International Journal of Multidisciplinary Research and Publications
ISSN (Online): 2581-6187

The Pivotal Role of Diagnostic, Formative and Summative Assessment in Higher Education Institutions' Teaching and Student Learning

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***Abstract*—** *This literature based paper provides an understanding of the various forms of assessments conducted at higher education institutions. The paper highlights what assessment is and its purpose before moving into the specific of what each type and purpose of assessment is. The paper discourses on the three main assessment types, which are; diagnostic, formative and summative assessment vis a vis types, implementation, effectiveness and quality. Formative assessment has been dealt with in-depth as the most critical form of assessment in higher education. This paper acknowledges that the main types of assessment (diagnostic, formative and summative) should be maintained at higher education institutions though variations or innovations can occur within the same constructs to enable effective teaching, learning and positive feedback on the learner, the teacher and the systems or processes. The paper concludes and recommends that diagnostic, formative and summative assessment modes all be used in their various types in higher education institutions and could come in the form of individual, group or class work/ tasks; in the form of written, oral, practical, problem based, performance or work placement; where group or class work/ tasks enhances the skills of working and accomplishing together as a team*.

***Keywords*—** *Diagnostic assessment, Formative assessment, Summative assessment, Higher education institutions*.

I. Introduction and Background

The era of globalisation has brought both benefits and drawbacks to numerous systems and professions, and education is no exception (Boud & Falchikov, 2007; Garwe, 2014). It is sufficient to argue that an institution should be able to seize the advantages of globalisation and use the advantages to overcome and reduce the shortcomings (Brown, 1999). Quality is a topic that pervades many aspects and processes of higher education, necessitating the development of higher education strategic plans by each country in order to improve competitiveness and satisfy international expectations and norms (Black, 1998; Hendel & Lewis, 2005; Garwe, 2014). In most cases, a country's definition, concept, and approach to what it considers quality in higher education is contextual, so understanding the geographical context, indicators, frameworks, successes, challenges, and historical underpinnings of developing and implementing quality in higher education assessment is critical (Mohamedbhai, 2008; Nherera, 2000). Competencies are determined, measured or judged in higher education through various assessment methods, and whenever the student(s) has satisfied the board of examiners the student(s) stand to be conferred with the qualification certificate in that field or area of study (Arter, 1997). Garwe (2014) argues that, while this is the case in the countries developing quality standards, in other countries and international independent professionals, nations have always benchmarked and copied best practices and standards to formulate quality delivery strategies by applying best practices and avoiding already uncovered pitfalls. In higher education the end product shows that quality may best be characterized as the competences based on knowledge, skills and attitudes (Baume & Yorke 2002). Assessment of student learning has always been a difficult issue but all the same institution need not to stop assessing nor inventing assessment strategies.

Statement of the problem

Higher learning institutions have subsequently gone from student performance testing to student appreciation. Tests were deemed to lose touch, significance and practicality, where the assessment introduced a great deal of workability, feasibility and potential for showing what pupils learned and afterwards the opportunity for additional learning in their lives. Evaluation plays a significant function in establishing the quality of the produced students. This literature coverage aims at reviewing current methodologies and procedures for evaluation in line with efficacy in measuring cognitive, qualitative, behavioural and research competences; determining the relevance of evaluation to the education, educational management and productive sectors.

Research objectives:

1. To take stock of the current assessment methods and procedures in higher learning institutions
2. To identify where specific methods are applicable and their effectiveness as assessment methods of cognitive or skills or attitude disposition

II. Literature Review

What is assessment?

'Assessment is the process by which the University is able to confirm that a student has achieved the learning outcomes and academic standards for the module . . . and/ or award for the programme for which he or she is registered.' (Gipps, 1994)

This definition has managed to look at the currently developing body of assumptions or ideologies that learning programmes should have learning outcomes. Therefore the perspective of assessment with regards the definition here presents a quality assurance focus through learning outcomes.

In streamlining effective assessment from non-effective assessment Arter (1997) said that, 'an assessment task shall be

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defined as any compulsory or optional activity or exercise where one explicit intent is to assess student progress or learning achievement in a unit of study. It is considered that many assessment tasks will be designed to accomplish multiple goals with respect to teaching and learning including fostering student learning, assessing student learning, and obtaining feedback to provide guidance for further teaching and providing direct and useful feedback to the student to guide their future learning.

The definition looks at assessment as an activity that determines achievement, with an additional component of assessment contributing to learning through the facility of feedback to both the teachers and the students.

Black (1998) voiced out quality assurance sentiments also on assessment in terms of ensuring confidence in standards and procedures saying that, 'it is of paramount importance that students, staff, external agencies and employers have confidence in the university standards and assessment procedures. The university is committed to ensuring that student assessment and its consequences are managed effectively and consistently. The recruitment of an increasingly diverse student population for whom value for money is a growing concern requires vigilance at programme level development and execution to prevent assessment overload, particularly where programmes draw on modules from different fields and faculties. Lack of coherence in this selection, implementation and management of assessment can lead to unnecessary student dissatisfaction. The adoption of a university-wide assessment policy and strategies for implementation such as double and anonymous marking is designed to ensure equity and fairness.'

With this definition an inclusion of diversity has been noted with elements of equity and fairness in all learning contexts.

A more current, elaborate and close definition was said by the UK Quality Assurance Agency Code of Practice (Mohamedbhai, 2008) stating that;

'Assessment is a generic term for a set of processes that measure the outcomes of students' learning, in terms of knowledge acquired, understanding developed and skills gained. It serves many purposes. Assessment provides the means by which students are graded, passed or failed. It provides the basis for decisions on whether a student is ready to proceed, to qualify for an award or to demonstrate competence to practise. It enables students to get feedback on their learning and helps them improve their performance. It enables staff to evaluate the effectiveness of their teaching.'

This definition has so much an emphasis on outcomes though there is an element of sorting and classification introduced, accompanied with improvement in the levels of performance through such concepts as feedback, and the improvement of the teaching process.

Assessment has been used and viewed in many respects and angles, though the bottom line is the fact that is used to measure productive skills and capabilities before, during and after learning processes (Segers, 1996). There is of course a chance of a great divide between what the learner has learnt, and what they are able to do, and further on what they may not be able to do when the industry, commerce and other fields require them to do so (Tremblay, Lalancette & Roseveare, 2012). Thus, Tremblay et al., (2012) asserts that it may not be the responsibility of the teacher to tell, teach and ensure students can do everything, but simply to ensure they pass what is being taught. In that respect the concept of a 'dog taught to whistle comes into play', where the dog owner claimed the dog was taught to whistle, but is not responsible for ensuring it has whistled. Of course, this should not be the case though with our current teaching and learning environment since the nation expects the higher education products to deliver so much of that which they have been taught and skilled.

