The implementation of authentic assessment of curriculum 2013 in elementary schools: a review of evaluations

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**Abstract**. The achievement of learning objectives can be measured through an exact and precise authentic assessment. Hence, it is important to perform an authentic assessment that is ideal following the curriculum. As the implementation process, it is needed to evaluate to perceive if there are lacks and obstacles encountered by the teacher and then follow up and improve. This article was prepared to review three evaluation results related to the implementation of authentic assessment in thematic learning in several elementary schools. The evaluation results reviewed include journals issued in authorized journals. The method used is a review of the evaluation results. A review is done by identifying, assessing, examining the success of the program, and providing the suggestions on some of the evaluation results. The results of the review show that the implementation of authentic assessment in thematic learning in elementary schools has not been fully carried out ideally and according to the curriculum. Some of the contributing factors are the teacher's shortage of understanding in preparing assessment instruments and the process of practicing them in learning. Inputs and recommendations related to the implementation of authentic 2013 curriculum assessments in primary schools will then be discussed in this article.

1. Introduction

Improving the quality of human resources is needed in preparing Indonesia in the era of global competition 5.0, mainly in industry, science, and technology areas [1]. Education as the lance in building high quality and skilled community needs to adjust the time, respond to needs, and be able to provide solutions toward evolving challenges [2,3]. In Indonesia, the efforts to strengthen the quality of education fulfilled by implementing the 2013 Curriculum as a complement to the Education Unit Level Curriculum (Kurikulum Tingkat Satuan Pendidikan) [4]. These happen to the assumption that the existing curriculum has not been able to provide comprehensive education, less attention to aspects of attitude [5].

Based on [6] and [7], the curriculum provides guidelines for the implementation of learning both from the aspects of content, the learning process, assessment, and an overview of the outcomes of learning activities [3]. The learning approach used in Elementary School (SD)/Madrasah Ibtidaiyah (MI) is integrative thematic learning. Integrative thematic learning blends several competencies from various subjects into varied themes (Kemendikbud, 2013). The linkages between the subjects are formed in two ways--the integration of attitudes, knowledge, and skills in the learning process and the integration of different primary subjects.

Thematic learning affords several benefits, such as: (1) teachers having spare time since subjects can be prepared at once, and (2) there was no overlapping material since some of the basic competencies, indicators, and subject content are combined. The Ministry of Education and Culture [8] states that assessments in Elementary School performed using various techniques to cover all the basic competencies. Based on [9], the assessment conducted by educators is a process of collecting information/data about student learning outcomes. The assessment uses an authentic assessment approach, which help teachers to assess the readiness of students, the process, and learning outcomes as a whole by focusing on the actual situation so teachers can obtain correct information from students [10]. This process is continuous, thorough, and interrelated between the learning process and student achievement [11–14]. According to [15], assessment proposes to provide grades for students, improve the teaching and learning process, or provide feedback for both students and their parents/guardians. The results of the assessment should be valid, comprehensive, and representative [4,16] so the management of the results of the assessment are effective and right on target [17]. Teachers must have a good understanding in designing and implementing authentic assessments to generate credible and adequate assessments [14,16,18]. Training and socialization of the 2013 Curriculum are acco­mmodated to increase teachers' understanding of assessment. In presence, it shows that these activities are still lacking in some points, especially regarding the type of authentic assessment, urgency, implementation techniques, and the follow-up on the results of the assessment [19].

According to [20], evaluation is a method to determine the performance of a program by looking at the comparison between the results achieved with the predetermined criteria or the goals to be achieved. Another theory by [4] is that evaluation is an activity to obtain information related to program implementation, where the results of the evaluation are used to determine what actions to take. Program evaluation can be defined as a process of seeking, finding, and determining information that systematically described planning, value, objectives, benefits, effectiveness, and suitability of something with predetermined criteria and goals [21]. Evaluation of authentic assessment in learning is carried out to determine the success of the implementation of the program, by examining the criteria and principles, with the results of implementation held in class. Furthermore, the evaluation is carried out to see the shortcomings and constraints encountered for further action and improvement. Study by [22] suggested that the results of the evaluation of authentic assessments yet require guidance due to the large disparity between fact and ideal criteria. By the review of these studies, a more comprehensive understanding of the information gained is expected by considering some criteria and principles. The results of this study are expected to provide findings and recommendations to determine the subsequent authentic assessments in SD/MI.

