachers who teach the lower class is in the lowest order and Standard IV for the teachers who teach the upper class is in the top rank. Standard deviations are in the range 0.604 - 1.097 which shows that teacher assessment literacy has wide variations in each standard. Furthermore, the teacher assessment literacy category for each standard and group can be seen in Table IV.

Table IV shows that in general, teachers' assessment literacy is categorized as fair, and none in the excellent

category. Based on the data, it was found that the assessment literacy of elementary school teachers in Buleleng Regency in lower and upper class teachers in terms of the seven teacher

assessment standards were in satisfactory categories by 14%, the fair categories by 57%, and the poor categories by 29%. In addition, teachers are generally included in fair category.

TABLE III. LITERACY ASSESSMENT DATA DESCRIPTION OF ELEMENTARY TEACHERS

Standard	I		II		III		IV		V		VI		VII	
Class	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
n	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Mean	2.17	2.07	2.25	2.28	1.29	1.15	1.74	1.57	1.46	1.35	2.50	2.63	2.60	2.58
Medium	2.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	3.00	3.00	3.00	3.00
Standard	0.964	0.954	1.097	1.064	0.956	0.929	0.934	0.962	0.604	0.754	1.048	1.067	0.799	0.931
Variance	0.930	0.911	1.204	1.133	0.914	0.864	0.873	0.925	0.364	0.568	1.099	1.139	0.638	0.866
Range	3	4	4	4	4	4	4	3	3	3	4	5	3	4
Minimum	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Maximum	4	4	4	4	4	4	4	3	3	3	4	5	4	4

TABLE IV. ASSESSMENTS LITERACY CATEGORIES OF ELEMENTARY SCHOOL TEACHER FOR EACH MEASUREMENT STANDARD

Standard	Class	M	SD	Range	Teacher Assessment Literacy
I	Lower	2.17	0.964	$2.08 \leq \bar{x} < 2.92$	Fair
	Upper	2.07	0.954	$1.25 \leq \bar{x} < 2.08$	Poor
II	Lower	2.25	1.097	$2.08 \leq \bar{x} < 2.92$	Fair
	Upper	2.28	1.064	$2.08 \leq \bar{x} < 2.92$	Fair
III	Lower	1.29	0.956	$1.00 \leq \bar{x} < 1.67$	Poor
	Upper	1.15	0.929	$1.00 \leq \bar{x} < 1.67$	Poor
IV	Lower	1.74	0.934	$1.67 \leq \bar{x} < 2.53$	Fair
	Upper	1.57	0.962	$1.00 \leq \bar{x} < 1.67$	Poor
V	Lower	1.46	0.604	$1.25 \leq \bar{x} < 1.75$	Fair
	Upper	1.35	0.754	$1.25 \leq \bar{x} < 1.75$	Fair
VI	Lower	2.50	1.048	$2.08 \leq \bar{x} < 2.92$	Fair
	Upper	2.63	1.067	$2.08 \leq \bar{x} < 2.92$	Fair
VII	Lower	2.60	0.799	$2.33 \leq \bar{x} < 3.00$	Satisfactory
	Upper	2.58	0.931	$2.33 \leq \bar{x} < 3.00$	Satisfactory
Total	Lower	14.00	2.578	$12.5 \leq \bar{x} < 17.5$	Fair
	Upper	13.63	2.703	$12.5 \leq \bar{x} < 17.5$	Fair

Furthermore, to find out the teacher assessment literacy difference between lower and upper class teachers, two-independent samples t-test were conducted. Table V summarizes the results of this analysis.

TABLE V. TWO INDEPENDENT SAMPLE T-TEST IN ASSESSMENT QUALITY TRENDS OF LOWER AND UPPER CLASS TEACHERS

Statistics	Value
t	0.852
db	142
Sig. (p)	0.396
Mean Difference	0.375
Standard Error	0.440
Decision	No significant difference

The results of the t-test analysis showed that there was no difference in assessment literacy between teachers who taught in upper classes and those teaching in lower classes (t = 0.852, db = 142, p> 0.05). This shows that teacher assessment literacy is not influenced by which class the teacher teaches, both in the upper and lower classes. It can be concluded that teaching in the upper/lower classes is not a factor that influences teacher assessment literacy.