The scope of assessment in higher education

Boud and Falchikov (2007) contended that assessment has the greatest potential to affect a student's life, where the future way forward and careers heavily depend on it. Assessment methods, procedures and forms should never lag behind the environmental changes but, in order for continued effectiveness, should be continually adapting to the requirements and demands of various systems. In that respect, Taylor and Medina (2013) hazards that there is a great risk though involved in fully or completely changing assessment procedures, processes, methods and standards without taking into consideration the consequences. In fact, in practice, assessment tends to go through incremental changes that are proven to be helpful and maintained or not helpful and discarded until high standards are finally upheld (Garwe, 2014). Rolfe & McPherson (1995) advocated for assessment frames to be mostly changed on the basis of the current circumstances that the country is confronting and not on any other assumptions that could be made that could be unproven. Assessment affects the paths a learner goes through and has affected the positions that people now hold in their lives, and drives the nation into any level of development, ranging from political, economic, social, technological spheres and so forth (Hendel & Lewis, 2005).

Assessment directs attention to what is deemed important to a learner and the field of study in question, even what is important to relevant stakeholders. Polanyi (1958) saw that assessment acts to a greater extent as an incentive for study in any field, having powerful impact on what students learn, do and how they do it, communicating what they can do and not do, building confidence for future career work and at the same time indicating areas of inadequacies. Boud and Falchikov (2007) believed that assessment is useful but has challenges in determining or getting assured that what occurs in assessment properly influenced student learning and/ or shows exactly what the student is capable of doing in various competences. It is also true that the content and approaches used in the dominant assessment methods in higher education practices tend to look at students demonstrating current knowledge, generating material for grading and getting (often inadequate) feedback from teachers. Garwe (2014) acknowledges that assessment fails to prepare students for the rest of their lives, as in failing to equip students to learn in situations where teachers and examinations are not available to direct attention or focus, therefore failing to account for how students learn after the point of assessment.

Debates of assessment are widely dominated by such questions as; what could be the best or most efficient method of assessing students? How should grades be recorded? How should they be assembled? What constitutes a first class honour's degree? (Hanover Research Institute, 2013). These questions tend to focus on the bottom line of certification, of which this has prompted students' anxiety and demands that all work be counted for marks and grades, therefore making formative and summative assessment secure its foothold (Gibbs, 1999). Then researches have been done to establish what has been termed 'high-stakes assessment' using the formative assessment (how assessment influences learning), where initially assessment was being done on the agenda of the institution, although this could take a secondary place in public policy debate and the media. Such researches have unearthed and guided focus (Dochy & McDowell, 1997) by coming up with such questions as; what is the role of feedback in learning? What are the consequential effects of assessment practices on student behaviour? Which types of learning can various assessment regimes call for? How can we align assessment with desired student outcomes and so on? What guarantee do we have with current learning and assessment regarding sound basis of student learning after graduation? Many innovations came up, some partially, directly and indirectly attempted to address assessments problems and some have undergone the headings of portfolio assessment, self- and peer assessment, authentic assessment and so on. The greatest and helpful perspective in assessment is to encourage strategies for students to develop their own repertoire of assessment related practices which they use in the event of confronting learning challenges throughout their lives.

Gipps (1994) advocates that the main issue behind a perceived or real gap between what has been learnt and industrial practices is that assessment in higher education has placed significant outcome on certifying for existing knowledge and giving students feedback on current learning and has not bothered to look at learning for the longer term. Effective assessment is that which can bring relevant graduates to look beyond and provide a firm foundation for learning after completion of the programmes of study, which is, preparing students for a lifetime of learning in work and in the community. The major question that will arise from such a focus is; how can assessment affect learners in everything they do after completion and graduation? This perspective will then greatly look at the longer term and explores what higher education courses can do to prepare students for a lifetime of learning and professional work.

There is a growing body of knowledge challenging the controlling effect of assessment that focuses on the performance of assessment itself somehow, rather than on what studying in higher education is arguably for (Boud & Falchikov, 2007) or what other performances requires such as industry productivity (Brown & Knight, 1994)

Figure 1 Assessment for effective teaching below represents the systematic process of assessment, evaluation, and decision-making. The results (data) of the assessment (examinations, observations, essays, self-reflections) are evaluated based on judgment of those data. What to do next - the decision making step, is based on the evaluation.

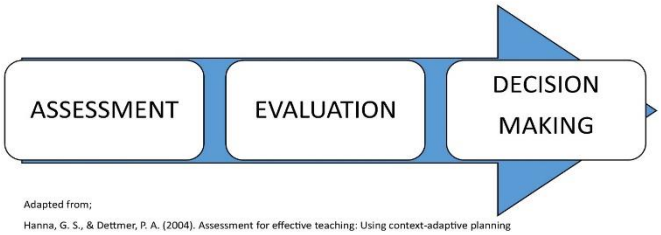

Fig. 1. Assessment for effective teaching

Types of Assessment

Three forms of evaluation exist: diagnostic, formative and summative. While three are often just referred to as an evaluation, the variations between the three are distinct;

Diagnostic Assessment

This kind of evaluation supports the students in determining the current level of knowledge or capacities of a subject, and ensuring that misunderstandings are clarified before learning is given (Boud, 1995). Understanding the present levels of the pupils helps to plan better, especially in teaching and learning processes, on what needs to be covered. Diagnostic evaluations are generally carried out at the commencement or beginning of a study unit. It is undertaken to make prior assessments of an individual student's or a class' skills, talents, interests, experiences, levels of achievement, or difficulties in any area of study that the students choose to pursue. According to Arter (1997), diagnostic measures in assessments are tools that can include both formal measurements (e.g. IQ/aptitude tests, fitness tests) and informal measurements (e.g. observation, discussions, questioning) that are used to establish a starting point or baseline, and thus may stand to inform programs and planning, as well as learning and teaching methods to be used.

