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INTRODUCTION

REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

USING CYBER PEDAGOGY (WIBEKI/01/2014) MODEL TO INITIATE MULTILITERACIES AND PROMOTE A VIRTUAL CLASSROOM: A PILOT STUDY

WILLIAM NKOMO
TEAM LEADER
SOFTWARE ENGINEERING & PROFESSIONAL PRACTICES
SOFTWARE ENGINEERING
FACULTY OF COMPUTING
BOTHO UNIVERSITY
FRANCISTOWN

BERTHA KARIMBIKA
TEAM LEADER
MIS
BOTHO UNIVERSITY
BOTSWANA

KITSO MOLEFE
TEAM LEADER
NIIT
FACULTY OF COMPUTING
BOTHO UNIVERSITY
BOTSWANA

ABSTRACT

In the survey conducted at Botho University, researchers established that more than 90% of the students have access to the ICT technologies and 80% own the ICT gadgets. However, there is a challenge faced by learners when it comes to the interpretation of digitized instructions presented on these media or the internet utilized every day. On this background, this paper suggests WIBEKI/01/2014 model which contends for "cyber pedagogy" and "multiliteracies" for the learners at Higher Institutions of learning. Drawing on theories of virtual classrooms, peer and self assessment, this paper further explores two strategies; (a) the WIBEKI/01/2014 virtual classroom and (b) the mark distribution algorithm (MDF). These strategies were piloted amongst the 2 batches of the Postgraduate Certificate in Higher Education (PGCHE) (block release and part time) classes at Botho University (N=23). The WIBEKI/01/2014 is an integrated model and therefore in this study we argue that it is absolutely immaterial for learners to be constrained within a physical classroom setup. Instead, students require metacognitive skills in order to use collaborative tools, interact online and associate with team members. The findings of the study revealed that well-rounded cyber pedagogies must integrate five fundamental processes; (a) the preparatory learning for the cyber-student, (b) cyber-instructor's training process, (c) the virtual learning process itself (d) effective assessment strategies and (e) the virtual classroom evaluation procedures.

KEYWORDS
cyber-pedagogy, mark distribution model, mutiliteracies, WIBEKI/01/2014 model.

INTRODUCTION

Educational technologies are certainly a paradigm that can promote active learning. Introducing classes with a range of exciting techno-teaching strategies where students use social media, communication devices and animation can transform a classroom into a vibrant learning environment. In the study by Huxham (2005), sufficient evidence is specified pointing to a correlation between engagement and students' performance in recall and retention. Although in this study there is no extensive application of educational technology, the stimuli used is technology in a small way. In the pursuit for new forms of educational technologies, we need to ask how instructional technologies are transforming teaching and learning in higher education (Jaffee, 2003). The present study therefore proposes cyber-pedagogies that allow for flexibility in the teaching, learning and assessment processes. The presence of the ICT gadgets is fast transforming the way teachers and students interact and hence the dimension of thinking has amongst them. This observation is supported in the study of the shift in the pedagogical ecology from the physical to the virtual classroom by Jaffee (2003). The study shows that the use of mobile devices and browsing can transform humans' frame of mind and change the way they understand and manipulate their environment (Jaffee, 2003). Kellner (1998) concurs with these findings. The researchers therefore posit for a critical pedagogy that aligns the teaching/learning approaches with the modern learning processes required by the modern learners.

Studies conducted more than a decade ago proved that traditional methods where students are confined in some physical space do not stimulate learners' thoughts or attitudes (Bligh, 1998). Gibbs and Habeshaw (1992) discovered that lecture methods are boring to students and more often lead to somnolence. Furthermore, a worse scenario was proven by Maloney and Lally (1998). In their study of the "…relationship between students' attendance at Universities lectures and academic performance…", they revealed that students deliberately avoid lectures or cannot cope to the end of the semester if they are not spiced with interesting interventions. (Maloney & Lally, 1998). In the current study, researchers design a cyber-pedagogy model that creates a learning, teaching and assessment environment supporting the dynamic use of mobile devices and the internet. The model is expected to promote virtual learning where students are free to make a choice of where to access digitized instructional materials. As a result students can learn at home or within premises (but not necessarily in class) without prejudice. In the following sections we discuss the motivational issues and the need for action at Botho University, review the existing body of literature on related cyber-pedagogy and their use in the learning teaching and assessment. This will be followed by the piloted methodology, recorded results and finally, a discussion of these results and conclusion.