V. DISCUSSION

The results of the study show that the teacher assessment literacy of elementary school teachers in the lower and upper classes in Buleleng Regency on the implementation of the 2013 curriculum is categorized as sufficient. The findings in this study are in line with the findings of a study conducted by Dantes who found that teacher assessment literacy in Primary Schools in Bali was categorized as sufficient [10].

The results of this study are not in line with ideal expectations. The importance of assessment literacy is emphasized by Popham that to be able to evaluate student learning processes requires teachers who have an adequate level of assessment literacy [4]. Assessment literacy is considered important in modern teaching. Over time, assessment literacy has evolved to include both measurement and assessment in the learning perspective [11]. At the same time, many researchers found evidence on the impact of teacher conceptions on the practice of assessment.

This opinion is supported by the opinion of [12] who state that teachers who have a solid assessment literacy will be well-positioned to integrate the assessment into learning, because they will use appropriate forms, in accordance with learning. So that the assessment has a very important position in the students' learning process, as stated in the Ministerial Regulation of the Minister of Education and Culture Republic of Indonesia Number 23 of 2016 on Education Assessment Standards, in article 5 which states that one of the principles of learning assessment is integrated, meaning that assessment is one of the integral components of learning activities. A similar opinion was put forward by [13] which states that assessments

that can encourage appropriate learning will occur when they are well planned, aligned, and designed to measure various results in accordance with set objectives and are not separated from learning. In other words, assessment is an integral part and effective learning cannot occur without a good assessment process [14]. This requires the professional role of teachers and their responsibilities in conducting assessments.

Efforts are needed to be able to invite teachers to be able to improve the literacy of the assessment so that the quality of the assessment of students can truly reflect student learning outcomes. The effort offered by the author is to centralize assessment in the curriculum and learning.

The teacher is expected to change his view of the assessment from the process of giving the final score to the process of collecting student learning data which can be done at any time. As [7] explained, assessment is not only conducted at the end of learning, but assessment must be integrated before, during, and after learning takes place. Before the lesson, what the teacher can do is to determine the learning objectives that are in accordance with the curriculum and also the students' initial abilities. During learning, the teacher can make assessment efforts such as making continuous observations and making small notes about the development of their students. The giving of self-assessment is also a form of assessment that needs to be done.

Efforts to centralize the application of assessment have not become something that is consciously done and structured by teachers. Therefore, it is necessary to do more training for teachers to improve teacher assessment literacy, so that the quality of learning as a whole will also improve.

Another effort is to invite teachers to improve the proficiency of doing assessment, with the goal that the quality of the assessment practice for students can genuinely reflect the learning results. We proposed Backward Planning (otherwise called Backward Design/mapping) as a push to expand teachers' literacy in assessment. Backward planning is an approach to build up a curricular structure (for this context, lesson plan) that focuses on learning outcomes and assessment as a basis of the lesson planning process [15].

Backward planning begins with determining the learning result of the students, followed by how to accomplish it, or how to assess students' learning outcome [16]. When the learning outcome and the assessment have been outlined, teachers can design how the instruction should be done to accomplish the expected criteria. By utilizing this plan, the teachers will be more mindful of the assessment as well as the learning experience. The planning procedure begins with solid comprehension about what should be accomplished by the students and followed by various instruction techniques that can be utilized to accomplish the objective [17].

Backward planning has numerous main points for teachers' assessment practice as well as a clearer instructional design [15]. Among others are 1) they will be increasingly mindful about assessment; 2) teachers will turn out to be better at planning what must be given to the students because the objectives are much clearer; 3) the teachers will drive precisely toward what students need to learn so they will not be lost; 4) it

pushes the teachers to think about instruction and assessment more, and ideally will increase TAL.

VI. Conclusion

This study aimed to determine the teacher assessment literacy of elementary school teachers in the Buleleng Regency. Based on the data, it was found that the assessment literacy of elementary school teachers in Buleleng Regency in lower- and upper-class teachers in terms of the seven teacher assessment standards was in satisfactory categories by 14%, the fair categories by 57%, and the poor categories by 29%. Besides, the assessment literacy of the teachers was generally categorized "fair". Two efforts were proposed to improve TAL, they are to centralize the application of assessment and administering backward planning for developing teachers' lesson plans.

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