

Perceptions on Belt Marking System in Zimbabwe: A Case of Advanced Level Geography Syllabus 9156.

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Abstract

The study investigated the perceptions of examiners and the Geography subject managers on Belt Marking System in Zimbabwe: A Case of Advanced Level Geography (9156 Paper 1 and 2). The study focused on the perceptions of examiners and the Geography subject manager on the implementation the Belt Marking System since its introduction in 2011. Underpinned by both constructivist and positivist views within a post-positivist paradigm, the case study employed both quantitative and qualitative techniques to collect data. The population comprised of the Geography subject manager and one hundred and fifty Advanced Level Geography examiners. Purposive sampling was employed to select the subject manager and twenty senior examiners or supervisors (leadership), and stratified random sampling was used to select forty examiners to be part of the sample. Data were collected using a questionnaire, interviews, participant observation and document analysis. Quantitative data were analysed using descriptive statistics (numbers (N) and corresponding percentages (%)). Qualitative data were analysed by identifying emerging themes and pattern in the data collected. Findings revealed that team structures employed by Zimbabwe School Examinations Council in Belt Making System differed from the Traditional Marking System. With belt marking method a candidate's script is marked by more than one examiner as opposed one examiner in the Traditional Marking System, and moderation takes place at more than one level thus enhancing marking consistency and reliability. The Belt Marking System enhanced team work, speeded up the marking process, checks the speed of the fast and slow markers, reduces chances of cheating by markers, and keeps examiners on task by its conveyor belt nature. Challenges included that BMS was heavy in terms of time on task, left little room for examiners' relaxation, and confined examiners. The researchers concluded that the BMS system is a more reliable innovation with more benefits than TMS.

Keywords: Examination Marking, Belt Marking System, Traditional Marking System, Public Examinations.

Introduction

The Zimbabwe School Examinations Council (ZIMSEC) introduced the Belt Marking System (BMS) as a pilot study in some selected subjects in the June 2011 examination marking session at Chinhoyi University of Technology. Following its

successful implementation the system was fully implemented in all the subjects at both Ordinary Level and Advanced Level in November 2011 marking session. The government of Zimbabwe was shifting from the previously used method; the Traditional Marking System (TMS) to the Belt Marking System (ZIMSEC, 2011). The study focuses on perceptions of examiners and the Geography subject manager in implementing the Belt Marking System since its introduction in 2011, and offers suggestions for future improvements as far as implementation of the new style is concerned. It focuses on examiners, the subject manager and the whole process of marking.

Zimbabwe School Examinations Council (ZIMSEC), which is a parastatal and body corporate, manages and administers school examinations, commonly referred to as national examinations. Thus, ZIMSEC is the examining board for school examinations taken by registered candidates at the end of primary, secondary, and high school levels. As such, national or public examinations are unlike teacher-made, local and school-based examinations, which are often referred to as internal examinations. Marimo (2008) observes that while Public Examinations are taken basically at the end of a learning cycle taking a number of years depending on the level, for example, at the end of four years for Ordinary Level, and six years for Advanced Level, internal examinations can be given weekly, monthly or at the end of term. Public examinations have existed since time immemorial and are used as a realistic basis for evaluating achievements of the education system, and also for making important decisions about a learner relative to transition and placement within the education system. By Act of Parliament, ZIMSEC has the Zimbabwe government's mandate to develop, manage and certify all school examinations. It is vital to note that, at whatever level of assessment; public examinations have to be reliable, relevant and efficient, and should have equity. They also must be handled under secure conditions to ensure that no one obtains undue advantage (Mutwiri and Mwanyumba, 2009).

The implementation of any new programme or innovation is a critical component of educational reform. The implementation stage of an innovation is the most vital stage in any programme change (Fullan, 2001). Arguably, new programme implementation is the single most difficult phase (Mampuru, 2001). Arguably, implementation of a new programme or innovation is a crucial and challenging, yet unavoidable stage. This is because without implementation, a programme cannot be evaluated to ascertain its strengths or successes, and attendant weaknesses or shortcomings.

