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Examination-Curriculum Alignment: A Case study of the 2014 Junior Certificate State Final Examinations in Swaziland.

Abstract

This study analyses the alignment between national goals, objectives and examination items of 2014 history Junior Certificate. This validity investigation aims at illuminating the knowledge and cognitive processes tapped by the items-to see if some core skills (higher cognitive) were omitted from the examination. Taxonomy table was used for establishing the alignment between exam items and the knowledge and skills learnt. This assisted in assessing the nature of the items in relation to national goals, content and objectives. While some items aligned to specific goals, objectives and contents but many were omitted from the examination. Misalignment compromised the validity of the results. The examination had a skewed type of alignment particularly with national goals. The examination was good in gathering information about students' skills and knowledge but exacerbated the problem of curriculum narrowing. Government's effort to reform the education system through the assessment resulted in technical changes. Examination should be an accountability policy for promoting multiple changes in practice including the quality of teaching and enhancing the effectiveness of teachers and examiners.

Key words: Taxonomy, Validity, Assessment Junior Certificate

Introduction

Education is the facilitator of sustainable development and the role of education in this process depends on different factors such as the nature of classroom in terms of promoting critical thinking skills and examination assessments practices. The examination assessment is one of the important aspects of improving teaching and learning and any country's economic growth. Students' assessments help in increasing teachers' understanding of classroom practices and in bringing about improvements in teaching and learning and eventually sustainable development. Examination aims at promoting accountability and improving teaching and learning. It is a means not only to establish accountability but also to achieve educational benefits (Mentkowski, 1991 P 257).

Examination analysis is one of the powerful assessment techniques available to instructors for the improvement of classroom instructions and students' outcomes and the culture of accountability in education and among students. Students are expected to be held accountable for their learning as well as schools by demonstrating that they provide students with opportunity to learn to meet the standards that have been set by curriculum related policies (Baratz-Snowden, 1993). Accountability policies are premised *on the assumption that a focus on students' outcomes will lead to behavioural changes by students and school*

align with the performance goals of the education system (Hanushek and Raymond 2011 pp 368-369).

Examinations are used as a form of assessment to hold students and schools accountable. Examination results which show which students, in which schools, met the learning standards and which were not are important for educational change and accountability system. The use of examinations as a countable system creates a context in which teachers and policy makers act in ways to maximise performance. Examination based accountability has a potential of influencing the behaviours of teachers and students in a positive manner (Haertel, 1999; Linn, 1993).

Schools are expected to be accountable to parents and government, government, through the Ministry of Education is expected to ensure that the national aims, goals and core skills are addressed in each subject. Examinations are expected to show which students and in which schools are meeting the learning standards and which are not. Those schools and students that are falling short should be held accountable. The Ministry of Education rely on examinations to help government to help parents to understand the nature of education provided to their children and be informed about the education quality and school quality, and to help government to direct the allocation of resources, those schools where students have lagged behind. Examinations are expected to offer insight into both the promises and the pitfall of current education policies. For example, the Swaziland Education and Training Sector Policy of 2011 states three broad purposes for the exit examination: assessment of individual achievement, assessment to assist teaching and learning and assessment to evaluate the quality of and effectiveness of the subject syllabus and the education system.

Examination is one of the important techniques of assessing and estimating student's performance across different learning outcomes. Each item in an examination is intended to sample students' performance on a certain learning outcomes. Creating reliable and valid examinations are important for assessing curriculum alignment, student's performance, achievement and success. More often than not, in Swaziland it is not known whether the exam items are tested for their validity or not. Some techniques available for teachers and instructors for testing item validity includes curriculum alignment but there is little or no research work done which focuses on curriculum alignment of the Swaziland 2014 Junior Certificate examination in Swaziland.

Curriculum –exam alignment

The importance of curriculum alignment is that it helps people to understand the effects of instruction on learning and avoiding a scenario where teachers may end up “teaching up for a storm” if what they are teaching is neither aligned with the state standards or subject curriculum objectives (Herman, 2005; Anderson, 2002 P. 259). Curriculum –Exam alignment is central because people need to know about what students have learned as a result of their schooling experiences (Baratz-Snowden, 1993).

Examinations are adopted as a surveying tool, to survey the curricula being implemented in schools for broader educational and societal reform aiming at creating improvements in the

education system (Hamilton, 2003). More often than not, externally mandated examinations are expected to align with specific subject curriculum goals and skills and national goals. For example, in countries such as the United States of America (USA) there was a call for examinations which align with the subject goals, stated national goals or core skills, and teachers were encouraged to teach them (National Council on Educational Standards and Teaching, 1989; Resnick et al., 2004; O' Day and Smith, 1993). Clear links between and among subject content and national goals has a potential of influencing education policy and classroom instructions which might lead to educational reform (O' Day and Smith, 1993).

Examination assessment characterised by clear links between subject content and education national goals could be used as a comprehensive educational reform strategy. For example, examinations may be analysed in order to identify key concepts not covered by the examination, focusing on schools whose students are doing well or poorly. This notes that assessment is a systematic, connected and purposeful educational process, which focuses on the explicit and implicit links between national goals and subject goals and examination items (Hamilton, 2003; Mentkowski, 1991). This requires an interpretive argument (Haertel, 2005; Kane, 1992) which involves obtaining and weighing evidence to support or refute the claim. Obtaining the evidence involves looking at the match between subject content, objectives, national goals and examination item cognitive demands. This could help in seeing whether the examination shows an uneven or even match between subject content, national goals and cognitive demands. This helps to ensure that students are given access to the entire content of the subject and national agreed upon goals and core skills. It helps to show whether teachers are teaching to the exam, not standards (Stecher, et al., 1998). This has an educational value because it provides information about what students have and have not accomplished in regard to specific subject skills and national goals. This promotes educational transparency and reforms.

In addition, it also promotes accountability of examinations, which is a lens through which national educational goals and core skills are assessed. If national educational goals or core skills are not examined or included on the examination items, it suggests that the goals received weak treatment in classroom teaching and learning. A focus on teaching for the examination rather than subject and national educational goals has serious educational repercussions or consequences for the nation. Students are expected to be exposed to full breadth of subject knowledge and skills that the nation has determined for the country's future economic development and sustainable development. Students who had only the opportunity to learn narrow, exam based curriculum which lead educators and policymakers to misinterpret examination results and continue failing to address the genuine educational problems or needs may lead to serious equity problems (Darling-Hammond, 2010).