Types of Diagnostic Assessments includes;

- Pre-tests (on content and abilities)
- Self-assessments (identifying skills and competencies)
- Discussion board responses (on content-specific prompts)
- Interviews (brief, private, 10-minute interview of each student)

Formative Assessment

This is done to normally provide process feedback and information that is feedback which occurs during the instructional processes while learning is taking place or while learning is occurring (Brown & Knight, 1994). As much as formative assessment measures student progress it has the greatest capability of measuring the instructors capabilities and progress. That is, for instance when the instructor wants to implement a new task or activity in class, through some form of observation as the task is going on or through surveying the students, the instructor can take note whether the task should be used or not, or may need some form of modifications. The prime aim of formative assessment is to determine areas that greatly need improvements. Though these assessments are nowadays being graded, they may arguably need not to be grade

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but used to gauge students' learning progress then further on clarify teaching ineffectiveness or effectiveness (that occurs when there is implementation of appropriate methods and activities) (Bloom, Hastings & Madaus, 1971)

As another example, in maybe a third week of a semester, the instructor can question students on issues that might be in a future exam, gauging if the students' fully and truly comprehends the material. The modern way of teaching and learning provide an exciting and efficient way to do students' survey of understanding issues by utilising the 'clickers', these stands to be students' interactive devices which assesses current knowledge on specific content. In such instances, after polling students when the instructor has observed that a greater number of students were not correct in their answers or seem confused about some particular content, the instructor need to go back, review, revisit and amend that content material or otherwise present it in a different way which may promote possible comprehension (Gipps, 1994). Therefore, the formative assessment has enabled the instructor to re-think and then possibly re-deliver to make sure that the students are exactly on track. Hendel and Lewis (2005) believes that it is excellent practice to ensure this type of assessment is used to test students on their level of knowledge and capabilities before the instructor expects every student to do well in any other form of examination

In practice, Dochy, Segers and Sluijsmans (1999) claims that formative assessment is therefore a practice of constructing cumulative record of student achievements, usually taking place in the day to day learning aspects and experiences, and therefore includes ongoing, informal observations throughout the term, course, semester or unit of study. Systems in institutions of higher learning can use this to keep track of students' ongoing progress and to provide immediate and also meaningful feedback. This gives teachers the impetus to modify or extend programs or adapt the teaching, learning and further assessments. It is a norm that it is used throughout the period of learning, but mostly it is very applicable and helpful during early group work processes.

Bruner (1970) asserts that to gauge where learning has occurred, it is seen by or through the results, this is at a time when, and at the same time at a place where, the acquired knowledge is useful and can be used for correction. The statement holds the truth though but not the whole truth about learning and assessment, this being due to the fact that correction shows issues of simply right answer per se, therefore proposing a homeostatic or single loop perspective or angle of education. It is true of course that 'getting things right' is equally important in higher education, such instances are critical on the issues of precision and accuracy, such instances includes fields or areas such as engineering, medicine, and other sciences where 'not getting it right' has damaging, dangerous or fatal and direct consequences. Wood (1987) further alludes that education should go in the level of a dimension called 'emancipatory' which expounds the greater intention and need to go further than the current confines of knowledge. Yorke (2003) supports that by emphasising the concept of 'development' and 'critical being'. Wood (1987) discussed the chances of what is termed as the student's 'maximum potential or performance' in the spectrum of Vygotsky's (1978) 'zone of proximal development' – the region between the learner's ability to solve problems and the capacity to solve more complicated problems given that there is support from a more skilled persons who is in this case a teacher or trainer – the working together of the teacher/ trainer/ tester and the students tends to give off the 'best performance'. Similarly, Wood (1987) suggests that both formative and summative assessment, especially formative assessment should enable full assessment of a student's greatest potential and ability to expand his/ her brains, through tasks that may be unstructured but calling for much application, synthesis and evaluation/ creativity

Unbundling formative assessment

It is not easy to unbundle what the formative assessment concept is at first sight, as the concept tempts and appears so easy to do so (Yorke, 2003). Formative assessment can overlap both the formal, summative and informal regions of learning, the basic idea being very simple enough, that is, to simply form the basis of contributing to student learning by providing of information about performance. Rolfe and McPherson (1995) actually purports that formative assessment spans a broad and irregular spectrum from the very informal, almost casual then to the highest level of formal, which can even be considered perhaps as very ritualistic. The formal assessment occurs with reference to specific certain curricular assessment framework, encompassing exercises that are required of the student (that is, to do the work) and then of the assessor (to make an assessment of the work that the student has done and at the same time provide feedback which forms the basis of learning for students). Rolfe and McPherson (1995) together with Vaz, Avadhany and Rao (1996) agreed in their discoveries through surveys that there is an overwhelming positive response, as points were suggested by students, on the importance of organised formative assessment sessions.

Assessments that takes place in the course or process of events but not specifically or necessarily stipulated in the curriculum design are referred to as informal formative assessments and Vaz et al., (1996) suggested that these can be helpful to see how a student surely performs due to the fact that there is no pressure or emotional attachments to the form of assessment. Cowie and Bell (1999) suggests that they range from in-class instantaneous feedback when the student takes part in learning activities, comments or suggestions on drafts, for example, of material for inclusion in portfolios, and this presents abrupt assessment strategy contrary to Brown's idea of formative assessment that it should be continuous in nature (Brown, 1999), though it is supported by the notion that assessment should be used for building up to learning and not simply grading (Boud & Falchikov, 2007).

Generally formal formative assessment are assumed completely taken by academic staff or supervisors of placement or attachment activity but though not exclusively taken by these only, where in some cases students are used as peer assessors (Rolfe & McPherson, 1995). Whilst informal formative assessment is one that can be carried out by anyone, including the ones previous mentioned where the student has people that surrounds them living together or working together giving

feedback through suggestions and comments, such as parents, relatives, other students even not involved in the same programme of study (Gibbs, 1999). The effectiveness of informal formative assessment exists in its nature, which covers the indirectness, flexibility and irregularities of this assessment as a student gets peers evaluations, or materials that throws light on the current performance, equally making a self-assessment and adjusts accordingly (Rolfe and McPherson, 1995).

Interestingly, Gibbs (1999) offers a remarkable instance of formative assessment that hovers on the borderline between the formal and the informal. In that instance, Gibbs (1999) gives an example saying that students were requested, at least six times in the 2nd year of Engineering module, to grade their fellows' work an hour after submission, this could give anonymous, instant and helpful feedback to both student with the work, even fellows, content material and the instructor. The students' end of course outcomes were remarkable and therefore was attributed to such aspects of good learning. In and amongst these aspects observed were the issues of the appropriateness of the learning activity, the time the students spent on the task, and of greater relevance, the promptness of the feedback and the social dimension in which what others thought was important, and the stimulus to self-regulation regarding the standard of submitted work (Cowie & Bell, 1999).