According to Mwanyumba and Mutwiri (2009), a new system of marking examination scripts was introduced in 2009 by Kenya National Examinations Council, and the system is dubbed Conveyor-Belt System (CBS). The authors further observe that prior to adoption, the new method was piloted in some subjects during the 2008 Kenya Certificate of Secondary Education (KCSE) examination marking. In Uganda, the Uganda National Examination Board introduced the Conveyor Belt System of marking in 2004 (Okelowange, 2004). Okelowange (2004) explains that in the Conveyor Belt Marking System, (CBMS) marking of a script is shared by several examiners in the team, with each examiner marking a few questions as opposed to an examiner marking the entire script alone, like was the case before. The team leader ensures that every examiner is allocated a set of questions to mark. Once all the questions are marked by respective examiners, and marks for each script have been added, under the supervision of the team leader the whole team shades the mark sheets. All scripts that are marked by a team are divided by the number of examiners in the team, implying that examiners receive equal monetary compensation (Sabari, 2007).

Preceding the CBMS was the Traditional Marking System (TMS). As noted by Mwanyumba and Mutwira (2009) and Okelowange (2004), in TMS, an envelope containing answer scripts of candidates from a particular school is given to one examiner to mark. The examiner marks the answers to all the questions attempted by each candidate. Once all the scripts in that envelope are marked, another envelope of scripts is given to the examiner to mark. The process is continued until all the scripts are marked. After all the scripts are marked, checkers, who are not examiners, are employed to check through the marked answer scripts to detect any errors in marking. Such errors are corrected by an examinations officer in charge of checking. In case a portion of a script is not marked, the examiner or team leader is requested to mark the unmarked portion. A team leader normally moderates ten percent of the scripts marked in each envelope to ascertain the consistency in marking. The deviations in marks between the examiner's mark and that of the team leader also act as a check on the consistency in the marking of a particular examiner. Sometimes these deviations are more than the allowed level of ± 3 marks (Pido, 2008). The implementation process of the TMS described above is similar to the examinations marking approach employed by ZIMSEC prior to introduction of Belt Marking System.

Mwanyumba and Mutwira (2009) and Okelowange (2004) have published works on the operation of the Conveyor Belt Marking System were a team leader works

with a team of four examiners. Each marker marks only a set of questions and passes the candidate's answer script to the next marker who will also just mark the set of questions allocated to him/her. The marked scripts are passed over to the checkers, who are also examiners, to check through the script for any marking errors. Any errors detected are referred immediately to the markers to correct (Nokrach, 2007). Finally the team leader samples ten percent of the scripts in an envelope and remarks to assess the consistency in marking and interpretation of the marking scheme. There is need to establish whether the ZIMSEC adopted the system as it is applied in some other countries such as in Kenya and Uganda.

In Zimbabwe, ZIMSEC first implemented the Belt Marking System (BMS) in June 2011 examinations session, which normally has fewer subjects and fewer candidates. Full implementation came in the November examinations session in 2011 across all subjects for both Advanced Level and Ordinary Level. It is against this background that the researchers sought to interrogate the perceptions of the Advanced Level Geography Papers 1 and 2 examiners and supervisors on the new Belt Marking System introduced by ZIMSEC.

This study is important in that it documents a milestone innovation in the discourse of national examinations, thus adding literature that is Zimbabwe-specific to the existing knowledge on marking of examinations. It provides literature that is Zimbabwe-specific to examiners, educators and school examinations boards. The study is of significance also to examinations policy makers and implementers by giving voice to examiners thereby providing a bottom-up approach feeding into policy development aimed at improving the examinations marking system. Importantly, the study also provides opportunities for further research on issues related to examinations marking. It will also assist concerned stakeholders interrogate approaches to, and perceptions on, marking practices for better understanding and effectiveness.

Methodology

This study was a case study of the marking of the Advanced Level Geography Paper 1 and 2, which matches criteria for unique case study (Merriam, 2001, Stake, 1995). this study was informed by a constructivist view that assumes that reality is

experiential; that meanings are relative, implying a constructionist epistemology whereby people construct their meanings or reality as they interact with phenomena in its context (Crotty, 1998; LeCompte and Schensul, 1999). Understandably, this denotes a cognitive, mentalist view. On the other hand is the positivist view that assumes existence of an objective reality (LeCompte and Schensul, 1999). Undergirded by constructivist and objectivist stances, the case study employed a mixed methods design within the frames of post-positivism, which incorporated both quantitative and qualitative techniques. The methods of data collection used were document analysis, questionnaire and interviews.