Exit Examination Assessment

The Swaziland Education Act 1983 and other relevant education policies require all schools to follow the same broad and balanced curriculum. Students performance and progress towards attainment targets, are set for each subject and assessed through nationally prescribed

exit examinations, which all students are required by law to take at different levels (Standard Five, Form Three and Form Five) of the education system.

The Ministry of Education has recognised the need to integrate critical thinking instructions into the education system in general and into the history curriculum in particular (Ministry of Education and Training Curriculum Framework, 2014; Ministry of Education and Training Sector Policy, 2011). Critical thinking skills refer to the ability to develop and analyse arguments based on resources (Williams et al., 2004). It is also about a variety of concepts and abilities; gender conscious, culture conscious, health conscious (Ministry of Education and Training Sector Policy, 2011; Mazer et al. 2008; Facione, 1989).

The introduction of the critical thinking instruction into the history curriculum has become a crucial element of the education system in Swaziland and elsewhere (Ministry of Education and Training Sector Policy, 2011; Hunt et al., 2005). The history related art of communicating, interpreting sources is highly recognised within the Swazi education system and elsewhere. Brown and Stuart, (2004) noted that most academics had agreed on the importance of critical thinking skills and communication as springboard for effective learning.

Researchers had agreed that critical thinking skills (CT) are necessary for everyone, not only in the classroom but also as a lifelong surviving skill for all (Brown and Stuart, 2004; O'Keefe, 1986). The presence of courses such as history provides an ideal context for the application of critical thinking skills because it provides students with opportunities to discuss and debate historical-oriented matters. History –related subjects content also provides an ideal chance for developing communication skills among the students (Dance, 2002). William et al., (2010) state that critical thinking skills are encouraged and strengthened through subject content that promotes the creation and the evaluation of arguments.

Swaziland Junior Certificate examination

Students who sit for the Junior Secondary are the ones who have completed the secondary phase of the education system in Swaziland (forms 1-3). Students are examined from a wider range of subjects including history. They are assessed from diversified subjects, which are studied in more depth compared to the Primary Certificate examination.

The Junior Certificate examination may be considered as the first exit level from the education system because after this level some students may start their independent adult life and entry non-formal education, employment or create their own employment (Ministry of Education and Training Sector Policy, 2011; Ministry of Education Curriculum Framework, 2014). Critical skills such as thinking and communication are consolidated. This is also a critical part of the education system, the students and the state.

Validity complexities

Validity is a unitary/single multifaceted concept with multiple facets (holistic in nature) which view construct validity as the whole of validity (Downing, 2003). It is an assessment oriented process because it involves a series of inferences, based on evidence provided to

support each inference (Messick, 1989). Every test/examination use involves inferences or interpretation, all validation requires the combination of logical argument and empirical evidence to support the inferences for a valid conclusion (Lorrie, 1993).

Validity has multiple facets; therefore it requires multiple sources of evidence which include test content, students' response processes as vehicles towards the achievement of validity evidence in an assessment (Barker, O'Neil and Linn, 1993; Kane, 1993; Messick, 1975; Cronbach, 1971). Examination evidence should be assessed in the context of integrated construct validity. This suggests that providing evidence of validity is complex because it needs validation evidence from different sources derived from various methods (Kane, 1993). Downing (2003) claimed that the exam items may provide a source of content-related validity evidence by scrutinizing the nature of the items; are there sufficient numbers of questions which adequately sample the large content domain? All validity is construct validity (Cizek, 2001; Mesick, 1995); American Standards of Educational and Psychological Measurement, 1990; Anastasi, 1986; Embretson, 1983; Gurion, 1978; Tenpony, 1977; Cronbach, 1971). Currently construct validity is considered to be the sole type because of the complex webs of related inference associated with sampling content in order to make meaningful inferences, particularly in social sciences assessment which deals with interconnected social constructs, such as reading and comprehension (Mesick, 1995).

The concept of validity is a complex controversial and multifaceted concept because examinations or tests that uses language in its items is also assessing students' reading ability and subject content (American Educational Research Association, 1999) . It is claimed that validity has to represent the true value of the examination where the examination developer is expected to elicit the communicative ability of the examination taker and reach an objective assessment of the particular ability (Mesick, 1995). This is problematic because validity is something which is elusive, because "truth" remains a relative concept (Fulcher and Davidson, 2007). Validity is an abstract concept which needs to be validated through a validation process. The process focuses on exam results and evidence, and the procedures followed by the test taker. This is empirical validation of procedures which looks at how the examination judgement was reached (students' performances). Validation of procedures involves the collection of all possible exam related evidence from different sources to construct an interpretative argument Morse, 1998; Hamersley, 1992; Kane, 1992). The evidence includes construct validity, content validity, reliability index and students' feedback. This has the potential of ascertaining accuracy of the exam scores and students' performances on the state exit examination.

Validity arguments

Validity argument is a tool of measuring validity of a test/exam aiming at plausible and credible outcomes (Hammersley, 1992; Yin, 1994).. Its an analysis to establish that the task really does involve the students in the knowledge and skills that are specified in the performance standards. It should be presented in detailed, qualitative manner as noted in the national standard performance domain (Frederiksen and White, 2004).Validity argument

should detailed the ways in which the prescribed knowledge has been used by the students while responding to the test item or examination items (Frederiksen and White, 2004).

