

Teachers' Perspectives of Assessment and Alternative Assessment in the Classroom

Tajularipin Sulaiman, Suzieleez Syrene Abdul Rahim, Muhammad Nazrul Hakim, Rosmaria Omar

Abstract; *This study aims to explore teachers' perspectives of the elements in assessment, choice of the types of assessment and perspectives of alternative assessment. The study was a case study involving seven in-service secondary school teachers who were interviewed. The findings indicate that respondents develop questions based on bloom's taxonomy and higher order thinking. Formative and summative assessment are used to create a more comprehensive classroom assessment. Also, the respondents view alternative assessment as consisting of various techniques.*

Keywords: *alternative assessment, summative, formative, assessment practice, higher order thinking questions*

I. INTRODUCTION

Stiggins (1992) explained that research has shown that teachers spend as much as one-third to one-half of their time involved in assessment-related activities. There have been many debates about assessment especially with regards to the implementation of assessment strategies (Anderson & Palm, 2017; Creighton et al., 2015; Dietel, Herman & Knuth, 199), different forms of assessment (Ruiz-Primo & Furtak, 2006; Suah, Ong & Shuki, 2009), role of assessment (Holmboe, 2010; Shepard, 2000), and impact on students' achievement (McMillan, Venable & Varier, 2013; Alkharusi, 2008). However, many research indicated that assessment was mainly about evaluating the effects of instruction (Lian, Yew & Meng, 2014) and improving student learning (William et al. 2004; Birenbaum, 1996). For the past 50 years, the Malaysian education system has been focusing on examinations and this has led to less development in talent, ability and creativity in high impact areas among students (Rohaya et al., 2014). The transformation in education, guided by the Malaysia Education Blueprint (2013-2025) has brought numerous changes in the teaching and learning process, where emphasis is on higher order thinking (HOT) and assessment of students. One aspect that is considered in the blueprint is the form of assessment to be implemented in schools. One such form is the School Based Assessment (SBA) with the focus on assessment for learning (Ministry of Education, 2011).

The changes in assessment emphasized the integration of assessment into instruction while providing evidence on student's thinking, knowledge and abilities (Birenbaum, 1997). This will enhance the role and autonomy of teachers in determining the form of assessment to be carried out. Thus, teachers play an important role in determining the success of this policy. Apart from that, students become an active partner in learning and assessment. The implementation of a complete and thorough assessment helps students to identify learning problems at early stages where teachers can detect or diagnose their specific weaknesses, resulting in a change to the teaching method.

There are two forms of assessment; summative and formative assessment. Both are different from the aspects of learning achievements and performances. Summative assessment refers to assessment where the students' cognitive levels are measured at the end of the learning process. It provides information for final judgment of students' achievements of a set of predetermined objectives (Govindasamy, 2002). For instance, summative assessment measure students' accomplishments at the end of a unit, semester or school year, for the purpose of writing a report or giving a grade (Black & Wiliam, 1998a). In other words, it stresses more on assessing the content of syllabus rather than students' learning outcomes. Research by Lian, Yew, and Meng (2014) showed that the final grades of students still is the main measurement and is considered by most teachers to be the main factor to indicate success in teaching and learning. The final grade obtained from standard examination is viewed particularly incompatible to the process of learning due to its summative nature that needs students to recall and produce (Singh, Arshad Abd Samad, Habsah Hussin, & Tajularipin Sulaiman, 2015).

On the other hand, formative assessment is seen as a diagnostic tool for students and teachers to identify and improve weaknesses (Segers, Dochy, & Cascallar, 2003). The purpose of formative assessment is to provide feedback at each stage in the teaching-learning process (Bloom, 1969). Evidences collected from the classroom about student learning can be used to adjust teaching and/or learning (Anderson & Palm, 2017; Carless, 2007). Formative assessment is aligned with constructivist-based teaching approach which involves active learning activities such as open-ended problems, observations, interviews, writing samples, exhibitions, and portfolios. According to Black and Wiliam (1998a), formative assessment designs learning procedures that allow students to be more concerned about their progress and way of learning, as well as the final outcome.

Revised Manuscript Received on May 28, 2019.

Tajularipin Sulaiman, Faculty of Educational Studies / Sport Academy, Universiti Putra Malaysia.