1. Method

This study is a type of systematized review. The phase executed in this study consisted of five stages: (1) defining eligibility criteria, (2) selecting articles from several sources of information, (4) collecting data, and (5) selecting data items. The population in this study is the evaluation journals relating to the implementation of authentic 2013 curriculum assessments. The evaluation articles must satisfy the eligibility criteria, specifically: (1) published in accredited journals in English and Indonesian between 2010 and 2020, (2) is a type of evaluation research, and (3) discusses the implementation of authentic 2013 curriculum assessments at elementary school.

Evaluation articles obtained from the sources of journal repositories available on the website, with the following steps: (1) determining keywords that match the criteria, including "evaluation journals" "evaluation of the implementation of authentic 2013 curriculum assessments", "2013 curriculum implementation", and "evaluation of authentic school assessments", (2) using the help of online search tools‒Google Search, Google Scholar, and ResearchGate, (3) exploring titles, abstracts, and keywords in downloaded articles, and (4) read/review partial or complete articles obtained before being eliminated under the criteria. Moreover, the data collection stage arranged by making the following data abstraction table (see Table 1).

**Table 1.** Collecting Journal Data Based on Research Objectives

|  |  |
| --- | --- |
|  |  |
| Research Purposes | Journal Example |
| Knowing the readiness for implementation of the 2013 Curriculum | Agustiyana & Widodo (2014) |
| Describe the implementation of the 2013 Curriculum | Mowendu, Slameto & Dwikurnaningsih (2019) |
| Knowing the implementation of authentic assessments | Wulandari, Situmorang & Dewi (2018); Cahyono (2017); Rusdiana, Sumardi & Arifiyanto (2016);  Aiman (2016) |
| Evaluating the implementation of the 2013 Curriculum | Budiani & Syamwil (2017) |
| Evaluating authentic assessments | Syukriya, Herpratiwi & Yulianti (2016); Friantary & Martina (2018); Wangid, Mustadi, Senen & Herianingtyas (2017); Jannah (2018) |
| Describe the obstacles | Ma’ruf (2019); Cahyono (2017); Wangid, Mustadi, Senen & Herianingtyas (2017); Aiman (2016); Pardimin (2018) |
| Describe the efforts made to overcome the obstacles | Ma’ruf (2019) |

The next step is to identify the methodology used in each study. From the results of the review, the majority of the articles used a qualitative descriptive research approach with various models of evaluation, such as Countenan Stake and Provus/discrepancy models. From the thirteen journal articles obtained, a chart drawn to presents the distribution of the research methodology used. Illustration and details can be seen in Figure 1.

|  |  |
| --- | --- |
|  | **Figure 1.** Distribution of the research methodology used |

The main samples in each research related to the authentic assessment are teachers and students. In general, the research conducted is similar to the two samples, but there are three studies with the source data of the principal. Research grouping based on participants can be seen in Table 2.

**Table 2.** Participants in Research

|  |  |
| --- | --- |
|  |  |
| Participants | Journal Examples |
| Elementary School Teachers | Budiani & Syamwil (2017); Wangid, Mustadi, Senen & Herianingtyas (2017); Aiman (2016); Jannah (2018) |
| Elementary School Teachers and Principals | Agustiyana & Widodo (2014); Budiani & Syamwil (2017) |
| Elementary School Teachers, Students, and Principals | Ma’ruf (2019) |
| Junior High School Teachers | Wulandari, Situmorang & Dewi (2018); Friantary & Martina (2018); Pardimin (2018) |
| Middle School Teachers and Students | Mowendu, Slameto & Dwikurnaningsih (2019) |
| High School Teachers | Cahyono (2017); Syukriya, Herpratiwi,& Yulianti (2016) |
| Vocational High School Teachers | Friantary & Martina (2018) |

In particular, an authentic assessment for elementary schools strives at thematic learning. Considering the eligibility criteria taken at previous phase, three journal articles were preferred. The information regarding these evaluation articles is presented in Table 3.