Meaningful arguments which are characterised by logically explanations, which focus on the detailed processes related to test scores with the aim of producing evidence and valid conclusion are crucial in students' performance assessment. Students' performance assessment itself cannot be declared as valid or invalid unless scientifically meaningful evidence is presented to support or refute the given interpretation of the assessment scores. Meaningful interpretation of scores which test cognitive knowledge require content related evidence of the adequacy of the content tested mainly in relation to instructional objectives and curriculum goals. Research on students' performance for example, requires evidence of the reasonableness of the proposed interpretation, as test scores have little or no intrinsic meaning (Guba and Lincoln, 1989). Explanations of the research processes (validity argument) are required because they help in establishing trustworthiness and avoid the risk of missing serious threats to validity (Bechman, 1990; Guba and Lincoln, 1989). Validity is not an inherent property of a test but it refers to the specified use of a test for a particular purpose (Mesick, 1989; Kane, 2001; 2006; Sirec, 2009). The constructs measured through an assessment is important and it requires solid scientific evidence of their meaningful meaning. Validity of an assessment depends on a clear sense of the construct being measured and how it has been described (Frederiksen and White, 2004; Bechman, 1990). Valid conclusion depends on a vigorous and carefully structured process of reasoning from evidence that is driven by the content, exam items (Linn et al., 1991; Brindley, 1994; McNamara, 1996; Kane, et al., 1999; Messick, 1994). It depends upon processes of reasoning from evidence or test items.

Validity and key ingredients for students' assessment performances

Students' performances are expected to be guided by clear stated purposes of the test/examination paper. It should be stated what the examiners want the students to be able to do, and be clear how this requirement fits with the exam/test instructions, subject content and curriculum goals (Alderson et al., 1995; Brown, 1996; Bechman, 1990). The exam/test should be characterised by an activity which gives the students an opportunities to demonstrate the performance and these should align with the subject-matter content and curriculum goal (Reeve, 2006; Brookhart, 1993; Wiggins, 1987). This helps examiners to think of the actual information obtained from students, particularly on how it relates to the intended outcomes (planning and delivering responses-use of knowledge in relevant problem contexts) (Brookhart, 1993).

Study focus

This is an alignment study, focusing on the analysis of alignment between the history curriculum goals and the examination items of the Swaziland Junior Certificate (SJC). It aims at examining alignment of the Swaziland Junior Certificate (SJC) 2014 history examination with national goals and history curriculum objectives.

The study conducts a validity investigation which aims at illuminating the knowledge and cognitive processes tapped by the exam items-to see if some core skills were omitted from the examination, especially the more challenging ones that focus on higher level cognitive processes (Resnick et al., 2004). Focusing on cognitive processes includes analysing the solutions (answers) or errors that the students make as they respond to the exam items (Messick, 1989).

Understanding the cognitive processes (such as critical thinking skills) tapped by each examination item is important for evaluating alignment among the education national goals and the subject curriculum goals and core skills. Such a study is it's a process of reviewing the connection between the national state educational goals that describe what should be taught and the subject curriculum goals that describe, what should be is actually taught and match against what is examined. Such an alignment study require at its core an examination item mapping which examination items are evaluated with respect to one or more subject content standards (Bhola et al., 2003). Alignment occurs when the national goals, subject curriculum goals and the assessment communicate the same expectation to students, government and the citizens (Long and Benson, 1989).

Evaluating alignment has the capability to ascertain the validity of the history exam. Validity is viewed as a concept with multiple facets, which requires multiple sources of evidence as a form of validation based on validation procedures (Kane, 2009; Downing, 2003). Validation of procedures involves the collection of all possible exam item related evidence from different sources (nature of exam questions, sampled subject content, alignment of subject goals and national goals) to construct an interpretative argument (Kane, 1992; Messick, 1989).

The evaluation of the alignment of the Junior Certificate examination of 2014 was achieved through these following lines of inquiry:

- (a) To what extent is the state examination assessment of students under the history Junior Certificate aligns with state educational goals?
- (b) To what extent the state examination items align with the history curriculum objectives?

Methodology

Achieve methodology

It is an alignment protocol that reflects the concerns of specific subject areas (history or maths). It was designed to judge the quality of the overall assessment or examination and individual items (Martone and Sireci, 2009). It offers a deeper view of the educational process through examining the match between exam items, objectives and subject knowledge. The objectives provide the detail regarding specific skills being measured by an item. Alignment research considers what was actually taught to the students and this offer a deeper view of the educational process and teachers' practices: teachers teaching for the exam thus narrowing the curriculum. This is important in addressing the issue of exam

validity. One of the key issues of validity is whether the assessment or examination responds to the audience, those who have mandated the assessment and those expected to benefit or affected by it (Donald and Denison, 2001). They further noted that to be useful, the examination must meet the needs of the people who it is intended to benefit and help the evaluated programme or institution to make improvements. Alignment is perceived as critical for ensuring the validity of inferences made from examination results (Kane, 1993). It involves analysing the gaps between the intended subject curriculum (what the state department of education expects is being taught) and the enacted curriculum (what actually is taught). This is important because sometimes alignment undermine the examination assessment (Bhola et al., (2003).

The study is anchored on the Swaziland Curriculum Framework of 2014 which clarify the curriculum national goals and the subject goals and objectives derive from this framework. State goals are embedded in state educational curriculum framework, which represents state policy document. To an extent the national curriculum framework serves as a roadmap for subject curriculum implementation and assessment because it clarifies the national curriculum goals and subject goals. Curriculum Goals and subject objectives provide the details regarding the specific skills expected to be assessed by an exam item. State content goals are implemented at school level through subject goals. Examination items must allow students to demonstrate their knowledge and skills with respect to the expectations set up in the state curriculum framework for proper interpretations of students' performance (La Marca, 2001). Though not all or everything that is listed the state curriculum framework could be assessed in an examination but an alignment study is expected to provide a measure of how well the examination covers the national goals and subject goals (Smith and O' Day, 1991).

Alignment research delves deeper to examine the match between items and the subject curriculum goals and objectives. Alignment considers the exam through its items, state curriculum goals and exam instructions. It involves the verification of the subject curriculum, where the exam items are extracted. Exam items are a product of state curriculum framework and subject goals and objectives. State goals are embedded in state curriculum framework which represents state policy document. Examining the policies provides validity evidence for evaluating not only the exam, but also the subject curriculum and instruction (Martone and Sireci, 2009). This provides systematic improvement of education quality, education policies governing curriculum examination and teacher training (Black and Hill, 2004). The process of alignment research itself is more than just the results but its essence lies in helping professionals to see how assessments can connect to classroom processes (Martone and Sireci, 2009).

Achieve Alignment and data processing

This involves exam item by item analysis done to confirm the exam blue print, within the context of this study includes; state educational Curriculum framework of 2014; history syllabus of 2014. Item by item analysis compare it to the subject (history) objectives and determine the level of cognitive demand. Beyond the item level matching, the achieve

alignment qualitatively considers how a set of items matched to the many national goals or overarching standards. Though it time consuming but its qualitative data provide a thorough understanding of the alignment and the credibility of the examination results (Martone and Sireci, 2009; Mentkowski, 1991).