Suzieleez Syrene Abdul Rahim, Faculty of Education, University Malaya.

Muhammad Nazrul Hakim, Faculty of Medicine And Health Sciences, Universiti Putra Malaysia.

Rosmaria Omar, Faculty of Educational Studies, University Putera Malaysia.



Alternative assessment is considered to be a part of the new assessment culture that focuses on improving process of learning and performance of students. Assessment culture is about moving away from traditional testing to a better, more holistic one. Alternative assessment totally contrasts with traditional testing (Maslovaty & Kuzi, 2002). Buldur and Tatar (2011) agreed that the new assessment culture is more effective than the traditional assessment because it takes into account students' performances in their daily lives and it provides multidimensional assessment.

Alternative assessment involves the use of non-traditional and non-standardised forms of assessment (Huerta-Macias, 1995; Gipps & Stobart, 2003). Alternative assessment is also referring to continuous assessment (Hargreaves, Earl, & Schmidt, 2002). This kind of assessment is ongoing and informal, and may be accumulated as evidence of learning alongside traditional or formal assessment. This condition suggests that an effective assessment develop from traditional assessment and also alternative assessment.

According to Birenbaum (1997), alternative assessment instruments include task performance assignments performed in authentic situations and should also involve HOT, posing challenges and able to raise interest among students. Alternative assessment can consist of a variety of instruments such as performance assignments, simulations, portfolios, journals, exhibitions, observations, interviews, oral exams, peer evaluation and others. Smith (2011) explained that most teachers in school use individual assessment, observation, check list and rating scale to assess students' learning. This type of assessment improves the effectiveness of teaching and learning because it allows teachers to rethink and then redeliver the teaching approach and content (Lian, Yew, & Meng, 2014).

Evidence shows that teacher using various techniques, though they may not be given appropriate training in the aspect of assessment in the classroom (Rohaya et al., 2014; Ling, Ong & Shuki, 2009). This situation explain why many teachers are less competent and uncertain about their assessment of student learning (Rohaya, 2009). In reality very few teachers implement the principles of assessment that the research has shown are essential to enhance students' learning (Stiggins, 1992). Studies analysing classroom tests, over many decades, have also found that most teacher-made tests require only recall of information (Marso & Pigge, 1993). Teachers tend to use lower-order thinking questions in the classroom because this type of question is easy to create and implement in the class. Research by Ling, Ong and Shuki (2009) explained that method of assessment are always influenced by national exams such as Malaysian Certificate of Education. A lot of school teachers use assessment in form of written test (usually multiple choice questions which is composed of one question with multiple possible answers) in evaluating student progress. This is because teachers try to prepare students to be familiar with the national exam format to ensure students' success.

With today's system that empowers teacher to conduct school assessment, teachers are responsible for monitoring, providing feedback and using that to develop and evaluate student learning (Rohaya et al. 2014). While some believe that traditional assessment methods are more effective, others think that alternative assessment tools are superior (Dikli, 2003; Anderson, 1998). Therefore, this study is

conducted as an effort to explore teachers' perspectives of assessment and alternative assessment.

II. METHOD

Research Design

This preliminary study employed a qualitative approach which involved interviews to collect the data. This approach was selected because through this approach, the teachers' understanding and perspectives of assessment and alternative assessment could be explored. Yin (2015) explained that a qualitative approach allowed exploration of people's understandings of their lives in the real-world. Every individual views the world in relevance to their experiences and beliefs.

Research Sample

The seven teacher respondents who participated in this study were selected through purposive sampling. Purposive sampling was selected for this study as this type of sampling will provide the richest information to answer the research questions (Patton, 2015). The respondents were in-service teachers teaching in secondary schools. They voluntarily agreed to be involved in the study. In-service teachers were selected as they are currently required to implement various techniques of classroom assessment.

Research Instruments and Procedures

An interview protocol was prepared as a guide during the interview sessions. The protocol consisted of semi-structured questions that had been validated by experts in the field. This study involved individual interviews that were conducted for about 50 minutes each. Rubin and Rubin (2012) mentioned that data from interviews provide rich and detailed information about the participants' experiences and views about a particular phenomenon. All the interviews were tape recorded, then transcribed verbatim and manually analyzed. Meaningful categories emerged from the data analysis to answer the research questions.