Practical context of formative assessment

Basing on Piaget's constructivist developmental stages, at higher education a student should have developed to the highest level of formal operational and beyond; since according to Garwe (2014) many national governments expects their higher education context products to serve the nations developmental levels through economics, politics, socio-cultural, technological and many other elements. Nherera (2000) emphasised the development of global 'key skills' which were named as; using information technology, numeracy, communication and learning how to learn, and with these skills one is able to operate in the real global world whether in voluntary service, at home, in community or at work. Never will a graduate operate in a vacuum world of their discipline or simple existence as a person, every field faces ethical considerations, environmental consciousness in industry production, human rights issues, collaborations or cooperation, competitiveness, and so on. This implicates that higher education context, should be able to teach one to act accordingly even if the action could be personally disadvantaging but community-wise advantaging.

The greatest hope will be that students will be able to operate autonomously intelligent in the original Zone of Proximal Development (ZPD), thus making it no more a ZPD but bringing up a new ZPD further up the student's, now a professional, developmental gradient. Yorke (2003) assumes that from experience it is clear that programmes in higher education have their basis on a set of general predispositions in which the subject discipline is dominant rather than focusing and centring on student development. In developing formative assessment practice, the trainers will have to take full cognisance of the following major issues highlighted earlier on and put real standards, or landmarks now on the side of the assessors. Assessors should be fully aware of; the discipline's epistemology, total-sum student intellectual and moral development phases, then individual student's knowledge and stage of intellectual development and then the psychology of giving and receiving feedback. Far above this, Rolfe and McPherson (1995) suggest that assessors communicate with ('with' is preferable than 'to' here) students regarding their task and work, be able to understand that the learners actively seek to elicit the meaning from formative comments and that learners are prepared to act on the basis of their developed understandings. The general learning environments should encourage more of formative assessment throughout the processes of teaching and learning in higher education.

Sample of modern types of formative assessment

Formative assessment is deemed procedures used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes, and includes the following shown on Table I;

TABLE I. Modern forms of formative assessment

Type	Explanation	Examples / Suggestions
Discussion	The teacher asks targeted questions and records informally student responses. This can be done in whole group, or small group. Later this information can be transferred to the student's grade pages.	Propose an alternate ending to the book. Defend your change with information from the book and what you know about the characters. 'Bloom question stems'
Exit slip/admit slip	When students enter or begin the lesson, they are presented with the goal for the lesson. At the conclusion, they complete a brief simple assessment that the teacher can use to assess their skill level on the goal and what they need to do next.	'Name as many geologic periods as you can. Extension: Put them in the correct order' Struggling : Provide the first letters or other hints
Four corners	Corners are labeled: Strongly agree, agree, disagree and strongly disagree. Present a controversial statement and have students go to the corner that best fits their opinion. Students then pair up to discuss why they feel as they do. Teacher circulates and records comments. Next there can be a whole group discussion, where opinions are defended and or students can return to their desks to write a brief defense of their opinion.	As a class, study the available information on Global Warming. Next present the following question: The planet Earth is getting warmer and we must make immediate changes in our behavior to prevent disaster. Have students select their corner and work to create a presentation with support data
Games	As students play the game, the teacher circulates with a clip board and records individual observations on student skills. This information will drive later small group lessons.	As students play the teacher circulates around the room, recording on a clipboard at what skill level students are playing the game. Are they just using addition, or are they using multiple steps.
Graphic organizers	The teacher presents a variety of graphic organizers and allows students to choose from a sample to demonstrate their	Students use a Venn Diagram to compare and contrast the books, Polar Express and Silver Packages.

	knowledge on a given standard. As they work, the teacher can circulate around the room and discuss choices with the students. This information, along with the final product can drive further learning.	
Individual white boards	Students record their answer to a given question on their white boards. On the teacher's signal, the students raise their boards so the teacher can see if they arrived at a reasonable answer. This would drive later small group work.	The teacher posts a question, such as how many cups in 2-1/2 quarts. Students record their response, and when requested, show their answer. Teacher notes students who are having difficulty. 'Alternate white boards can be cardboard in a clear page sleeve or shower board'
Kinesthetic assessment	This assessment requires students to incorporate movement to demonstrate their understanding. The teacher can make notes on their understanding for further learning.	Math: Create a graph on the classroom floor, in the hall or in the gym and have students locate coordinates by moving to them. Begin with small groups or pairs.
Laundry Day	This is a student self-assessment where they select a group with which to study for a summative assessment. Previous class work can also be used as criteria.	There are 4 groups : Tide(Those who feel they are drowning in information); Gain(understand basics but missing some key parts; Bold(fairly confident, just some missing details); Cheer (sure of success, looking for enrichment)
Learning/ Response logs	Students maintain a log where they record their learning, or respond to a lesson regarding their understanding.	The teacher collects all or some of the logs after students have completed a task. Students will comment on their level of comfort with the information, as well as what was learned and what questions they may still have.
Observations	The teacher walks around the room as students are engaged in an activity. There is a specific skill that is being addressed and the teacher will record what she/he sees on informal notes to be transferred to the student's grade pages to drive further instruction.	Students are working on a math challenge requiring using manipulatives to determine various equivalent fractions. The teacher will walk around and record what is observed, who demonstrates mastery and who needs more support. Suggestion: Create a sheet with student names down the left and open slots at the top. List the standards being addressed with a given activity, then use a system to record those having difficulty and those who need more of a challenge. Those not marked show mastery. Transfer data to student record sheets later. Create the next day plan from the results.
Conferencing/ individual/small group	The teacher meets with students to discuss a specific targeted skill. The teacher can record the student's progress toward the standard and what is the next step for them.	Discussion of topics or issues is done in an open forum like a seminar or workshop, teacher notes those giving reasonable contributions as the ones who have mastered, in a group set up teacher also notes those who are quiet and cleverly engage, teacher too allows class members to stir the discussion or lead the way,
Practice presentations	Students practice a presentation model, with peer feedback. They are working on verbal work as well as presentation skills and demonstrating knowledge on the subject matter.	Create a standards based rubric that students see before they prepare and as they peer evaluate.
Projects	Students demonstrate knowledge on a specific set of standards by presenting information to the entire group. A rubric is given prior to the creation of the presentation and the student/ group is evaluated via this document. Further small group lessons will be created as a result of this information	Create a standards based rubric that students see before they prepare and as they peer evaluate.
Questions	Challenge students to demonstrate higher level thinking by asking challenging questions such as asking them to explain, justify, imagine or defend.	Bloom question stems
Self/peer assessment	Students reflect on their learning, and assess where they are in the continuum. Students can also be used a peer evaluators, explaining how they feel a product reflects what was expected. (NOTE: Students must be extensively taught this skill!)	*As I See it* Determine the number of rows you would like on the template. Create and enter in the sentence stems on the template. 1. Examples of types of sentence stems a. Personal Statements -When I read this, I imagine that… - -I was most impacted by… b. Explanatory Statements -The angle changes because… c. Prediction Statements -Based on the data, I predict… d. Confusion Declarations -After today, I am still confused about… 2. Make and distribute enough copies for each student. 3. Ask students to express their knowledge or opinions using the stems. 4. Discuss what students have discovered about their own opinions or levels of knowledge.
Short quizzes	Students respond to a prompt or a few targeted questions. They receive feedback promptly with directions for what they will do as a result of the outcome.	For multiple choice quizzes, have a double answer key (vertical fold) and have them record them twice. Students turn in 1 copy and keep the other for discussion as you go over the answers immediately after they have finished.
Think-pair-share	The teacher presents a question (higher level, standard targeted). Students have 20 -30 seconds to think on their own. On a signal, they turn to a partner and discuss their thoughts for approx. 1 minute, and finally they share with the class for discussion.	Hand signals, perhaps with a quiet sound signal, can be useful for this activity. A closed fist for think, crossed fingers for pair, and an open palm up for share.