The population of 150 comprised of all the examiners for the Advanced Level Geography 9156 Paper 1 and Paper 2 (inclusive of belt marking supervisors) and the Geography subject manager. Three informants in management and one Assistant Director in charge of setting examinations were purposively selected as these were information rich (Merriam, 2001; LeCompte and Schensul, 1999) by virtue of the positions they occupied and roles they played in the marking of examinations. Surveying within the case, stratified random sampling technique was employed to select a sample of examiners. The sample comprised of sixty examiners, at least twenty-five from each paper, two Principal marking supervisors, four Deputy Principal marking supervisors, ten belt marking supervisors, forty four examiners, and the Geography subject manager.

The questionnaire was self administered in the absence of the researchers and in-depth interviews to leadership and the subject manager were follow-ups to responses to certain questionnaire items. The researchers also employed content analysis of some of the accessible written communications such as the examiners contract and marked scripts by the examiners. Because one researcher is one of the senior examiners, participant observation came in handy as it gave the opportunity to see examiners in action, and to verbally verify responses to both questionnaire and interview questions. Rather than that being a source of bias, it was a strength in collecting more reliable information. Potential biases from the researchers and respondents were mitigated by triangulation, which entailed the use of more than one instrument in data collection and use of more than one informant (Creswell, 2009; Merriam, 2001). Descriptive statistics using numbers (N) and corresponding percentages (%) were used to analyse questionnaire data. Qualitative data gathered were analysed using the manual sort and count, grouping, coding, classifying, and categorising information to identify trends and patterns as they emerged (Creswell, 2009).

Results and Discussion

The Geography subject manager was interviewed in order to establish team structures employed and operational procedures at each marking session under Belt Marking System.

Analysis of the organisational structure revealed that all the examiners for Geography papers 1 and 2 worked under the guidance and supervision of a subject manager and senior examiners who made up the management or leadership. At the top is the Principal Marking Supervisor (PMS) who oversees the supervision of the whole marking session, and also moderates scripts that would have been moderated by the Deputy Principal Marking Supervisors (DPMSs). The DPMS, reporting to the PMS, supervises a team of at least four Belt Marking Supervisors (BMS) and moderates their scripts. In turn, and directly under DPMS, the BMS supervises a team of four to five examiners and moderates individual question answers marked by the examiners. The BMS should satisfy herself/himself that all mark sheets and related documents are accurately completed and handed in before examiners leave the marking venue. As evidenced in interviews with management and examiners, it is the responsibility of the senior examiners to sample at least ten percent of the scripts in each envelope marked, and remark to assess the consistency in marking and interpretation of the marking scheme (Interview, 15/12/11).

This suggests that in Belt Marking System, in terms of supervision and operation, a Belt Marking Supervisor works with at least a team of four examiners. A Deputy Principal Supervisor supervises at least four Belt Marking Supervisors and a Principal Marking Supervisor supervises all the Deputy Principal Marking supervisors. The Geography subject manager also revealed that each marker marks only a set of questions and passes the candidate's answer script to the next marker who will also just mark the set of questions allocated to him/her. The marked scripts are passed over to the checkers, who are also examiners, to check through the script for any errors. Any errors detected are referred immediately to the markers to correct. The results from interviewing the subject manager also indicated that at least a sample of ten percent of the scripts marked should be moderated by the leadership, which helps to establish the consistency or reliability in marking and interpretation of the marking scheme and its mastery.

The study also sought to establish any differences between the previously used Traditional Marking System (TMS) and the BMS. Evidence from interviews showed that the difference lay in titles used. In the TMS, the National Chief Examiner is now the PMS; the Deputy National Chief and Assistant National Chiefs are now (DPMS); the Team Leader is now the (BMS) and newly trained examiners and old markers are all referred to as examiners. The leadership (DPS up to PMS) is not allocated any marking except the scripts they moderate throughout the marking session.