III. RESULTS

Elements in assessment

Teacher's expertise in a subject matter is of utmost importance to ensure that assessment can be designed to incorporate all content and topics that have been taught. Table 1 below shows the teachers' perspective of what assessment is.

Table. 1 Elements in Assessment

Elements in Assessment	Respondents
Refer to levels in Bloom's Taxonomy	R1, R3, R5, R7
Existing knowledge	R1, R 2, R5, R6
Questions that require higher order thinking skills (HOTS)	R2, R7
Level of student's ability	R3, R4, R7
Test Specification Table	R6, R7

Respondent R1 considered Bloom's Taxonomy when constructing examination questions.

"Normally we follow Bloom's Taxonomy from



the lower domain to the analysis level. In the beginning, for the test, we focus more on the knowledge and understanding of students but finally when the topics were covered, we fully utilized Bloom's Taxonomy."

It was the same for respondent R5. Respondent R5 considered Bloom's Taxonomy in forming examination questions of different levels. According to respondent R5; "Levels of acceptance with their ability to answer questions from Bloom's Taxonomy, from there we can see in which level the students can adapt and adopt, for us to form the questions..."

For respondent R7, besides using Bloom's Taxonomy, the test specification table also needs to be considered. Respondent R7 explained;

"Here, we follow the levels in Bloom's Taxonomy to form questions by taking into consideration students' cognitive level. We will form 50% difficult questions, 30% moderate and 20% easy."

Respondent R2 explained that HOTS is important in assessment. Respondent R2 said;

"Questions that fulfil the learning outcome in daily life, if possible the questions are built around higher order thinking skills known as HOTS."

For respondent R6, the questions formed need to be aligned to the syllabus as set by the Ministry. For example, respondent R6 said;

questions that are formed must be based on their level of understanding (according to Bloom's Taxonomy), then the syllabus, we cannot deviate from the syllabus. That means topics that are assigned by MPM need to be tested on and the test specification table done."

According to Miller, Linn, and Gronlund (2009), assessment process that occurs in the classroom cover purposes such as identifying students' mastery level, providing exercises, marking students' work, determining the construct of assessment and motivating students to learn. Teaching experience and expertise in the particular subject matter will ensure that teachers choose the crucial elements in doing assessment. If the teachers assess what the students know and are able to do with what they process from their thinking, then students' learning would be more meaningful (Lian, Yew, & Meng, 2014). In this study, most of the respondents considered the six levels of Bloom's Taxonomy in developing an assessment instrument. Jensen, McDaniel, Woodard, and Kummer (2014) also suggested that an effective assessment should be designed to truly test scientific process skills and higher levels of Bloom's Taxonomy.

At the same time, the respondents also considered other elements such as existing knowledge, syllabus of the subject according to the Test Specification Table, level of students' ability and HOT questions. Adopting a more typical assessment instrument that just need students to give factual recall are easier for the teachers to prepare but is less likely to foster critical thinking; application of deeper knowledge and understanding; and does not appear to even promote acquisition and retention of factual information to the extent stimulated by higher-order assessment (Jensen, McDaniel, Woodard, & Kummer, 2014).

Forms of Assessment

Based on the findings, there were two main forms of assessment; summative assessment and formative assessment. Most respondents chose to implement formative

assessment only or both formative and summative assessment in their classrooms (refer Table 2).

Table. 2 Forms of assessment

Forms of Assessment	Respondents
Formative assessment	R1, R2, R7
Summative assessment	R6
Formative and summative assessment	R3, R4, R5

Respondent R1 prefers to use formative assessment because the questions are simple and more focused on each topic. Respondent R1 stated;

"I prefer formative assessment because it is more objective-driven which means we have to choose either the knowledge level, under-standing level and so on until the analysis level and follow the chapters accordingly..."

This is different with respondent R3. Respondent R3 used both types of assessment according to the stages in teaching. According to respondent R3;

"I choose to use the formative assessment in the early session followed by summative questions."

Respondent R4 also used the two types of assessment with a different approach. Respondent R4 used formative assessment specifically for topical examination.

"Normally we use summative. Sometimes formative is used too, normally topical-based as just now. For example when we finish a topic..."