Revised Bloom's Taxonomy Table Framework

Taxonomy table is a useful framework for establishing curriculum alignment in all subjects (Anderson, 2002). It focuses on students' learning by paying attention on types of knowledge and skills learnt. This helped in assessing the nature of the exam items in relation to national goals, curriculum subject objectives. The taxonomy table is based on the curriculum subject unites or objectives or entire course (Anderson, 2002). It consists of the knowledge dimension and the cognitive dimension and it encourages higher order taught in students by building up a learning base from lower level cognitive skills (see figure 1, 2 and 3). The knowledge dimension consists of factual knowledge-characterised by basic elements that students are expected to know in that discipline. The conceptual knowledge is about assessing interrelationships or interrelated parts in a structure and how they function. Procedural knowledge is about how to an engaged into an action, using certain skills. Cognitive knowledge is about contextualised and self -knowledge (Krathwohl, 2002). The cognitive process dimension consist of different facets such as remember (Retrieving relevant knowledge from long term memory-recognising and recalling); understand (determining the meaning of instructional messages, including written and graphic communication: interpreting, exemplifying, classifying, summarising, inferring, comparing, explaining); applying (carrying out or using a procedure in a given situation: executing, implementing), analyzing (breaking down materials into its constituent parts and detecting how the parts relate to each other (differentiating, organising, attributing); evaluating (making judgements based on criteria and standards: critiquing, checking; Creating (putting elements together to form a novel coherent whole: producing, planning, generating (Krathwohl, 2002).

The taxonomy table framework works as a roadmap in assessments and it has a potential of providing useful information about the validity of the state examination assessment as evidenced by the alignment of the examination items and subject objectives. The alignment is achieved by exploring the relationship between the knowledge and cognitive processes dimensions and the subject (history) objectives and the national goals. External examination's results have little credibility if the subject curriculum goals can not be clearly linked to what an examination measures (Mentkowski, 1991).

Taxonomy table facilitates the data analysis process which involves a group of national goals; subject objectives and various instructional activities (Anderson, 2002). Taxonomy table also facilitates the alignment process which involves the following organisation of the data. For example each national goal, subject objectives is placed on its appropriate cell of the taxonomy table (see Figure 1).

The taxonomy table is used to analyse the Junior Certificate examination items in terms of history objectives and national curriculum framework 2014 objectives. **Figure 1:** Analysis

Swaziland National Curriculum Framework 2014 goals in relation to the revised Bloom’s taxonomy table. An analysis of national goals provides an indication of the extent to which both cognitive process and knowledge dimensions are accommodated within the curriculum framework of 2014. This is important because subjects’ objectives derive from national goals.

Figure 1: Analysis Swaziland National Curriculum Framework 2014 goals in relation to the revised Bloom’s taxonomy table

The Cognitive Process Dimension

The knowledge Dimension	Remember	Understand/ comprehension	Apply	Analyse	Evaluate	Create
Factual Knowledge	Goal 2	Overall goal; Goal 2; 3; 5; 6; 8; 9;10	Overall goal	Goal 1; 8;11	Goal 2; 7	Goal 4
Conceptual Knowledge	Overall goal	Overall goal	Overall goal	Overall goal	Overall goal	Overall goal
Procedural knowledge		Goal 1		Goal 1	Goal 1	Goal 1
Metacognitive knowledge		Goal 9; 12; 13	Goal 12			Goal 11

Key

Overall national goal of the general education: to develop responsible citizens for the realisation of knowledge –based society with moral and cultural values which contributes to the eradication of poverty through promoting self-reliance, gender equity and improved health so as to foster global competitiveness and accelerate economic growth and sustainable development.

The Education and Training Sector Policy goals:

1. Think critically and analytically integrate and synthesize knowledge, and draw conclusion from complex material;
2. Make sound ethical and value judgements based on the development of a personal value system, an understanding of shared cultural heritage, and knowledge of past successes;
3. Understand and appreciate the cultural diversity and live responsibly in an interdependent world;
4. Acquire a base knowledge common to educated persons and the capacity to expand that base over their life time;
5. Communicate effectively in written, oral and symbolic form;

6. Understand the natural and physical world, the processes by which scientific concepts are developed and modified;
7. Appreciate the fine and performance arts;
8. Develop technical, mathematical and quantitative skills necessary of calculation, analysis and problem solving;
9. Understand the principles essential for continual mental and physical well-being;
10. Engender a sense of civic mindedness and to foster the skills necessary to participate effectively in a democratic society that reflects the socio-cultural context of Swaziland;
11. Take advantage of opportunities for lifelong learning with creative minds;
12. Develop the intellectual, moral, aesthetic, emotional, physical and practical capacities;
13. Be equipped with capabilities needed to shape and adapt to a fast changing complex socio-economic environment.

From figure 1 one can visually determine the extent to which the more complex categories are represented. The national goals are quite good in this respect. The goals are spread across the taxonomy table's cognitive process dimension and knowledge dimension.

Figure 2: Analysis Swaziland Junior Certificate history curriculum aims (skill-related aims) in relation to the revised Bloom's taxonomy table. The skills-related aims include: 1. **assessment** skills, 2. **problem solving** skills, 3 **critical thinking** skills, 4 **communication** skills, 5 **inquiry** skills and 6 **assessment** skills. Since objectives from critical thinking skills, communication skills, problem solving skills, inquiry skills and assessment skills are usually considered the most important outcomes of any education system including the Swazi system, their inclusion, or lack of it in an examination, is a matter of great concern to both parents and the state (Brown and Staurt, 2004). It is necessary to pay attention to them.

An analysis of history curriculum aims provides an indication of the extent to which both cognitive process and knowledge dimensions are accommodated within the history curriculum aims. This is important because history lessons' objectives derive from subject curriculum aims. **Figure 2 below:** Analysis Swaziland Junior Certificate history curriculum aims (skill-related aims) in relation to the revised Bloom's taxonomy table.

Figure 2: Analysis Swaziland Junior Certificate history curriculum aims (skill-related aims) in relation to the revised Bloom's taxonomy table.