**Table 3.** Evaluation Journal Articles that Meet the Eligibility Criteria

|  |  |  |
| --- | --- | --- |
| Journal Identity | Method Description | Sample |
| Wangid, Mustadi, Senen & Herianingtyas (2017) | The evaluation research uses the Stake evaluation model. | 30 grade IV teachers from 63 elementary schools in Yogyakarta who have implemented the 2013 Curriculum |
| Aiman (2016) | This research was a qualitative descriptive approach with data analysis techniques Miles and Huberman's model. | 10 grade I to grade V teachers from SD Negeri Tegalrejo 1 Yogyakarta who have implemented the 2013 Curriculum |
| Jannah (2018) | This study is an evaluation research with a quantitative descriptive approach. The evaluation model uses the Stake Evaluation model. | Class I teachers and teachers of Religion subjects from Madrasah Ibtidaiyah Negeri Tempel, Sleman, Yogyakarta who have implemented the 2013 Curriculum |

The final stage in this research is the selection of data items. The data items, in this case, were acquired from chosen articles, consisting of the evaluation standards used in each evaluation article, the success of the authentic assessment implementation program described in the evaluation article, as well as obstacles in implementing authentic assessments. In this article, input and recommendations are provided according to the needs, to get the conclusion of the evaluation article review research.

1. Result and Discussion

Of the three evaluation articles that have sufficed the criteria (see Table 3), then a discussion is conducted regarding the stages and standards of the evaluation, the success of the authentic assessment implementation program, obstacles in implementing authentic assessments, as well as recommend­dations and input that are following the needs of the evaluation research conveyed.

## Evaluation Stages and Standards

The three articles have various evaluation standards depending on the evaluation model used. Of the three evaluation studies, two of them used the Stake Evaluation model. The evaluation by [4] was completed in three phases, particularly the antecedent phase, the transaction phase, and the output phase. A similar evaluation by [28], where the phase split into two, namely a description and a decision/standard to see whether there was a discrepancy. The antecedents phase is the input stage in evaluation, which covers descriptions of teacher experiences and teacher readiness to carry out authentic assessments on knowledge, skills, and attitudes aspects. The evaluation standards refer to the Student Competency Achievement Assessment Model in the Regulation of the Minister of Education and Culture Number 66 of 2013 and the 2013 Curriculum Student Competency Achievement Assessment Model. In the transactions phase, the applied evaluation standards include indicators that inform the assessment system and the implementation of the assessment. The final stage is the management of results including processing scores based on scoring criteria and guidelines, reporting, and following up on the results of the assessment.

## Successes and Barriers to Implementing Authentic Assessments

Effective implementation of authentic assessment marks from three competency aspects, which were attitudes, knowledge, and skills. Each program evaluation gives quantitative and qualitative evaluation data based on the input stage, the process stage, and the outcome stage.

* + 1. Input Stage. The results of the quantitative data from the evaluation research by [4,28] are presented in percentages and summarized in Table 4.

**Table 4.** Percentage of Input Achievement Evaluation on Authentic Assessment

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Evaluation Research | Aspect | | | Standard |
| Attitude | Knowledge | Skills |
| Wangid et al (2017) | 63,99% | 71,25% | 71,06% | 100% |
| Jannah (2018) | 45,42% | 61,75% | 75,45% | 100% |

From the remark, each aspect of the input stage has had diverging success but possesses none of the standards. Here implies a discrepancy between planning and the fixed measure. A pretty large difference is known to be affected by some teachers who do not prepare attitudes assessment in learning. This finding is familiar with the evaluation study by [29]. The attitude assessment planning was still below the ideal of implementation. The quantitative data confirmed by qualitative data from the evaluation [29]. The teacher has not been able to formulate a better operational verb, has not elaborated knowledge indicators, and is unable to understand the technique of scoring rubrics, how to do the scoring, and assessment criteria. Some teachers do not make an assessment rubric. The teacher only uses written test assessment, without designing other techniques. Some teachers do not plan for attitude assessments, and some teachers do not use scoring rubrics in worksheet assessments. Those obstacles occur because of the teacher's lack of understanding regarding authentic assessment and how to carry out the assessment itself [5]. Besides, the difficulties experienced by teachers in managing the time to organize learning and assessment instruments are also an obstacle in planning authentic assessment [30]. These inline with some of studies by [30–32]. The teacher feels burdened in representing any competency in each subject's content. Furthermore, there will be too many assessments carried out during the learning process and aspects of assessment while the time for preparing and the implementation itself is also limited. This causes the authentic assessment outcome is not optimal.