Respondent 7 provided an explanation on why both types of assessment were implemented in the classroom. Respondent R7 said that;

"We normally use both formative and summative assessment to assess students. When it comes to summative assessment, we go according to the ministry's almanac. As for formative assessment, we are free to use it at any time, as in all monthly tests. However, I mostly use formative assessment to see if the objectives were achieved..."

Experienced teachers are more knowledgeable, effective and expert in their respective subjects. Therefore, they will be able to produce a more effective form of assessment. An effective and smooth assessment process requires careful and systematic planning to channel information, knowledge, skills and values in detail. From the findings, most teachers chose both formative and summative assessments to be implemented in their classrooms. Formative assessment or assessment for learning is usually not graded but acts as a measure to students' learning progress and to identify instruction effectiveness. By developing a range of assessment strategies and using formative assessment together with summative assessment, there is great potential to improve learning outcomes for all students. Chan and Yan (2013) also admitted that formative and summative assessments complement each other in the teaching and learning process.

Teachers' Understanding of the Alternative Assessment

Alternative assessment is a non-traditional method in assessing students' performance (Aurbach, 2011). Table 3 shows the perceptions of teacher respondents towards alternative assessment.



Table. 3 Teachers' Understanding of the Alternative Assessment

Understanding Towards Alternative Assessment	Respondents
Variety in assessment	R2, R6, R7
Questions based on existing knowledge	R3
Group assignment	R2, R4, R5
Problem-based learning	R1, R3
Individual work	R5
Soft skills	R4

Alternative assessment is defined as various methods of assessment by respondent R2. Respondent R2 explained that;

“alternative assessment is having variety in teaching and learning, for example using teaching approach that requires students to learn in groups, carry out presentations, participate in quizzes and competition or use ICT such as Power Point, FROG VLE, and so on.”

This view is supported by respondent R7 who stated that alternative assessment refers to the various ways of testing carried out by the teacher to assess the students. A lot of testing’s type would enable students’ abilities be assessed in different ways. Respondent R7 said:

“For me this alternative assessment is a process towards having a variety in performance tests. This is different from the standard test. Alternative assessment supports students’ inabilities. As what I have said just now, alternative assessment is another method that helps teachers enhances students’ ability to be at the standard level of competency.”

Meanwhile, respondent R1 relate alternative assessment to problem-based learning. According to respondent R1; it is like we provide the problem, problem-based learning.”

Some respondents relate alternative assessment to the development of students’ soft skills. According to respondent R4 “We may not give written assessment, we look at his contributions to the school, his soft skills...”

Respondent R6 use alternative assessment as a method of testing that is different from traditional assessment. Respondent R6 stated; “So the meaning of alternative assessment is assessment that is carried out by teachers in the classroom and done continuously... and during the assessment, we can do improvements. This means that it is an alternative to traditional assessment, the old assessment where students need to answer questions in the examination hall.”

From the findings, the respondents view alternative assessment as a continuous process that consists of various techniques and does not only emphasize subject matter. Shepard (2000) had revealed that traditional assessment methods especially paper and pencil test should be replaced, or at least complemented by alternative assessments such as performance-based assessment, out-come-based assessment and student-centred assessment. The finding shows that most of the respondents agreed that alternative assessment can be demonstrated by various techniques such as individual assignment, group assignment, or problem-based learning.

Alternative assessment encourages students to exhibit the skills and knowledge that otherwise could not be assessed through typical summative assessment methods. It aims to expose students towards critical thinking and assesses students through given tasks. Alternative assessment also

enhances students’ soft skill because it encourages students to actively seek and explore information in their own learning process.

IV. DISCUSSION

Studies have shown that in the process of assessing students’ understanding towards specific matters, teacher prefer to use Bloom’s Taxonomy to create questions. Bloom’s Taxonomy assists teachers in creating questions at different levels to be used in the assessment instrument. Questions of different levels are able to encourage students thinking more creatively and analytically. According to Collins (2014), the use of Bloom’s Taxonomy is important to infuse or integrate higher thinking in the learning. Collins (2014) added that the use of Bloom’s Taxonomy is able to indirectly help teacher to prepare a lesson plan that is more effective in training students to think out of the box. Higher order thinking skills are more than just the process of remembering and understanding a matter. Higher order thinking covers the process of understanding to information and relating as well as manipulating a fact (Thomas & Thorne, 2016).