Visual assessment	Students use visuals, such as drawings, diagrams, photos, maps or 3 D creations to demonstrate understanding of a standard. This may be an ongoing sort of assessment where the teacher may question the student for further definition.	Students create a "Doodle Art" as they watch an educational video. They are to write important vocabulary and draw visuals to help demonstrate what they learned. They can share their Doodle Art with a partner as the teacher circulates around the room, recording information. After polishing up, they can turn them in
Writer's notebook	Students have a 3 ring binder where they keep all their writing, informal and final drafts. The teacher periodically reviews select writing and has a discussion of strengths and weaknesses.	In the back there is a two column response page. The teacher can indicate what the student needs to work on and then the student indicates in future writing where this is demonstrated. Student may use this notebook for personal writing as well. Consider allowing the student to keep at the conclusion of the year.

Other important Types of Formative Assessment includes;

- Observations during in-class activities; of students' non-verbal feedback during lecture
- Homework exercises as review for exams and class discussions
- Reflections journals that are reviewed periodically during the semester
- Question and answer sessions, both formal - planned and informal - spontaneous
- Conferences between the instructor and student at various points in the semester
- In-class activities where students informally present their results
- Student feedback collected by periodically answering specific question about the instruction and their self-evaluation of performance and progress

Informal vs formal formative assessment

According to Hendel and Lewis (2005) it is quite commendable and very helpful to use the two different forms of formative assessment, which are the formal formative assessment and informal formative assessment.

Informal formative assessment tends to include the following aspects and facts;

1. A system of observing and keeping track of students during in-class learning processes and teaching encounters or experiences
2. Coming together and interacting with students to get a level deeper understanding of what they know, comprehend and can possibly do
3. Circulating the classroom, at the same time posing questions, directing investigations and keeping students motivated, quizzing students too
4. Giving the greatest opportunity to students to stand and present or give reports upon the teaching and learning experiences
5. To gather, analyze and provide feedback on in- and out-of-class task or work samples, that is, how students group projects are going.

Whereas formal formative assessment covers the following aspects and facts;

1. There is need to use specific assessment strategies that helps determine the degree to which students might have attained the learning objectives and outcomes.
2. The use of structured assessment strategies such as projects, essays, reports, exams, presentations, laboratories or workshops, performances, artwork, resource development, creative design tasks, even quizzes, tests, portfolio, journal writing and so forth, which are awarded scores or marks
3. The involvement of collaborative and/ or individual work and tasks that tend to attract a mark, where in some cases the group tasks may involve both group and/ or individual component.

Formative versus Summative Assessment

Bloom et al., (1971) distinguished formative and summative assessment stating that the latter concerns itself around determining the degree to which a student has achieved laid down formal circular objectives. Some authors have identified that the difference between formative and summative assessment can be considered far from sharp, they appear so thinly divided. In some cases, for example, on in-course assignments, they are purposefully put in such a way that they constitute both formative and summative assessment (Yorke, 2003). Where it becomes formative, it is due to the fact that the student is expected to learn from whatever feedback that is given from such in-course assignment, then summative because the grade awarded contributes to the overall final mark at the end of the study unit. Assessments that are summative but in relation to a circular component, or being a pre-requisite, in that case a fail or pass of a module, for example can act as a formative if the student learns from the previous module. Garwe (2014) advocates for an increase in the formative assessments than end-of-unit summative assessments for effective learning, and the expedience and adequacy of feedback rather than too late feedback or inadequate for students to make up choices or decisions.

Convergent or divergent

The idea by Torrance and Pryor (1998, 2001) identifies what can be considered convergent assessment and divergent assessment. Convergent forms of assessment measures the ability of students to satisfy prescribed objectives. Divergent assessment assesses the student's capacity to deal with more open-ended tasks and circumstances leading to analytical-futuristic-critical thinking. Boud (2000) suggests that the key purpose of higher education is to enable the greatest autonomy of students in a world of lifelong learning, with this then both summative and especially formative assessment should contain commendable significant proportion of divergence.

Student self-regulation and speed of feedback

As and when formative assessments are instituted students tend to be assisted through appreciation of certain quality and standards expected from them, that is, student self-regulation (Cowie & Bell, 1999). It is interesting to note that even the statements of expected standards, curriculum objectives or

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learning outcomes put across in a program are grossly insufficient to explain fully or convey the depth and width of the meaning that they engrave to be actioned. Gibbs (1999) proposes that to enable student comprehension of these objects there is need to exemplify and put discussion slots being supported by Polanyi (1958) classical dictum that 'Connoisseurship . . . can be communicated only by example, not by precept'. Similarly, for effective self-regulation, Gibbs (1999) advises that expectations for students should be exemplified in the course materials, where feedback should be given on draft items anticipated to be organised in an assessed portfolio.

On the issue of feedback, there are numerous ways in which trainers can give or provide feedback to the students (Eisner, 1985). Trainers can provide written comments on assignments, or give oral comments after a sort of assessed presentation or feedback can be given quickly during a learning exercise which is not formally assessed. Regarding the latter, let us take for instance in a geological field studies with a group students working together, or working in a drama or working in an art, and in those cases the trainer has the opportunity to give rapid or instant, informal feedback.