* + 1. Proccess Stage. In each evaluation study, the percentage of achievement of the assessment implementation manifested in quantitative data. The combined quantitative data from the evaluation results given in Table 5.

**Table 5.** Percentage of Achievement of Authentic Assessment Process/ Implementation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Evaluation Research | Aspect | | | Standard |
| Attitude | Knowledge | Skills |
| Wangid et al (2017) | 43,42% | 84,96% | 61,88% | 100% |
| Jannah (2018) | 74,17% | 76% | 75,5% | 100% |

Overall, the two evaluation studies above did not satisfy the standards. The gap among the percentage of ideal standards and the present needs to be addressed, shown by quite a large difference. The method of evaluating the implementation of the assessment is observed through teacher participation. These two studies exposed similar things where the majority of teachers did not mention the assessment techniques used. Furthermore, they did not inform the assessment rubric and criteria to the students. Some teachers did not carry out the assessment alike in the lesson plan and merely performing the knowledge assessment. Moreover, there do teachers that appear not to notify the periodic tests to students, cause confusion and uproar among them. In another case, some teachers think that certain competencies/aspects have been assessed in the different appropriate subjects. For example, a thematic teacher does not implement spiritual attitude assessment and assumes that it has been done in religious subjects as well as in other subjects. Certain findings also appeared in [5] and [16]. This does not seem in line with the principles of authentic assessment, wherever the process is holistic and should represent all the aspects of the learning objectives on the three aspects evaluated from each student [18]. It was noticed that the project tasks given by the teacher did not give students a chance to create any outcome. This could reduce the purpose of the assessment which to discover the achievement of each student toward their learning goals. In fact, providing certain tasks affords students to practice their attitudes, skills, and knowledge [33].

* + 1. Result Stage. At this stage, evaluation is done to see the management of the assessment results in terms of the scoring criteria and guidance, reporting, and follow-up of these results. From the evaluation articles reviewed, the table presented as quantitative data related to the percentage of management achievement of the assessment results (see Table 6).

**Table 6.** Percentage of Management Evaluation Result of Authentic Assessment

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Evaluation Research | Aspect | | | Standard |
| Attitude | Knowledge | Skills |
| Wangid et al (2017) | 54,76% | 80,08% | 70,97% | 100% |
| Jannah (2018) | 71,56% | 78,75% | 78,13% | 100% |

Evaluation of the management results from both journals explains that all indicators do not attain ideal conditions. At this stage, the knowledge and skills aspects have considerable achievement in reporting the results. Teachers were reporting seriously because they are considered the responsibility to students and parents. This activity is in accordance with the main purpose of the assessment by William in [34], where the summative assessment conveyed at the end of the lesson is used to describe student achievement and the level of individual learning outcomes. Students can spot the weaknesses and strengths of learning so they can reflect on anything done in learning [35].

The obstacles experienced by some teachers which only comes from one assessment technique in line with the implementation of assessment techniques such as project, product, and portfolio assessments. This causes student achievement of the three aspects were not to be fully described. In addition, some forms of assessment provide several advantages for both teachers and students. Research by [36] revealed that authentic assessments were more significant than standardized tests. An authentic assessment by tests (using paper and pen) and non-tests (in the form of performance tests), product assessments, project assessments, and portfolios. Teachers can find out the development and progress of students' learning and give recognition and response to the products they produced [33]. Students will be more active and responsible for completing the assignment given [13].

## Recommendations and Input

Recommendations and relevant suggestions can be prepared to provide an accurate solution. It is necessary to accommodate more comprehensive training related to the implementation of authentic assessments, start with planning, implementation, up to the follow-up of the assessment result. This inline with the research of Sabri et al (2019) while training on the implementation of the 2013 Curriculum is a solution in overcoming the lack of teacher knowledge related to authentic assessment. Furthermore, recommendations for each stage in the evaluation of the implementation of authentic assessment outlined in the later details.