Assessment are important aspects in teaching. Usually, formative assessment is used to identify the level of knowledge and skills possessing by students towards a particular topic. Teachers who perform formative assessment are succeeding in making their class more focused and effective because the learning objective is completely fulfilled and more questions of different levels can be created to test the students’ understanding. Formative assessment enables the teacher to monitor the improvement of the students with more eases, as well as enable them to guide students to solve problems (Boston & Carols, 2002). The use of formative assessment makes it easier for the teacher to find out the weakness of the learning process, as well as to strive to improve it. According to Boston and Carol (2002), in the process of formative assessment, teachers have to consider the factor of activities in class, such as question and answer session, tests and assignments. These kind of activities can be used to enhance the students’ learning process. The outcome of this research also shows that teacher respondents prefer to use both formative and summative assessment in their teaching. Through these two assessment, more activities are able to be carried out and the assessment becomes broader. Formative assessment will support teachers to obtain information from the students about the teaching process. With the presence of formative assessment, teachers and students are able to establish a two way relationship in which both parties will be able to obtain feedback regarding the learning process (Yorke, 2003). This enables the student and teacher to know where the lack and weak spot that need to be improved are.

The use of summative assessment allows the teacher to present a question that covers a topic where more questions from various topics are able to be tested. This form of assessment is more challenging to student and will stimulate their minds. In the teaching process, formative and summative assessment both play an important role in different situations.



Anderson (1998) agreed that both forms of assessments can be used by teachers to enable students to evaluate their development, so that the learning experience can be improved. Therefore, teachers need to determine clearly the main purpose of the assessment before choosing the most suitable form of assessment to be implemented (Herman, 1992).

Another form of assessment is alternative assessment. This form of assessment requires the teachers to have skills in various techniques as well as skills in measuring the knowledge and skills of the students. A conventional assessment approach like pencil and paper test is less suitable to be used and teachers should be more creative in designing an alternative assessment context (Herman, Pamela & Winters, 1992). Alternative assessment allows teachers to teach more flexibly and creatively. Alternative assessment does not only focus on the learning outcome, but also on the learning process (Anderson, 1998). Various forms of activities or assessment instruments can be performed in class, such as forum, quiz, online exercises and presentations. Majority of the participants tend to associate group assignment with alternative assessment. Helen (2005) stated that average teachers use alternative assessment method and they feel that this method helps them to improve the learning process. Hence, teachers should attempt to use alternative assessment method so that they are more confident and comfortable with it in time.

There is a need for teachers to practice the new authentic alternative approach because it has been proven beneficial in determining strengths and weaknesses of students (Owings & Follo, 1992); increasing students' interest and enthusiasm (Maslovaty & Kuzi, 2002); giving chance to students to assess themselves; guiding the process of learning by reflecting students' development throughout the process (Wiggins, 1993); and allowing assessment to be implemented throughout the learning process. In addition, teachers must use assessment to assist students to achieve their maximum potential from all aspects such as soft skills, higher order thinking skills and learning motivation. Suzieleez and Tajularipin (2006) also stated that alternative assessment instils higher order thinking skills specifically creative and critical thinking whereby students are capable to take charge of their learning. Govindasamy (2002) has indicated that assessment reinforces the learning approach that a student adopts. If students are often tested on higher order thinking skills, they are likely to adopt the desired holistic approach to learning. If students are tested on lower order thinking skills, they would probably be encouraged to practice the undesirable approach to learning. When the meaning-making capacity of students is engaged and assessed, they will tend to incorporate more and more knowledge into their conceptual understanding.

V. SUMMARY

To assess the students' knowledge and skills, teachers need to implement several assessment instruments such as writing test, project, assignment, simulation, portfolio, journal, exhibition, observation, interview, oral exam, and peers evaluation. The content of assessment that is developed by teacher are usually aligned with Bloom's Taxonomy, emphasizing higher order thinking. Such questions are able to stimulate students' divergent and

critical thinking. This will enhance students' higher order thinking skills.