Notwithstanding there is also feedback from peers and others not in the training or teaching roles and in both cases the purpose of formative feedback is to contribute to student learning. A lot of life- and hope- giving conscious feedback has to be attributed in many aspects of feedback, with regards giving the feedback and the right time to give the feedback for contribution to learning (Yorke, 2003). Deliberative processes such as grading and commenting on assignments or tests involving the tester or trainer analysing what the student has said, what should have been said, and so on; and to the other extreme of instant feedback where the observer or trainer makes instant comments on what they can see right now as the student performs, for example, using a wrong equipment or using the right equipment wrongly for a task, both need skill to build up a student (Cowie & Bell, 1999).

The trainer obviously uses their knowledge tank, and has to emphasise the correct action to be done or the professionally 'obvious' (Dochy et al., 1999). In both the extreme situations the trainer is faced with an intermediate where they have to make a fairly quick but not so instant decision about the student performance, for example, in making a judgement across the merits of a drama student's delivery of a speech from the classic Shakespear or a team presenting in a business studies programme.

The challenge of misjudging student performance

Baume and Yorke (2002) recognises the fact that high success rates are attributed to feedback that students receive on various assessment tools, where many students have the opportunity to polish up their submissions in light of previous feedback as in the case with dissertations, projects, portfolios and so on. There is a potential problem envisaged in such arrangements though, due to the fact that the success of the student is either wholly or partially subject to the trainer's input. Gipps (1999) claims that the student might not have successfully or sufficiently developed muscles to deal satisfactorily with analogous practices and tasks with the backing of the trainer, thus in terms of theoretical and practical development it might not be easy to say that the student has moved up the 'zone of proximal development' up the developmental gradient. In cases where a curriculum requires learners to show competences enough to tackle the subsequent independent study judging on the success of a prerequisite, Cowie and Bell (1999) articulates that the examining board adjudicating student performance at one level might get to unjustifiably very optimistic conclusions about capabilities of a student being successful in the subsequent module, for example, the ability of one to exquisitely defend a PhD Proposal module does not guarantee success in the subsequent Thesis module.

Is formative assessment effective then?

In several studies, Birenbaum (1996) suggest that formative assessment 'works', that is it enables student learning across an elongated range of educational situations, from disciplinary areas to types of outcomes, to various levels and so on. A critical component of the impact of formative assessment is the potential that the feedback received by learners have on improving quality. Removing the feedback factor, then students will have little or none at all platform or guidelines to chart their way forward and development. According to Boud (1995) this implicitly tipoffs on the concept of 'consequential validity', meaning that as much as feedback might be seen in the short term, vision of its long term potential impact should not be lost or obscured. Therefore, when it happens that there is a positive deferred effect on learning, there follows that consequential validity is heightened, whereas if feedback has motivated learning counter that one which has been desired or intended, maybe some-kind of surface learning then this circumstance presents low consequential validity.

The world over there is increasing forces on higher education context, debating and supporting the use of formative assessment though it appears the best in such a context of higher education and the need for quality (Garwe, 2014; Shizha & Kariwo, 2011). These pressures as identified, appear to be differently significant across countries and institutions, and includes the following highlighted;

a) The heightening apprehension of achievement standards, therefore leading to too much emphasis on the (summative) assessment of outcomes
b) Large classes which are ever increasing the student/ staff ratios, causing decrease in the level of attention given to individual students during the courses of learning
c) A growing curricular structuring that is changing in the direction of greater utilization leading to more frequent assessments of outcomes and little opportunity for formative feedback
d) There is now a placed demand on academic staff, in addition to teaching, that they need to be seen as 'research active', fundraising, community and public service, and inter-/ intra-institutional administration, re-directing the focus away from teaching and learning main issues

Shepard's argument in 2000 adds to these issues appropriating the legacy of the 20th century apart from the

issues covered in the behaviourist approaches of learning; that learning should embrace social efficiency and scientific measurement, that whilst approaches to learning are moving towards constructivism; approaches to assessment are inappropriately lagging behind focusing on testing. A major milestone for higher education is to embrace the main 'message' of Black and William's review 'formative assessment is, after all, a key tenet of good teaching' and learning (Garwe, 2014); giving it a chance that it can lead to the previously perceived 'golden age' when students tended to be well resourced and endowed through the teaching and learning process, and after the teaching and learning environment. In actual fact, an extensive concentration in student learning and the manner in which this could be done started not so long ago, so that the previous ages may well be described as have been celebrated in a metal baser than gold, and gold is what the current era is like in terms of what facilities, approaches, material, content and strategies available (Shizha, 2011).

How should effectiveness be judged in formative assessment?

At least two major questions need to be asked concerning formative assessment, which may show varying perspectives on this issue (Sambell & McDowell, 1997).

Firstly, 'Is what the assessor has done or doing concerning feedback to students the best that could have been done or more weakly, reasonable in the circumstances?'

Then secondly, 'Did the formative assessment influence student behaviour?'

The next important issue to note then will be to find out the perspective to take, the trainer's or the students', in that case the trainer could argue that they are giving formative feedback with an intention that the students learn from it, even when the students might not be learning from it in anyway (Rolfe & McPherson, 1995). The intention becomes the most important and justifying component, even if the students, say for example, just sees the grades and ignores the comments. Whereas from the students' learning view feedback is formative if, and only if, it has aided in progressive learning. In these instances, validity is acclaimed from both the teacher-centred or student-centred perspective (Yorke, 2003)

Tina (2009) argues that formative assessment of educational programmes in higher education needs to be first theorised then operationalized, due to the fact that it is overwhelmingly under-theorised and there are no guiding parameters to the required quality standards. Un-theorised assessment raises the bar of being partial and imperfect, where if some important elements of assessment are not to be marginalised theorisation first is deemed highly necessary.

Even though formative assessment suffers from conceptual and technical challenges that seem more the same like summative assessment, it appears so different from summative in that it is dialogic since it will end up involving the student having the opportunity to work it up with the teacher in a discussion (Wolf, Bixby, Glenn & Gardner, 1991). The underlying purpose of such has to reach an acceptable level of reliability, though the most important issue here is validity due to the fact that the activity is developmental rather than simply related to measurement. The discussion between the teacher and the student can be considered mutually hermeneutic, due to the idea that both are pursuing to interpret and comprehend what the other is communicating, at the same time the trainer is aiming to prepare the learner to become better equipped in dealing with future problems they can encounter and for such facts formative assessment is deemed potentially richer by Tremblay et al., (2012) than summative assessment, and thus needs more theorisation and operationalization.