* + 1. Input Stage
* Teachers need to develop understanding and knowledge regarding operational verb selection, knowledge indicators, and assessment techniques other than written tests to assess aspects of attitude, knowledge, and skills.
* Teachers gather assessment rubrics and appropriate criteria measuring aspects of attitudes, knowledge, and skills with relating to the 2013 Curriculum Assessment Standards
  + 1. Process Stage
* The teacher needs to inform the assessment techniques, rubrics, and criteria used in all of the aspects. It is more helpful to do at the beginning of the lesson so that students understand the learning objectives
* The teacher needs to assess the following learning implementation plan that has been prepared so that can be done consistently
* Teachers carry out an overall aspects without comparing other subjects. Assessment is done by setting the time and learning objectives of each subject
  + 1. Result Stage
* Fellow teachers can provide discussions to give positive feedback for students and parents
* Teachers and parents/guardians of students build better communication to track student progress
* Formative assessment and providing feedback can be carried out during the learning process for students to the improvement of student learning process directly.
* Optimizing enrichment programs for students by implementing peer tutorials

1. Conclusion

From the results of the discussion, several obstacles yet found in the implementation of authentic assessment in elementary schools. Barriers occur by the lack of understanding and planning of authentic assessments. The three results of the evaluation implement similar conclusions, where teacher understanding and training related to authentic assessment need to be improved. It takes works from various parties such as students, teachers, parents, and schools in carrying out authentic assessments to boost student learning outcomes. With the results of this review, the expectations that other evaluators and researchers will think about evaluating the implementation of authentic assessment among other evaluation models so that the research findings can be mutually confirmed.

References

[1] Soewarno, Hasmiana and Faiza 2017 Kendala-kendala yang dihadapi guru dalam memanfaatkan media berbasis komputer di sd negeri 10 banda aceh *J. Pesona Dasar* **2** pp 28–39

[2] Indriyanto B 2012 Pengembangan kurikulum sebagai intervensi kebijakan peningkatan mutu pendidikan *J. Pendidik. dan Kebud.* **18** pp 440–53

[3] Wahyudi, Suyitno H and Waluya S B 2018 Dampak perubahan paradigma baru matematika terhadap kurikulum dan pembelajaran matematika di indonesia *Inopendas J. Ilm. Kependidikan* **1** pp 38–47

[4] Wangid M N, Mustadi A, Senen A and Herianingtyas N L R 2017 The evaluation of authentic assessment implementation of curriculum 2013 in elementary school *J. Penelit. dan Eval. Pendidik.* **21** pp 104–15

[5] Kartowagiran B and Jaedun A 2016 Model asesmen autentik untuk menilai hasil belajar siswa sekolah menengah pertama (smp): implementasi asesmen autentik di smp *J. Penelit. dan Eval. Pendidik.* **20** pp 131–41

[6] Presiden RI 2003 *Undang-undang nomor 20 tahun 2003 tentang sistem pendidikan nasional* (Jakarta)

[7] Presiden RI2015 *Perubahan atas peraturan pemerintah nomor 13 tahun 2005 tentang standar nasional pendidikan* (Jakarta)

[8] Kemendikbud 2013 *Panduan penilaian di sd kurikulum 2013* (Jakarta)

[9] Menteri Pendidikan dan Kebudayaan RI 2016 *Peraturan menteri pendidikan dan kebudayaan republik indonesia nomor 22 tahun 2016 tentang standar proses pendidikan dasar dan menengah* (Jakarta)

[10] Ma’ruf 2019 Problematika guru dalam implementasi penilaian autentik pada kurikulum 2013 di sd al-muslim waru sidoarjo *J. Pendidik. Dasar Nusant.* **5** pp 88–107

[11] Miller M D, Linn R L and Gronlund N E 2009 *Measurement and assessment in teaching* (New Jersey: Pearson Education)

[12] Popham W J 2017 *Classroom assessment: what teachers need to know* (Los Angeles: Pearson Education)

[13] Azim S and Khan M 2012 Authentic assessment: an instructional tool to enhance students learning *Acad. Res. Int.* **2** pp 314–20

[14] Pardimin 2018 Analysis of the indonesia mathematics teachers’ ability in applying authentic assessment *Cakrawala Pendidik.* **XXXVII** pp 170–81

[15] Carmona G and Lesh R A 2014 *External assessment in mathematics education*

[16] Friantary H and Martina F 2018 Evaluasi implementasi penilaian hasil belajar berdasarkan kurikulum 2013 oleh guru bahasa inggris dan bahasa indonesia di mts ja-alhaq kota bengkulu *Silampari Bisa J. Penelit. Pendidik. Bhs. Indones. Daerah, dan Asing* **1** pp 264–83