Evidence from the subject manager interview revealed benefits that came with the belt marking system (BMS). First, BMS has gone a long way to ensure reliability of the scores. With the belt marking approach, a candidate's script is marked by more than one examiner, as opposed to the TMS where a candidate's script would be marked by one examiner, which implies the provision for inter-rater reliability. Furthermore, evidence suggested that the BMS enhanced team work, speeded up the marking process, and checked the speed of the fast and slow markers. It also enhanced the accuracy in marking and the correct award and addition of marks. Given the multi-level nature of consistency checks through moderation, and checks all the way up the supervisory structure, the BMS eliminated the grade review phase that characterised the TMS because all the corrections are done during the marking session. The Assistant Director and the subject manager interviewed were in agreement that the BMS had reduced delays in the publishing of results by ZIMSEC. Because marking is completed in fewer days than used to be the case with the TMS, BMS has been a cost saving approach on the part of ZIMSEC (Interview, 15/12/11).

The responses from interviewing the subject manager reveals that in terms of team structures the only notable change was in terms of names being used in Belt Marking System and that those in leadership were no longer allocated their own marking. The new system ensures reliability of scores and a candidate's script is marked by more than one examiner as opposed to the previous method where a candidate's whole script would be marked by one examiner. The new marking approach enhances team work and speed in marking scripts.

The following are responses from the examiners' experiences and their perceptions on Belt Marking System. The frequencies and percentages of respondents selecting "strongly agree (SA), agree (A), not sure (NS), disagree (D) and strongly disagree (SD)" against the given items are presented in Tables 1 and 2. The item numbers

in the tables are as they appeared on the original questionnaire administered to the respondents.

Table 1 Examiners' experiences and perceptions on Belt Marking System

N=60

Question	SA	%	A	%	NS	%	D	%	SD	%
1.Promotes team spirit	36	60	15	25	4	7	3	5	2	3
2. Commitment is higher	41	69	11	18	2	3	2	3	4	7
3. Security of scripts is higher	51	85	7	12	2	3	0	0	0	0
4. There is marking speed and transparency	25	42	9	15	6	10	11	18	9	15
5. There is fairness to candidates	55	92	4	7	1	1	0	0	0	0
6. Maximisation of examiners concentration	33	56	23	39	2	3	1	1	1	1
7. It minimises malpractice	49	83	7	12	1	1	1	1	2	3
8. Deviations are lower	56	94	4	7	0	0	0	0	0	0
9. Enhances quick mastery of scheme	55	92	5	8	0	0	0	0	0	0
10. Interpretation of scheme is easier	51	85	7	12	2	3	0	0	0	0
11. BMS is better than TMS	43	72	17	28	0	0	0	0	0	0

Scoring directions

Each positive item receives a score based on points

Strongly agree	Agree	Not sure	Disagree	Strongly disagree
=5	=4	=3	=2	=1

The scoring for each negative item should be reversed

Strongly agree	Agree	Not sure	Disagree	Strongly disagree
=1	=2	=3	=4	=5

The study indicates that most examiners perceived the Belt Marking System (BMS) as an approach that promoted team work within the examiners as indicated by 85% of the respondents. The examiners believed that the Belt Marking System is a more friendly system of marking with a lot of merits as compared to the

previously used Traditional Marking System. The examiners' views were also supported by the subject manager on the issue of the system being fair to the candidates in terms of the score awarded since each examination script is marked by almost four examiners. Okelowange (2004) in a study in Uganda also observes that the Conveyor Belt Marking System minimised malpractices in examiners and that it enabled quick mastery of the marking scheme and its interpretation.

Also presented are results from the examiners' questionnaire on the challenges or demerits of the Belt Marking System.