The Cognitive Process Dimension

The knowledge Dimension	Remember	Understand/comprehension	Apply	Analyse	Evaluate	Create
Factual Knowledge	Communicative skill 4	Communicative skill 4				
Conceptual Knowledge			Critical skill 3		Critical skill 3	
Procedural knowledge			Inquiry skills 5			
Metacognitive knowledge		Assessment skill 1	Problem skill 2	Critical skill 3		Critical skills 3

From figure 2 one can visually determine the extent to which the more subject/history targeted skills within the taxonomy table. The history objectives are quite good in this respect. The history skills are spread across the taxonomy table's cognitive process dimension and knowledge dimension.

Figure 3 below: Analysis Swaziland Junior Certificate history curriculum objectives in relation to the revised Bloom's taxonomy table. History assessment objectives are as follows:

1. (a) recall, select and describe; (b) Explain, evaluate, compare and contrast events, developments, events and changes;
- 2 (a) Display understanding initiative, empathy, and imagination;
 - (b) Comprehend, explain, analyse, evaluate and empathise with given situation;
- 3 Interpret, evaluation and use various sources of information.
 - (a) Critically examine current historical evidence to determine and deduce likely outcomes;
 - (b) Collect, analyse, interpret data, draw conclusion and present them

Figure 3 History objectives in relation to Taxonomy Table

The Cognitive Process Dimension

The knowledge Dimension	Remember	Understand/ comprehension	Apply	Analyse	Evaluate	Create
Factual Knowledge	Objective 1a	Objective 1a, 2b		Objective 1b, 2b, 3a,b	Objective 1b, 3a,	Objective 3b,
Conceptual Knowledge			Objective 3b,	Objective 3b,		
Procedural knowledge		Objective 3b,		Objective 3b	Objective 1b	
Metacognitive knowledge		Objective 1b, 2b,	Objective 3b, 2b,	Objective 3b	Objective 2a,	Objective 3b

From figure 3 one can visually determine the extent to which the more subject/history objectives within the taxonomy table. The history objectives are quite good in this respect. The history objectives are spread across the taxonomy table’s cognitive process dimension and knowledge dimension but more concentrated on the analysis cognitive dimension (see figure 3).

Figure 4 and 5 below: Analysis Swaziland Junior Certificate history paper **one** and **two** examination items in relation to the revised Bloom’s taxonomy table. The analysis pays attention to the cognitive dimension processes/cognitive level of the examination items. Some examination items operate at a low level of factual recall, while others requires students to analyse, synthesize and evaluate information. The cognitive level of the examination items should match with the subject objectives and should be a balanced representation of exam items-evenly distribution of items across objectives (Webb, 2007). What is examined should be at or above the same cognitive level as what is has been taught was based on what are the standard or educational goals (Webb, 2007). The key concern is that examination items should not be targeting skills that are lower than those required by the state national goals and subject objectives to which the exam item is matched (Webb, 2007). This has a potential of enabling teachers to focus on educational standards without “teaching to the exam (Airasian and Miranda, 2002, P 253). This information helps in providing alignment evidence by reflecting on missed teaching opportunities or cognitive processes and skills. Examination assessment should align with the cognitive skills: knowledge, comprehension, application, analysis, synthesis and evaluation (Krathwohl, 2002).

Figure 4 Paper one History questions in relation to cognitive and knowledge processes dimensions

The Cognitive Process Dimension

The knowledge Dimension	Remember	Understand/c omprehension	Apply	Analyse	Evaluate	Create
Factual Knowledge	Q1a, 2a, 3a, 5a, 5b	1b, 1c, 2b	1c	Q1,3,4,5,6		
Conceptual Knowledge		1b,1c,2a,2b,2c,3b,3c,4a,4b,4c		Q1,3,4,5,6		
Procedural knowledge						
Metacognitive knowledge	2a,6b,	1b,1c, 2a, 2b, 2c,3b, 4a, 4b, 4c,5b,5c, 6a,6b,6c	1c, 6c	Q1,3,4,5,6	1c, 2c, 3c, 4c, 5c,6c,	

From figure 4 one can visually determine that more examination items of paper one falls across the cognitive process dimensions (comprehension and analyse) and knowledge dimensions (conceptual knowledge and metacognitive knowledge but **more** on comprehension dimension) (see figure 4).

Figure 5 (a) History paper two-section A items in relation to cognitive and knowledge dimensions

The Cognitive Process Dimensions

The knowledge Dimension	Remember	Understand/c omprehension	Apply	Analyse	Evaluate	Create
Factual Knowledge	Q1,2,3,4	Q1,2,3,4		Q1,2, 3,4	Q2,3,4	
Conceptual Knowledge		Q1,2,3,4		Q1,2,3,4	Q2,3,4	
Procedural knowledge						
Metacognitive knowledge		Q1,2,3,4		Q1,2,3,4	Q2,3,4	

From figure 5 one can visually determine that more examination items of paper two (section A) falls across the cognitive process dimensions and knowledge dimensions (see figure 5).

Figure 5 (b) History paper two-section B items in relation to cognitive and knowledge dimensions

The Cognitive Process Dimension

The knowledge Dimension	Remember	Understand/c omprehension	Apply	Analyse	Evaluate	Create
Factual Knowledge	Q1,2,3,4	Q1,2,3,4		Q1,2,3,4		
Conceptual Knowledge		Q1,2,3,4		Q1,2,3,4		
Procedural knowledge						
Metacognitive knowledge		Q1,2,3,4		Q1,2,3,4	Q2,3, 4	

From figure 5 one can visually determine the extent to which the more examination items of paper two (section B) were unevenly distributed across the cognitive process dimensions and knowledge dimensions (see figure 5b).