REFERENCES

1. Anderson, R. S. (1998). Why talk about different ways to grade? The shift from traditional assessment to alternative assessment. *New Directions for Teaching and Learning* 1998(74), pp. 5-16.
2. Andersson, C. & Palm, T. (2017). Characteristics of improved formative assessment practice, *Education Inquiry* 8(2), pp. 104-122.
3. Aurbach. (2011). Associations of middle school student science achievement and attitudes about science with student-reported frequency of teacher lecture demonstrations and student-centered learning. *International Journal of Environmental and Science Education* 10(1), pp. 87-97.
4. Barak, M. (2007). Transitions from traditional to ICT-enhanced learning environments in undergraduate chemistry courses. *Computers & Education* 48(1), pp. 30-43.
5. Barak, M., & Dori, Y. J. (2009). Enhancing higher order thinking skills among in-service science teachers via embedded assessment. *Journal of Science Teacher Education* 20(5), pp. 459-474.
6. Ben-Jacob, M. G. & Ben-Jacob, T. E. (2014). Alternative assessment methods based on categorizations, supporting technologies, and a model for betterment. *International Conferences on Educational Technologies and Sustainability, Technology and Education 2014*, pp. 245-248.
7. Biggs, J. B. (2003). *Teaching for quality learning at university* (2nd Ed.). Buckingham: Society for Research into Higher Education and Open University Press.
8. Birenbaum, B. (2003). New insights into learning and teaching and their implications for assessment. In M. Segers, F. Dochy, & E. Cascallar (eds.), *Optimising new modes of assessment: In search of qualities and standards* (pp. 13-36). Dordrecht, the Netherlands: Kluwer.
9. Birenbaum, M. (1996). Assessment 2000: Towards a pluralistic approach to assessment', in M. Birenbaum and F. Dochy (eds.), *Alternatives in assessment of achievements, learning processes and prior knowledge*. Boston: Kluwer Academic Publishers.
10. Birenbaum, M. (1997). *Alternatives in assessment*. Tel Aviv, Israel: Tel Aviv University Ramot Publishing.
11. Black, P. & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education* 5(1), pp. 7-74.
12. Bloom, B.S. (1969). Some theoretical issues relating to educational evaluation. In Baleni, Z. G. (2015). *Online formative assessment in higher education: Its pros and cons*. *The Electronic Journal of e-Learning* 13(40), pp. 228-236.
13. Brookhart, S. (2010). *How to assess higher order thinking skill in your classroom*. Alexandria, VA: ASCD.
14. Buldur, S. & Tatar, N. (2011). Development of self-efficacy towards using alternative assessment scale. *Asia Pacific Education Review* 12(3), pp. 485-495.
15. Carless, D. (2007). Conceptualizing pre-emptive formative assessment. *Assessment in Education: Principles. Policy & Practice* 14(2), pp. 171-184.
16. Chan, P. P. W. & Yan, K. Y. K. (2013). *Alternative assessment: Developing e-portfolio for final year project*. 2013 ICHL Conference (pp. 90-101). Toronto: Springer.
17. Clary, R. M. & Wandersee, J. H. (2010). Scientific caricatures in the earth science classroom: An alternative assessment for meaningful science learning. *Science & Education* 19(1), pp. 21-37.
18. Collins, R. (2014). Skill for the 21st century: teaching higher-order thinking. *Curriculum & Leadership Journal* 12(14).
19. Dietel, R. J., Herman, J. L., & Knuth, R. A. (1991). What does research say about assessment. *North Central Regional Educational Laboratory*, pp. 1-18.
20. Gipps, C. & Stobart, G. (2003). Alternative assessment. In T. Kellaghan & D. L. Stufflebeam (Eds.), *International handbook of educational evaluation* (pp.549-575). Dordrecht: Kluwer Academic.
21. Govindasamy, T. (2001). Successful implementation of e-learning pedagogical considerations. *Internet and Higher Education* 4(3-4), pp. 287-299.
22. Hargreaves, A., Earl, L., & Schmidt, M. (2002). Perspectives on alternative assessment reform. *American Educational Research Journal* 30(1), pp. 69-95.