Table 2 Examiners responses on challenges or demerits of the Belt Marking System

N=60

Question	SA	%	A	%	NS	%	D	%	SD	%
1. It is tedious/exhaustive	52	87	5	8	3	5	0	0	0	0
2. It reduces marking speed	33	55	16	27	2	3	7	12	2	3
3. It reduces sense of responsibility	45	75	15	25	0	0	0	0	0	0
4. Fast markers are disadvantaged	43	72	7	12	4	6	3	5	3	5
5. No room for relaxation	43	72	17	28	0	0	0	0	0	0
6. Individual differences in examiners are not catered for.	37	61	14	23	3	5	3	5	4	6
7. Remuneration is not fair	53	88	7	12	0	0	0	0	0	0

Scoring directions

Each positive item receives a score based on points

Strongly agree	Agree	Not sure	Disagree	Strongly disagree
=5	=4	=3	=2	=1

The scoring for each negative item should be reversed

Strongly agree	Agree	Not sure	Disagree	Strongly disagree
=1	=2	=3	=4	=5

From the examiners' responses, there were concerns that the system was exhaustive as evidenced by 95% revealing such views. The examiners' revealed that individual differences in examiners were not catered for, and that the fast markers were disadvantaged in that they had to wait for the preceding marker to handover scripts in the event that the preceding marker was slow. However, the above assertion contradicted with what the Geography subject manager indicated on Belt Marking System, hailing the new style of marking. Evidence from an interview with both the subject manager and Assistant Director indicated that in the event of a slow marker, the subsequent marker would still proceed to mark his/her allocated question items and pass back to one marking earlier questions.

The leadership, that is, the BMSs, DPMSs and the PMS were interviewed also in order to establish their experience and perceptions on the Belt Marking System. Responses indicated that there was general agreement among those in leadership position that BMS promoted team spirit and cultivated cooperation among examiners. The system promoted time-on-task and raised examiner commitment. Furthermore, evidence from both supervisors and examiners interviewed indicated that the BMS approach to marking maximised examiners' concentration and 'busyness.' As one leader retorted in an interview, "Examiners are kept busy. This reduces redundancy and laziness on the part of examiners, and reduces the risk of cheating in marking" (Leadership Interview 19/12/11). Justifiably, one leader said excitedly, "This system of marking must be implemented forever" (Leadership Interview, 20/12/11).

One theme emerging from evidence was that BMS enhanced the security of scripts, with less risk of scripts getting lost in BMS than used to be in TMS. This was because the individual examiner in BMS had less control over a script, and the fact that handing over to the next examiner meant some sort of stock take. Furthermore, evidence from those in leadership emphasised that all examinations marking took place in the venue as a matter of policy; no examiners carried scripts to their lodgings overnight as used to be in TMS.

Another theme was marking speed and transparency. According to data from those occupying leadership positions, BMS enhanced marking speed and accuracy because it controls the very fast examiners more than TMS in that in BMS there is less need to rush to mark more scripts as there is no room for differential remuneration based on the number of scripts one marked. Each examiner is entitled to remuneration for the same number of scripts allocated to the team. As such, BMS is a more transparent system of marking, over and above issues of equity. While the system is fair to examiners, evidence from both observation and interviews showed that the BMS is characterised by fairness to the candidates

because each candidate's script is marked by more than one examiner, thus reducing the chances of examiner bias and over-marking and under-marking. As the different supervisors interviewed indicated, the rigorous mechanisms to check for consistency or marker reliability minimise cases of malpractice by examiners. Interview evidence supported by documents availed showed that the percentage of scripts with +/-1 deviation increased in BMS in marking Geography. As explained in one interview with one of the leaders, if more scripts have +/- 1 deviation, it meant that examiners were marking more consistently. At a deviation range of -1 to +1, the implication is that BMS reduced large deviations that often characterised the marking of Advanced Level Geography. Arguably, the study shows that there is notable improvement in the quality of marking after introduction of BMS in the marking of Advanced Level Geography 9156 Papers 1 and 2.

Most of the indications revealed by the leadership were also indicated by the Geography subject manager and examiners. The finding that Belt Marking System enhances team spirit, offers greater security of script, reduces chances of malpractice, and is fair and transparent agrees with the earlier findings (Onyango and Ndege, 2006; Okelowange, 2004). The content analysis of the sampled scripts of about five hundred checked revealed that most of the deviations were ranging from +/- 2. This indicated that some quality marking was going on with implementation of the Belt Marking System at Advanced Level Geography.