Figure 6 History Paper one Assessment Objectives in relation to exam items

The History Examination Items

History Objectives	Assessment	1	2	3	4	5	6
1 a. recall, select, describe; b. Explain, evaluate, compare, contrast events, developments, events, and changes.		Recall, explain, Evaluate (explain repeated twice).	Describe, explain, evaluate, explain (explain twice).	Recall, Explain Evaluate (explain twice)	Describe, Explain, evaluate, (explain twice)	Recall, explain, evaluate (explain twice)	Describe, explain, Evaluate (explain twice).
2.a.Display understanding initiative, empathy, imagination; b. Comprehend, explain, analyse, evaluate empathise with given situation.		Understand, evaluate, explain.	Understanding, explain, evaluate.	Explain, Evaluate, explain, (explain twice)	Understanding, explain, evaluate, explain (explain twice).	Explain, evaluate, explain (explain twice).	Understanding, explain, evaluate, explain (twice).
3.a. Critically examine current historical evidence to determine and deduce likely outcomes; b. Collect, analyse, interpret data, draw conclusion and present them.		Interpret data.	Not covered	Interpret data	Interpret data	Interpret data	Interpret data

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From figure 6 one can visually determine the extent to which the examination items of paper one capture some of objective one and two, and few of objective three (see figure 6).

Figure 7 (a) History Paper two Section A History Objectives in relation to exam items

The History Examination Items

History Objectives	Assessment	1	2	3	4	5	6
1 a. recall, select, describe; b. Explain, evaluate, compare, contrast events, developments, events, and changes.		Explain,	Explain, evaluate.	Explain recall	Explain, evaluate.		
2.a. Display understanding initiative, empathy, imagination; b. Comprehend, explain, analyse, evaluate empathise with given situation.		Understanding, explain.	Evaluate explain.	Explain, Understanding.	Explain, evaluate.		
3.a. Critically examine current historical evidence to determine and deduce likely outcomes; b. Collect, analyse, interpret data, draw conclusion and present them.		Not covered Analyse, interpret data.	No covered Analyse, interpret data.	Not covered Analyse, interpret data.	Not covered Analyse, interpret data.		

From figure 7a one can visually determine that the examination items of paper one capture only objective one and two, and few of objective three (see figure 7a).

Figure 7 (b) History Paper two Section B Assessment Objectives in relation to exam items

The History Examination Items

History Assessment Objectives	1	2	3	4	5	6
1 a. recall, select, describe; b. Explain, evaluate, compare, contrast events, developments, events, and changes.	Explain,	Explain, evaluate.	Explain Evaluate	Explain, evaluate.		
2.a.Display understanding initiative, empathy, imagination; b. Comprehend, explain, analyse, evaluate empathise with given situation.	Understand, explain.	Evaluate explain.	Evaluate, Explain.	Evaluate, Explain.		
3.a. Critically examine current historical evidence to determine and deduce likely outcomes; b. Collect, analyse, interpret data, draw conclusion and present them.	Not covered Analyse, interpret data.	No covered Analyse, interpret data.	Not covered Analyse, interpret data.	Not covered Analyse, interpret data.		

From figure7b one can visually determine that that the examination items of paper two section B capture only objective one and two, and few of objective three (see figure 7b).

Figure 8 History Paper one and two content/syllabus in relation to exam items (key: the dots represent where the item was drawn (Form one or two or three syllabus)).

The History Examination Items

History content/syllabus expected to be covered (Strands)	1	2	3	4	5	6
<p>Forms 1 Syllabus 1. Source of history: primary and secondary; -interpretations of history; -positioning oneself in the global village; -acquisitioning, life skills/professional skills; 2. Peopling, Transformation of Southern Africa -Distribution and way of life of indigenous groups-san and khoikhoi; -transformation of political traditional structures; -distribution within and outside Swaziland.</p>		.				
<p>Form 2 Syllabus; Early European contact/activities/encounter -Contact with Europeans; -British colonisation of the Cape; -Impact,of,European activities on the Swazi; African Nationalism -Early political formations, Ethiopian movement, trade union,Association, nationalist,political movements,ANC, PAC,BLACK THEOLOGY, SWAPO, SWANU, INDEPENDENCE MOVEMENTS IN BOLESWA COUNTRIS.</p> <p>Paper one</p>		

<p>Form 3. History of Central Africa/syllabus (Paper 2)</p> <ul style="list-style-type: none"> -Bantu migration and early states and kingdoms; -Nguni incursion and its effects; <p>Early European colonial activities</p> <ul style="list-style-type: none"> -Trading and political relations 16th -19th ; -missionary incursion into central Africa (Paper 2A); -British colonisation of Zimbabwe; -The rise of African Nationalism, consciousness in Zimbabwe (Paper 2B), -Portuguese penetration of the Zambezi valley and relations with Rozwi and Mwenemutapa empire. 					
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From figure 8 one can visually determine that the examination items of paper two, section A derived from the Form one and two syllabus content while section B items are from the Form Three history syllabus content (see Figure 8).

Discussion

The revised Bloom’s taxonomy table has been used as a framework to assess the validity of the History 2014 Swaziland Junior Certificate examination (JC) through the alignment protocol lens. The Bloom’s taxonomy table has been used on assessment processes, crafting subjects’ objectives and in improving classroom instructions in many parts of the world including Swaziland (Ministry of Training and Sector Policy, 2001; Airasian, 1994; Lewy and Bathory, 1994). The framework has been used in this study to assess the alignment between national goals, subject objectives and the examination items (see Figure, 1-8). An alignment between examination items, subject objectives and national goals are important because of the expected relationship between them. Subject objectives derive from national goals and national curriculum framework goals, alignment between these concepts should be valued for the examinations’ validity. To an extent the validity of examination assessment is determined by an alignment between the examination items and subjective objectives and national goals such as the development of critical thinking (Mentkowski, 1991). This is

important for assessing the examination validity, as stated earlier that Validity is not a single statistical calculation, measured by standard deviation and correlation coefficient but rather a construct combining of statistics, observations and logical arguments to explain the quality of the evidence (Baker, O'Neil and Linn, 1993).

History exam items relation to cognitive and knowledge processes dimensions

The teaching of history and other subjects in Swaziland and elsewhere is guided by Bloom's Taxonomy table consists of cognitive processes dimensions: remember, understand/comprehend, apply, analyse, evaluate and create and the knowledge dimension which consists of factual knowledge, conceptual knowledge and metacognitive knowledge (Ministry of Training and Sector Policy, 2001; Airasian, 1994; Lewy and Bathory, 1994). Both dimensions are expected to be represented within the examination items and should be a balanced representation of the exam items-evenly distributed across the dimensions (Web, 2007).