23. Helen, M. G. W. (2005). Attitudes to the use of alternative assessment methods in mathematics: A study with secondary mathematics teachers in Sydney, Australia. *Educational Studies in Mathematics* 58(1), pp. 21–44.
24. Herman, J. L., Pamela R. A., & Winters, L. (1992). A practical guide to alternative assessment. United States of America: ASCD Publication.
25. Holmboe, E. S., Sherbino, J., Long, D. M., Swing, S. R., Frank, J. R., & International CBME Collaborators. (2010). The role of assessment in competency-based medical education. *Medical Teacher* 32(8), pp. 676–682.
26. Huerta-Macias, A. (1995). Alternative assessment: Responses to commonly asked, questions. *TESOL Journal* 5(1), pp. 8–11.
27. Jensen, J. L., McDaniel, M. A., Woodard, S. M., & Kummer, T. A. (2014). Teaching to the test or testing to teach: Exams requiring higher order thinking skills encourage greater conceptual understanding. *Educational Psychology Review* 26(2), pp. 307–329.
28. Kubiszyn, T. & Borich, G. (2007). *Educational testing and measurement: classroom application and practice*. River Street, NJ: John Wiley & Sons, Inc.
29. Lian, L. H., Yew, W. T., & Meng, C. C. (2014). Enhancing Malaysian teachers' assessment literacy. *International Education Studies* 7(10), pp. 74–81.
30. Lyna, Hung, D. W. L., & Chong, S. K. (2016). Promoting teachers' instructional practices in alternative assessment through teacher collaboration. *Educational Research Policy Practice* 15(2), pp. 131–146.
31. Marso, R.N. & Pigge, F.L. (1993). A summary of published research: Classroom teachers' and educators' attitudes toward and support of teacher-made testing. Paper presented at the annual meeting of the Mid-Western Research Association, Chicago, IL. (ERIC Document Reproduction Service No. ED 365 692)
32. Marton, F. & Saljo, R. (1976). On qualitative differences in learning: outcome and process. *British Journal of Educational Psychology* 46(1), pp. 4–11.
33. Maslovaty, N. & Kuzi, E. (2002). Promoting motivational goals through alternative or traditional assessment. *Studies in Educational Evaluation* 28(3), pp. 199–222.
34. McMillan, J. H., Venable, J. C., & Varier, D. (2013). Studies of the Effect of Formative Assessment on Student Achievement: So Much More is Needed. *Practical Assessment, Research & Evaluation* 18(2), pp. 1-15.
35. Miller, M. D., Linn, R. L., & Gronlund, N. E. (2009). *Measurement and assessment in teaching*. Upper Saddle River, NJ: Pearson Education, Inc.
36. Mintzes, J. J., Wandersee, J. H., & Novak, J. D. (2000). *Assessing science understanding: A human constructivist view*. San Diego: Academic Press.
37. National Research Council. (2001). In J. Pellegrino, N. Chudowski & R. Glaser (eds.), *Knowing what students know: The science and design of educational assessment*. Committee on the foundation of assessment. Board on Testing and Assessment, Center for Education. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.
38. Owings, C. A. & Follo, E. (1992). Effect of portfolio assessment on students attitudes and goal setting abilities in mathematics (pp.352–394). Retrieved from <http://files.eric.ed.gov/fulltext/ED352394.pdf>
39. Patton M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). Thousand Oaks, CA: Sage Publications.
40. PSTC Development Committee. (2005). Turkish primary science and technology curriculum. Retrieved on July 18, 2012, from <http://tkb.meb.gov.tr/www/ogretimprogramlari/icerik/72>
41. Rohaya Talib (2009). *Pembinaan ujian literasi pentaksiran* (Doctoral dissertation). Universiti Teknologi Malaysia, Johor.
42. Rohaya, T., Mohd Zaki, K., Hamimah, A. N., & Khadijah, D. (2014). *Pedagogi dan pentaksiran: kongruen?* Seminar Kebangsaan Majlis Dekan-Dekan Pendidikan IPTA 2014, 24-25 September, Fakulti Pendidikan UM.
43. Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing: The art of hearing data* (3rd ed.). Thousand Oaks, CA: Sage