The leadership revealed the following as challenges being faced in implementing the Belt Marking System. Evidence from interviews with examiners, and supervisors indicated a few challenges inherent in the implementation of the Belt Marking System (BMS). A common pattern that emerged across interviews was that the BMS was very demanding on examiners in terms of time on task with more frequent examiner breakdowns compared to the Traditional Marking System (TMS), meaning that BMS left no room for relaxation arising out of the inbuilt push to keep the cycle in motion. Consequently, the system confined examiners. No wonder that observations revealed that some examiners dodged work because the BMS approach lacked completion (to mark more scripts and earn more cash).

Further evidence showed that the BMS assumes that no examiner falls sick, comes late, or can be absent. Furthermore, it is difficult to balance the reliable, efficient examiners evenly within and across teams. One examiner who was marking for the first time (showing some signs of frustration) complained that the constitution of teams disregarded individual differences. She said, "I'm new and this is my first time. You get allocated the difficult items and you tend to be slow in marking and the next person is waiting for you to pass on scripts. There is no time even to consult the other examiners who are also busy with their marking of items that are different from mine," (Examiner Interview, 20/12/11).

A notable challenge emerged in relation to remuneration of examiners and supervisors. Though in separate interviews, examiners felt that supervisors, because they were not allocated scripts to mark, benefitted unduly from scripts allocated to, and marked by examiners. On the other hand, supervisors or the leadership felt they needed to be paid slightly more than the examiners. As one supervisor put it, "As leadership we should be allocated our own scripts to mark instead of only waiting for moderation of already marked scripts. Dropouts should be paid according to the number of scripts they will have marked" (Leadership interview, 20/12/11). Observedly, these feelings appear to be 'hangovers' of the TMS where a notable remuneration gap existed between markers and supervisors, and where markers remuneration depended on an individual's speed and output. Such a move, if accepted, will sure have negative implications on the quality of marking as supervisors would maximise the number of scripts to mark at the expense of supervisory roles such as moderation. Still emphasising maximisation of financial benefits to examiners, a number of examiners interviewed expressed the wish to have subsistence paid to examiners directly so that they could purchase their own meals. Asked why, one interviewee was blunt and to the point: "We can save lots of monies from our meals – it's money that is at the centre of our coming here," (Examiner Interview notes, 19/12/2011).

Findings in this study agree with the findings reported by Okelowange (2004) that Belt Marking System speeds up the marking process and is less tiring to the examiners than TMS. Challenges hinge on the organisation of marking which can be reviewed and improved upon. Another worrying finding from almost all the respondents is that Belt Marking System reduces the sense of responsibility of the examiners. The examiners dodge work and have the feeling that after all they will all be paid the same amount of money. Attention should be paid to such examiners and remove them out from marking. This measure should also apply to lazy examiners and those who frequently absent themselves from the marking room. The examiners' contract given and signed by the examiners further supported what leadership had indicated that there were no scripts allocated to senior examiners/ leadership except for them to do moderation.

Conclusion and Recommendations

The percentages of scripts with +/- 1 deviation were greater when Belt Marking System was used than in the previous Traditional Marking System (TMS). All

findings revealed that marking ZIMSEC examinations using the Belt Marking System produced more reliable results than in TMS. Belt Marking System was found to have more merits than TMS. The merits included building team spirit, offering more security for scripts, group control of scripts and marking, increasing examiners concentration, and reducing chances of malpractice during marking. Furthermore, BMS increased the speed of marking, and took fewer days than the TMS to complete the marking session, which ultimately led to publication of results on time.

There were strong recommendations that Belt Marking System should continue being employed by ZIMSEC to mark all examinations, and that the management of the marking be reviewed with a view to enhancing efficiency and effectiveness. Sentiments noted from informal conversations with examiners indicate a hangover of the individualism that characterised the TMS, whereby markers and supervisors all got an allocation of scripts to mark and were paid based on scripts marked. There is need for ZIMSEC management to staff develop examiners on the value of team work, which is a differentiating feature of BMS. Emphasis should be placed on leaders as team members in the exercise.

Admittedly, there is need for ZIMSEC management to continue refining the remuneration formula for different positions in the examinations marking hierarchy under the BMS approach.

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