The 2014 history examination items were more concentrated on the comprehension and analyse cognitive dimension and conceptual knowledge and metacognitive knowledge dimension (see figure, 4). Some of the exam items 18% were factual –knowledge oriented challenging students to recall/remember information, 17% of the items inviting the students to depict some understanding of concepts, 6% to apply, 18% to analyse situations (see figure 4).

55% of the items were conceptual knowledge-oriented challenging students to show some understanding of the educational matters, and 28% of the items requires students to analyse situations (see figure 4). 11% of exam items were metacognitive knowledge-oriented challenging students to remember information, 78% of them inviting the students to show understanding of issues, 11% to apply skills, 28% to analyse and 33% to evaluate situations (see figure 4).

The procedural knowledge and create cognitive dimensions were not represented within the examination items (see figure 4). The factual knowledge dimension was least represented one, followed by the conceptual knowledge. The metacognitive knowledge was most represented one, dominated most of the exam items. This helps in examining the relative emphasis on cognitive and knowledge dimensions, curriculum alignment and missed educational opportunities. Krathwohl (2002) noted that Taxonomy table helps educators to look at blank space and reflect missed knowledge and teaching opportunities (see figure4).

The apply cognitive process dimension was underrepresented on the exam items, followed by the evaluative cognitive process, remember and analyse (see figure 4). The underrepresentation of these cognitive dimensions undermines the validity of the Junior Certificate examination. Web, (2007) argued that an examination assessment should be characterised by a balanced or an evenly distributions of exam items across the cognitive domains. Resnick at al. (2004) noted that a valid examination should illuminate the knowledge and cognitive processes tapped by each exam item.

The comprehension/understanding dimension dominated the exam items and spread across the knowledge domains, an unbalanced representation of the cognitive processes dimensions (see figure 4). Figure 4 shows heavy emphasis on objectives that involve the understanding and the use of knowledge that is classified under comprehension category is not spread across the spectrum of categories. Webb, (2007) emphasised that there should be a balanced representation of the exam items-evenly distributed across the dimensions. Exam items that are classified in the categories from comprehension to synthesis, apply, analyse and create are considered the most important goals of education (Krathwohl, 2002).

Paper two Section A Knowledge dimensions and cognitive dimensions alignment

Most of the question in section A required the students to engaged into different cognitive processes (remember, understanding/comprehension, analysis and evaluate) when responding to factual knowledge oriented questions. Apply and create cognitive processes domains were not used by students when responding to the questions (see figure 5a).

Conceptual knowledge was captured in all the four questions and students responded to them through these cognitive processes (understanding/comprehension, analyse and evaluate). Create and remember cognitive processes dimensions were not used (see figure 5a). The metacognitive knowledge was integrated into the exam items and the items challenged the students to use these cognitive processes: understanding/comprehension, analyse, and evaluate. Remember and create were not used (see figure 5a). Procedural knowledge and apply, and create cognitive processes dimensions were missing in the exam items in section A (see figure 5a).

The knowledge dimensions (factual knowledge, conceptual knowledge and metacognitive knowledge) and the cognitive dimensions (understanding/comprehension, analyse, evaluate) were evenly distributed through the exam items.

Paper two section B Knowledge dimensions and cognitive dimensions alignment

All the questions in section B covered the factual knowledge dimension and these cognitive processes (remember, understand, analyse) were expected to be applied by the students as they respond to the questions. Evaluate and create cognitive dimension processes were missing in exam items (see figure 5b).

The conceptual knowledge was also integrated into the exam items and these cognitive dimensions: understanding and analyse were expected to be used by students as they respond to the exam items. These cognitive dimensions: remember, apply, evaluate, and create were missing (see figure 5b). The metacognitive knowledge also formed part of the exam items and characterised by these cognitive processes dimensions (understanding, analyse, and evaluate). Apply, remember and create cognitive processes were missing (see figure 5b). All the knowledge dimensions appeared on the exam items except the procedural **one** (see figure 5b).

Paper one assessment objectives in relation to exam items

Classifying subject curriculum objectives and exam items is helpful in showing the breadth, and lack of breadth of the objectives and items across the categories (Krathwohl, 2002). The history paper's assessment objectives are divided into three categories (1-3) with sub-sections a, b. (see figure 6).

The assessment objectives of category one were fairly covered in the exam items (1-6) though some objectives were repeated. This was common across the exam items in category one (see figure 6). The repetition matter raises more questions about the nature of the examination because there were some objectives not used (contrast, compare). The assessment objectives of category two were underrepresented in the exam items (1-6) no variation in the use of the objectives (see figure 6) others were repeated at the expense of others. The assessment objectives from category three were underrepresented and only one objective was used in all the questions. Objectives from category two and three were underutilised (see figure 7a). This affects the validity of the examination because exam items are expected to examine different higher order skills and thinking processes and the exam items should be guided by the subject objectives. Thinking processes which allow students to interpret information and connect it to what they already know (Madaus and Kellaghan, 1993).

Paper two section A assessment objectives in relation to exam items

The assessment objectives of category one and two were fairly covered though without some variations. While assessment objectives category three (a) were not covered, only category three (b) were covered but without variation (see figure 7a).

Paper two section B assessment objectives in relation to exam items

The assessment objectives of category one and two were fairly covered though without some variations. While assessment objectives category three (a) were not covered, only category three (b) were covered but without variation (see figure 7b).

Paper one content/syllabus in relation to exam items

History paper one exam items drew its content from the Form one syllabus (question 1 and 2). Exam items 3, 4, 5, 6 drew its content from the Form two syllabus (see figure 8). Exam item one drew its content from this title: Peopling and transformation of Southern Africa. Sub-topic: Transformation of political traditional structures; distribution within and outside Swaziland. While question two drew its content from the title: sources of history-primary and secondary sources.

Question three drew its content from the title: early European contacts/activities/encounter. Question four drew its content from the title: African nationalism, question 5 drew its content from title: early European contact/activities/encounter. Question 6 drew its content from the title: African nationalism (see figure 8).