44. Ruiz-Primo, M. A. & Furtak, E. M. (2006). Exploring teachers' informal formative assessment practices and students' understanding in the context of scientific inquiry. *Journal of Research in Science Teaching* 44(1), pp. 57-84.
45. Ruiz-Primo, M. A., Furtak, E., Ayala, C., Yin, Y., & Shavelson, R. J. (2010). Formative assessment, motivation, and science learning. In G. J., Cizek, & H. Andrade (eds.), *Handbook of Formative Assessment* (pp. 139-158). New York: Taylor & Francis Group.
46. Sato, M. & Atkin, J. M. (2006). Supporting change in classroom assessment. *Educational Leadership* 64(4), pp. 76–79.
47. Segers, M., Dochy, F., & Cascallar, E. (2003). The era of assessment engineering: Changing perspectives on teaching and learning and the role of new modes of assessment. In M. Segers, F. Dochy, & E. Cascallar (eds.), *Optimising new modes of assessment: In search of qualities and standards* (pp. 1–12). Kluwer: Dordrecht, The Netherlands.
48. Shepard, L. A. (2000). The role of assessment in a learning culture. *Educational researcher* 29(7), pp. 4-14.
49. Singh, C. K. S., Arshad Abd Samad, Habsah Hussin, & Tajularipin Sulaiman. (2015). Developing a portfolio assessment model for the teaching and learning of English in Malaysian L2 classroom. *English Language Teaching* 8(7), pp. 164-173.
50. Smith, P. A. (2011). *Formative assessment*. Boston, MA: Allyn & Bacon.
51. Spence-Brown, R. (2001). The eye of the beholder: Authenticity in an embedded assessment task. *Language Testing* 18(4), pp. 463–481.
52. Stiggins, R. J. (1992). High quality classroom assessment: what does it really mean?. *Educational Measurement: Issues and Practice* 11(2), pp. 35-39.
53. Suah, S. L., Ong, S. L., & Shuki, O. (2009). Pentaksiran pembelajaran pelajar: Amalan guru-guru di Malaysia. *Majlis Dekan Pendidikan Malaysia* 5(6), pp. 1-22.
54. Suzieleez Syrene Abdul Rahim & Tajularipin Sulaiman. (2006). *Classroom Assessment: Paper-pencil vs alternative humanizing assessment*. Compilation of presentation papers (pp. 49-52).
55. Tan, K. H. K. (2013). Variation in teachers' conceptions of alternative assessment in Singapore primary schools. *Educational Research for Policy and Practice* 12(1), pp. 21–41.
56. Thomas, A. & Thorne, G. (2009). *How to increase higher order thinking*. Metairie, Louisiana: Center for Development and Learning.
57. Van Tassel-Baska, J. & Stambaugh, T. (2006). *Comprehensive curriculum for gifted learners* (3rd ed.). Boston, MA: Allyn & Bacon.
58. Watering, G., Gijbels, D., Dochy, F., & Rijt, J. (2008). Students' assessment preferences, perceptions of assessment and their relationships to study results. *Higher Education* 56(6), pp. 645–658.
59. Watt, H. M.G. (2005). Attitudes to the use of alternative assessment methods in mathematics: A study with secondary mathematics teachers in Sydney, Australia. *Educational Studies in Mathematics* 58(1), pp. 21–44.
60. Wiggins, G. (1993). *Assessing student performance: Exploring the purpose and limits of teaching*. San Francisco, CA: Jossey-Bass Publishers.
61. Wiliam, D. (2007). What does research say the benefits of formative assessment are? National Council of Teachers of Mathematics Research Brief. Retrieved on https://www.nctm.org/uploadedFiles/Research_and_Advocacy/research_brief_and_clips/Research_brief_05_-_Formative_Assessment.pdf
62. Wiliam, D., Lee, C., Harrison, C., & Black, P. (2004). Teachers developing assessment for learning: impact on student achievement. *Assessment in Education: Principles, Policy & Practice* 11(1), pp. 49–65.
63. Wolf, D., Bixby, J., Glenn, J., & Gardener, H. (1991). To use their minds well: Investigating new forms of student assessment. *Review of Research in Education* 17, pp. 31–74.
64. Yin R. K. (2015). *Qualitative research from start to finish* (2nd ed.). New York, NY: Guilford Press.
65. Yorke, M. (2003). Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education* 45(4), pp. 477–501.