Summative assessment

Shepard (2000) asserts that summative assessment normally or generally takes place after the learning has been completed or has to take place towards the completion of a program; and provides information and feedback that sums up the whole teaching and learning process. Indicatively, there is no more formal learning that can possibly occur at this phase instead any learning here can be incidental learning which could take place in the process of completion of projects and assignments. Rubrics, in most cases, are crafted around a set of standards or expectations, and also mostly utilised for summative assessment. In most instances rubrics are submitted to students in question before they start attempting or working on a particular project, this is done in order for the students to know what is expected of them (precisely what they have to do) for each of the criteria. Rubrics assists in being more objective when deriving a final, summative grade by following the same criteria students used to complete the project.

High-stakes or high-profile summative assessments classically tend to be given to students when they are at the end of a set point during or at the end of the semester to assess what has been learned and how well it was learned. Tina (2009) therefore says that grades depicts the generality, to a greater extent, of result of summative assessment: they indicate whether the student has an acceptable level of knowledge gained through the process of learning, whether the student is able to effectively progress to the next part of the class? To the next course in the curriculum? To the next level of academic standing? And so forth. It is though necessary to investigate more on the grading of such nature and its overall effect on student and further achievements. Shepard (2000) made a distinction between summative and formative assessment, saying that the former is more product-oriented and assesses the final product, whereas the latter focuses on the process toward completing the product. This entail that with summative assessment, once the project is completed, there could be no further revisions that can be made. If, however, students are allowed to make revisions, the assessment becomes formative, where students can take advantage of the opportunity to improve their performances.

Arter (1997) advocates that summative assessment helps in making judgments about student achievement at certain appropriate or relevant or earmarked points in the learning process or unit of study, such as, in the end of course, project, semester, unit or year. It can be utilized to assess achievement levels in the learning outcomes or objectives, for example, in tests, labs, assignments, projects, presentations, etc. Boud (2000) also believes summative assessment can be used to make

judgments about the program, teaching and/or unit of study's effectiveness (that is as a form of evaluation).

Types of Summative Assessment

- Examinations (major, high-stakes exams)
- Final examination (a truly summative assessment)
- Term papers (drafts submitted throughout the semester would be a formative assessment)
- Projects (project phases submitted at various completion points could be formatively assessed) • Portfolios (could also be assessed during its development as a formative assessment)
- Performances
- Student evaluation of the course (teaching effectiveness)
- Instructor self-evaluation

The impact on trainers or assessors

The whole exercise of assessing whether formatively or summative; both formally or informally has huge effects on the trainers as much as this has impact on the students. As students adjusts, according to Eisner (1985) assessors can learn a lot about the degree to which learners have managed to develop expertise, and then can even tailor the teaching or coaching accordingly. Interesting instances are when the assessee presents more than what the assessor intended or what the assessor has put on their guidelines (express objectives), such instances are rampant in areas such as the writing of a poem, the creation of work of fine art and so on, and the student may point out that the trainer may have misconstrued the task or work's intentions, or relatively its socio-cultural underpinnings. The trainer in such instances may need to develop their marking guide and/or course outlines after a period of reflection.

The gross chances of unwanted learned dependence

Whether formative or summative there is a tendency of students failing to develop into their full potential although discouraged students will not go through to as far as 'learned helplessness', they will develop what is termed 'learned dependence' in line to what Boud (1995) referred to as that very often 'trainer led assessment' promotes dependency of students on trainers, even regarding what they know and can do, and they ineffectively learn to be able to do the tasks on their own. This syndrome occurs when a student passively learns and develops a tendency of waiting upon the trainer to tell way forward or to show how a problem is solved and will not work out to go beyond the normal or prescribed borders. Formal and informal feedback is interrogated on what it can say about the trainer's expectations and therefore becomes a snare or parameters of current amendments and future performances, a platform for 'play it safe' or being 'cue—conscious' or 'playing clever', leading to students to find hints that will assist to maximize on the return on effort invested (Hanna & Dettmer, 2004).

Some learners are so much vulnerable to a sense of personal failure, therefore requiring a lot of psychology to handle, to understand the impact of various comments and situations, where in some cases when a student's admission of failure through such statements as 'I am a failure' or 'I did not understand the question and what was expected of me' may lead to erroneously learned helplessness and to the worst, discontinuation of studies (Bandura, 1997). On the same note, Bandura (1997) further proclaims that demands that are to be placed on students should not be too far-fetched for this results in extreme demoralisation, otherwise if a task is like that it repeatedly prompts the need for the student to continually or frequently check on progress that provides affirmations of their success, and growing capabilities leading to another high level of learned dependency.

III. Methodology

The study used a collection of literature from various authorities and sources guided by the aims or objectives of the study. Literature was collected on the three main constructs or issues targeted which encompass diagnostic, formative and summative assessments in the context of higher education institutions. The sub-topics or sub-themes were developed based on the implementation, effectiveness and quality issues with respect to the three main constructs highlighted before that is, the diagnostic, formative and summative assessments in the context of higher education institutions.

IV. Conclusions and Recommendations

The literature collection resolved that diagnostic, formative and summative evaluation or assessment are currently the most important and used higher institutions' assessments. These assessments embeds various forms or types which includes;

Assessment stations, assignments, books/ websites/ journals/ program review, case studies, critical incidents accounts/ blogs, designing learning materials, dissertations, 'doing it' exam, entry/ program requirements, essay, field reports, final exam, in-class test, instant reports, in-tray exercises, laboratory reports, make or design something, multiple choice questions, observations, online discussion boards, open book exams, oral presentations, reports, portfolios/ e-portfolios, presentations, problem sheets, question banks, reflective diaries, projects, role play, short answer questions, simulations, tutorials and viva voce, work related. These methods, types or forms are quite commendable in higher education for they have been in use and are effective in various teaching and learning processes since time immemorial (Gipps, 1994).

These assessment modes could come in the form of individual, group or class work/ tasks; in the form of written, oral, practical, problem based, performance or work placement; which is also commendable in higher education institutions.

The study recommends these assessment constructs and its various types to as worthwhile but over-reliance on a number of essays, tutorials, final examinations and presentations has to be removed re-looked in most higher education institutions.

A lot of assessment approaches need to be combined into a program in order to make assessments fun and less stressful, all-encompassing and useful (Mohamedbhai, 2008).

The system and teacher are continually recommended to introduce evaluation modes in several forms such as individual level, group or class level and, where necessary, in other formats, such as written, oral, problem-based, placements at work, performance, practical and so forth. Group or class work

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or tasks enhances the skills of working together to accomplish a task.