The Form two and three syllabuses were fairly represented. Whereas, the Form one syllabus was underrepresented within the examination items, yet it consists of key skills necessary for the development of the country and a better world for all. For example, the absence of exam items related to key skills such as life skills, professional skills-communication skills undermine the validity of the Junior Certificate examination because they form part of the Swaziland Curriculum Framework of 2014 and other national development strategies which clarify national goals. The absence of these skills is a serious matter because some of the Junior Certificate graduates are expected to join the working class as workers and expected to survive through those life skills (critical thinking skill, communication skills, and problem solving skills). In addition, the absence of these life skills notes the existence of poor alignment between the exam items and national goals. Alignment occurs when subject curriculum goals and assessment items communicate same expectations as clearly stated in subject objectives and national goals. Little information is produced about students' mastery of subject curriculum topics when the examination tasks do not reflect balanced curriculum goals, objectives and content (Long and Benson, 1998).

Paper two content/syllabus in relation to exam items

History paper two exam items were drawn from the Form three subject syllabuses. Both sections: A and B, were anchored on the Form three syllabuses. All the questions (1- 4) in section A were drawn from the title: early European colonial activities, sub-topics: trading and political relations 16th-19th Centuries, Missionary incursion into central Africa (see figure 8). Section B questions (1- 4) were drawn from the title: the rise of African nationalism, Consciousness in Zimbabwe (see Figure 8).

The concentration of the exam items in section A on early European colonial activities and section B on the rise of African nationalism promotes an unbalanced representation or an overlap of the subject content or skills and eventually undermine the validity of the Junior Certificate examination. This could affect the examination results and gave the nation an incorrect picture of achievement levels and progress (Madaus and Kellaghan, 1993). What is examined is expected to fairly represent sampled subject content or dimensions. The unrepresented skills in these narrow sections (A and B) could affect the Swazi government's effort in building a new culture of school accountability, monitoring progress towards the national goals and certifying the successful completion of a given level of education. The focus on this overlap between what was examined and what is on the subject content/syllabus is important for identifying the links between teaching and learning. An absence of a link could affect teaching and learning and the validity of the examination.

The nature of these sections A and B (drawing exam items from same subject content/subtopics) has a potential to courage teachers to teach for the exam. This has been shown by the manner in which the participating schools responded to paper two. For example, in most schools if students chose to respond to section A or B, all of them answered that section yet we expect some to respond to section A or B. This suggests that teachers were teaching for the exam. This has no educational value because it provides no information about what students have and have not accomplished in regard to specific subject content,

skills and national goals missed by the students who did not attempt that particular section. This has a potential of undermining educational transparency and reforms, and the validity of the examination assessment.

Findings

This alignment study has shown that while some exam items aligned to specific national goals, subject objectives and content to which they are mapped but many of them are omitted from the examination, especially those focusing on higher cognitive processes. This undermines the validity of the exam and quality of education. Alignment is perceived as critical for ensuring the validity of inferences made from examination results or scores (Kane, 1993). Misalignment in this study compromises the validity of the Junior Certificate results or scores which are usually “parade” by the Ministry of Education and Training.

The study found that the 2014 Junior Certificate examination (JC) had a skewed type of alignment particularly with national goals. For example, although the exam items of paper one falls across the national goals but were skewed towards the comprehension dimension (see figure 4). The comprehension/understanding dimension dominated the exam items and spread across the knowledge dimensions, but there was an unbalanced representation of the cognitive processes dimensions such as synthesis, apply, analyse and create which are considered to be the most important goals of education and for assessing exam validity.

The history exam items had also a skewed type of alignment with the subject objectives. Although the subject objectives were spread across the exam items but were more concentrated on the analyse dimension (see figure 3).

It was found that the misalignment between the exam assessment and national goals differs in both papers. In paper one the misalignment was caused by underrepresentation and unfairly representation of other key knowledge dimensions within the exam items. For example, in paper one 18% of the exam items were factual knowledge oriented, 55% were conceptual knowledge oriented, 0% procedural knowledge oriented. The unbalanced representation of the knowledge dimensions with the examination tends to narrow the subject curriculum. Thus corrupting the examination validity and examination results gave the Swazi nation an incorrect picture of achievement levels and educational progress.

In paper two, the misalignment was caused by the nature of the exam items, which made more emphasis on certain knowledge and cognitive processes dimensions. Comprehension, analyse, evaluate, remember and apply cognitive processes were ignored. This did not help in illuminating a balanced knowledge and cognitive processes tapped by each exam item and this affected the validity of the examination. The paper two exam items were drawn from narrow subject content/syllabus mainly from these sub-topics: (Rise of African nationalism and Early European activities) thus affecting the exam alignment. The underrepresentation of the subject content undermines the validity of the Junior Certificate examination. Web, (2007) argued that an examination assessment should be characterised by a balanced or an evenly distributions of exam items across the subject content. Resnick at al. (2004) noted

that a valid examination should illuminate the subject content and cognitive processes tapped by each exam item.

Conclusion

The Swazi government's effort to reform the education system through the current Junior Certificate examination assessment resulted in minimal technical changes because of the existing misalignment between national goals, subject objectives/content and exam items.

The Junior Certificate examination is a good method of gathering information about students' skills and knowledge but it also exacerbate the problem of curriculum narrowing by encouraging teachers to focus on specific subject content as a means of raising scores, without necessarily improving the overall quality of education and country's citizens' capability to contribute positively to the world socio-economic development. The key point is that an assessment should not underrepresent the focal construct and not contaminate the scores with construct-irrelevant variance and professional malpractice (Messick, 1994).

The nature of the exam papers (particularly paper two) to an extent promotes the culture of teaching for the exam and this has reallocated teachers' efforts away from the content/topic that is not examined towards content that is examined. To an extent the validity of the exam assessment is undermined or compromised.

Recommendation

The examination assessment needs to be perceived as a component of broader reform efforts, designed not only to produce information on how many percentage is the passing rate this year compared to last year but to create improvements in the educational system of the country. It should aim at reporting in terms of specific knowledge or skills mastered or not mastered by the students. Examination assessment should be perceived as an accountability policy intended to promote a number of changes in practice including the quality of teaching and learning and enhancing the effectiveness of school staff and examiners. It should discourage the culture of teaching for the exam as noted in this study.

The Taxonomy table should be perceived as a tool to help educators to look at blank space and reflect missed knowledge and teaching opportunities (see figure4). The table could be used as a reflective tool for both teachers and examiners.

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