[17] Santoso E 2017 Penggunan model pembelajaran kontekstual untuk meningkatkan kemampuan pemahaman matematika siswa sekolah dasar (studi pada siswa kelas v sdn sukarasa ii kecamatan samarang kabupaten garut tahun pelajaran 2014-2015 ) *J. Cakrawala Pendas* **3** pp 16–29

[18] Laelasari 2017 Penilaian autentik dalam pembelajaran *J. LP3M* **3** pp 99–104

[19] Puspitasari E D 2016 Keterlaksanaan penilaian autentik dan korelasinya dengan hasil belajar biologi sma *Proceeding Biol. Educ. Conf.* **13** pp 196–202

[20] Retnawati H and Mulyatiningsih E 2014 *Evaluasi program pendidikan* (Tangerang: Universitas Terbuka)

[21] Munthe A P 2015 Pentingya evaluasi program di institusi pendidikan: sebuah pengantar, pengertian, tujuan dan manfaat *Sch. J. Pendidik. dan Kebud.* **5** p 1

[22] Mowendu A L, Slameto S and Dwikurnaningsih Y 2019 evaluasi implementasi kurikulum 2013 pada mata pelajaran matematika di smp negeri *Kelola J. Manaj. Pendidik.* **6** pp 74–88

[23] Agustiyana D and Widodo S 2014 Evaluasi implementasi kurikulum 2013 kelas iv sdn banaran 1 kertosono *J. Mhs. Teknol. Pendidik.* **2** pp 1–10

[24] Cahyono A E 2017 Evaluasi pelaksanaan authentic assessment berdasarkan kurikulum 2013 dalam pembelajaran ekonomi di sma islam al-hidayah jember *Equilib. J. Ilm. Ekon. dan Pembelajarannya* **5** pp 1–13

[25] Rusdiana H, Sumardi K and Arifiyanto E S 2016 Evaluasi hasil belajar menggunakan penilaian autentik pada mata pelajaran kelistrikan sistem refrigerasi *J. Mech. Eng. Educ.* **1** p 274

[26] Budiani S and Syamwil R 2017 Evaluasi implementasi kurikulum 2013 di sekolah pelaksana mandiri *Innov. J. Curric. Educ. Technol.* **6** pp 45–57

[27] Syukriya H, Herpratiwi and Yulianti D 2016 Evaluasi implementasi penilaian kurikulum 2013 *J. Teknol. Inf. Komun. Pendidik.* **4** pp 1–16

[28] Jannah S M R 2018 Evaluasi pelaksanaan penilaian autentik dalam rangka implementasi kurikulum 2013 *BASIC Educ.* **7** pp 1-695-1.705

[29] Aiman U 2016 Evaluasi pelaksanaan penilaian autentik kurikulum 2013: studi kasus di madrasah ibtidaiyah negeri tempel sleman yogyakarta *J. Pendidik. Madrasah* **1** pp 115–22

[30] Sabri M, Retnawati H and Fitriatunisyah 2019 The implementation of authentic assessment in mathematics learning *J. Phys. Conf. Ser.* **1200** pp 1-6

[31] Astuti S I and Darsinah D 2018 Penilaian autentik berbasis kurikulum 2013 di sd negeri mangkubumen kidul no. 16 surakarta *J. Manaj. Pendidik.* **13** pp 165–74

[32] Cahyadi F and Purwandari A 2014 Penilaian autentik mata pelajaran matematika kurikulum 2013 guru kelas iv kota semarang *Malih Peddas (Majalah Ilm. Pendidik. Dasar)* **4** pp 35–42

[33] Asrul, Ananda R and Rosinta 2014 *Evaluasi pembelajaran* (Bandung: Citapustaka Media)

[34] Goos M and Bartolini M G 2014 Encyclopedia of mathematics education *Encyclopedia of Mathematics Education* (Brisbane)

[35] Menteri Pendidikan dan Kebudayaan RI 2014 *Permendikbud nomor 104 tahun 2014 tentang penilaian hasil belajar oleh pendidik pada pendidikan dasar dan pendidikan menengah* (Jakarta)

[36] Wildan W 2017 Pelaksanaan penilaian autentik aspek pengetahuan, sikap dan keterampilan di sekolah atau madrasah *J. Tatsqif* **15** pp 131–53