All assessments are capable of evaluating the necessary skills, thus it is important to highlight that some were marked to test a certain competency to a large extent or to a lesser extent and according to Wolf et al. (1991), modes of evaluation can be modelled for assessing practically all necessary skills, but it is necessary to align the mode with such test levels. Knowledge, skills, attitude and research skills can also be tested in any evaluation method and the system or instructor is duty-bound to align the evaluation in order to obtain such talents.

In the many taxonomies suggested by Blooms for example, the study proposes the application of various skill level measurements proposed by different writers in the field of knowledge, expertise, attitudes and research.

REFERENCES

1. Arter J (1997): Using assessment as a tool for learning, in: R. BLUM & J. ARTER (Eds) *Student Performance. Assessment in an Era of Restructuring* pp. 1-6 (Alexandria, VA; Association for Supervision and Curriculum Development).
2. Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York: Freeman.
3. Baume, D. and Yorke, M. (2002). 'The reliability of assessment by portfolio on a course to develop and accredit teachers in higher education', *Studies in Higher Education* 27(1), 7–25.
4. Black, P. (1998). 'Formative assessment: Raising standards', *School Science Review* 80(291), 39–46.
5. Bloom, B.S., Hastings, J.T. and Madaus, G.F. (1971). *Handbook on Formative and Summative Evaluation of Student Learning*. New York: McGraw-Hill.
6. Boud, D. (1995). 'Assessment and learning: Contradictory or complementary?', in Knight, P. (ed.), *Assessment for Learning in Higher Education*. London: Kogan Page, pp. 35–48.
7. Boud, D. (2000). 'Sustainable assessment: Rethinking assessment for the learning society', *Studies in Continuing Education* 22(2), 151–167.
8. Boud D and Falchikov N (2007): Rethinking Assessment in Higher Education: Learning for the Longer term. Routledge. USA and Canada
9. Brown, S. (1999). 'Institutional strategies for assessment', in Brown, S. and Glasner, A. (eds.), *Assessment Matters in Higher Education: Choosing and Using Diverse Approaches*. Buckingham: SRHE and Open University Press, pp. 3–13.
10. Brown, S. and Knight, P. (1994). *Assessing Learners in Higher Education*. London: Kogan Page.
11. Bruner, J.S. (1970). 'Some theories on instruction', in Stones, E. (ed.), *Readings in Educational Psychology*. London: Methuen, pp. 112–124.
12. Cowie, B. and Bell, B. (1999). 'A model of formative assessment in science education', *Assessment in Education* 6(1), 101–116.
13. Dochy F J R C and McDowell L (1997): Assessment as a tool for learning, *Studies in Educational Evaluation*, 23, pp. 279-298.
14. Dochy F, Segers M & Sluijsmans D (1999): The use of self-, peer and coassessment in higher education: A review, *Studies in Higher Education*, 24:3, 331-350, DOI: 10.1080/03075079912331379935
15. Eisner, E.W. (1985). *The Art of Educational Evaluation: A Personal View*. London: Falmer.
16. Garwe E, C (2014): Quality assurance in higher education in Zimbabwe. Zimbabwe Council for Higher Education. *Research in Higher Education Journal*. AABRI Journals
17. Gibbs, G. (1999). 'Using assessment strategically to change the way students learn', in Brown, S. and Glasner, A. (eds.), *Assessment Matters in Higher Education: Choosing and Using Diverse Approaches*. Buckingham: SRHE and Open University Press, pp. 41–53.
18. Gipps, C.V. (1994). *Beyond Testing: Towards a Theory of Educational Assessment.* London: Falmer.
19. Hanna, G. S., & Dettmer, P. A. (2004). Assessment for effective teaching: Using context-adaptive planning. Boston, MA: Pearson A&B
20. Hanover Research Institute (2013): *Best and Innovative Practices in Higher Education Assessment.* Hanover Research Institute. Academy Administration Practice. Washington, DC 20006
21. Hendel D, D and Lewis D, R (2005): Quality Assurance of Higher Education in Transition Countries; Accreditation Accountability and Assessment. *Journal of Tertiary Education and Management*, 11 (3): 239-259
22. Mohamedbhai, G. (2008). *The Effects of Massification on Higher Education in Africa*. Association of African Universities, Accra
23. Nherera, C.M. (2000). Globalisation, qualifications and livelihoods: The case of Zimbabwe. *Assessment in Education*, 7 (3), 335-363.
24. Polanyi, M. (1958). *Personal Knowledge: Towards a Postcritical Philosophy*. London: Routledge and Kegan Paul.
25. Rolfe, I. and McPherson, J. (1995). 'Formative assessment: how am I doing?', *Lancet* 345(8953), 837–839.
26. Sambell K and McDowell L (1997): The value of self- and peer assessment to the developing lifelong learner, in: C. Rust (Ed.) *Improving Student Learning--improving students as learners* pp. 56-66 (Oxford, Oxford Centre for Staff and Learning Development)
27. Segers, M. (1996) Assessment in a problem-based economics curriculum, in: M. BIRENBAUM & F. DOCHY (Eds) *Alternatives in Assessment of Achievement, Learning Process and Prior Knowledge*, pp. 20!-226 (Boston, Kluwer Academic).
28. Shepard, L.A. (2000). 'The role of assessment in a learning culture', *Educational Researcher* 29(7), 4–14.
29. Shizha, E (2011). *The development of higher education in Zimbabwe*. Education and development in Zimbabwe.
30. Shizha, E and Kariwo, M. T (2011*): Education and Development in Zimbabwe. A Social, Political and Economic Analysis*. Sense Publishers. Rotterdam/ Boston
31. Taylor, PC & Medina, MND (2013): Educational research paradigms: from positivism to multiparadigmatic. *The Journal of Meaning-Centred Education*. 1(2). Accessed online 10 June 2016
32. Tina, A. C (2009): Assessing the quality of educational research in higher education. *International perspectives*. University of Illinois, USA
33. Torrance, H. and Pryor, J. (1998). *Investigating Formative Assessment: Teaching, Learning and Assessment in the Classroom*. Buckingham: Open University Press.
34. Tremblay K, Lalancette D and Roseveare D (2012): *Assessment of Higher Education Learning Outcomes*. Feasibility Study Report. OECD. Vol 1
35. Vaz, M., Avadhany, S.T. and Rao, B.S. (1996). 'Student perspectives on the role of formative assessment in physiology', *Medical Teacher* 18(4), 324–326.
36. Vygotsky, L.S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.
37. Wolf, D., Bixby, J., Glenn, J. & Gardner, H. (1991) To use their minds well: investigating new forms of student assessment, *Review of research in education*, 17, pp. 31-74.
38. Yorke M (2003): Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education* 45: 477-501