REVIEW OF RELATED LITERATURE

High statistics on ICT usage (in the classrooms and home) point to the need for the teachers and researchers to uplift the present traditional teaching strategies in higher education to suit the students' learning preferences. This can be done by introducing cyber-strategies that equip students with abilities to think

critically in order to understand digitised instructions. The digitised instructions are dominant on the ICT media and therefore modern pedagogies need to be upgraded to fit in the techno-society. In these societies, learners need to think critically in order to meet the employers' expectations (Robertson, 2011).

Furthermore, there is need to consider a virtual classroom environment where the teacher is not limited to chalk and talk (Hartse, 2003). Teachers do not need to restrict the learners within a classroom and assume that learning is taking place. Research has it that the majority of students do not benefit from being present in the classroom and listening to the teacher. Caldwell (2007) supports the view by associating a lecture in the classroom with a transmission model of communication and not learning, in which the transmission of information process is in the teacher-to-students direction. Similarly, Huxham (2005), argues that lectures are unpopular with students, especially those at higher education. At this point, we can pose a question; how best can the learners use their smart phones for learning purposes given that the instructions presented to them is in a complex multimodal format? Koh (2001), states that the graphics texts presented on the ICT gadgets are a mix of blended textual forms of linguistic codes, sound and visual semiotics with sophisticated designs of pictures and animation. Furthermore, Rosernberg (2010) established that the nature of digital instructions (print text, images, sound and icons and motion) presented on the communications media (ipads, internet, chats, television, etc) are not only difficult for users to decipher but, also aim at placing the user in a passive position where the victims get conditioned by it. Learners therefore must be taught to think critically in order to be on the driver's seat of the interactive experience and immune to screening. Learners need to acquire metacognitive skills required for critical thinking (Alverman, Moon, & Hagood, 1999; Bruce, 1998; Buckingham, 1998; Buckingham & Sefton-Green, 1994; Gee, 2000; Pailliotet & Mosenthal, 2000; Reinking, McKenna, Labbo, & Kieffer, 1998; Semali, 1999; Watts Pailliotet & Mosenthal, 2000).

John Seely Brown (2000) proposed an "action and knowledge creation" learning model. This is web-based transformative learning. The model can be visualised as a cyclic nomenclature where four learning processes are apparent; (a) the non-text based navigational learning, (b) experience and discovery based learning, (c) "bricologe" and (d) action-oriented learning. The non-text based information navigation involves navigating through web-based resources, locating useful knowledge and information. Once navigational skills are set, the learners begin to build on experience and discovering ("discovery-based learning"). As the learners get familiar with web navigational skills and successfully find information they require, they now get curious and want to try new things. At that stage, they may link, lurk and try to assemble tasks in order to create something new and important to their lives – we refer to such skills as "bricologe" (Brown, 2000). The bricoleur is actively involved in harnessing digitised information (hyper-text links, e-books, electronic journals, etc) and constructing meaning from the informational pieces to make learning social, cognitive, action-oriented, and concrete.

Kalantzis and Cope (2008) presented the meaning-making process model that supports the development of multimodal skills amongst learners. The framework proposes mutiliteracies to equip cyber-learners with metacognitive skills. In the era of smart communications technologies, meaning-making is polymorphic where written language form links with animation, gestures and spatial patterns of meaning (Kalantzis & Cope, 2008). Notably, the meaning-making model is similar to John Brown (2000) action-oriented concept in the sense that it is dynamic, cyclic and transformative. David Jaffee (2003), suggests a virtual classroom environment constituting interactivity, active learning and collaboration. In this setup, the teachers' role is to facilitate the learning process and not to direct it. Learners ask questions online, exchange information and participate in specific forums at the time they are willing and ready. In such a cyber-space there is no face-to-face interaction but, learning can be achieved more effectively because students manage their learning.

Wiki in the Hawaiian accent (wiki-wiki) means quick or fast. In the context of IT, wikis are web 2.0 communication and collaboration tools that facilitate learners' engagement and collaboration (Konieczny, 2007); (Parker & Chao, 2007). Wikis enable users to develop and publish web content, monitor the content change over time, and make corrections or revert to the original content if there is need to do so. Effective application of wikis in collaborative learning points to a new paradigm in pedagogical ecology. According to Jaffee (2003), a critical aspect of web-based learning (wikis, blogs, etc) is the shift in the pedagogical ecology from the physical to the virtual classroom.

A virtual classroom (VC) is an online learning environment that provides digitised instructional materials, collaboration and interaction using asynchronous and synchronous mechanisms (Subramaniam & Kandasamy, 2011); (Michael, 2012). The definition suggests that VCs create two forms of online learning environment; (a) asynchronous-based and (b) a synchronized form. According to Subramanian and Kandasamy (2011), asynchronous-based environment supports a community where students receive online course materials, collaborate and interact easily. In that sense the virtual classroom reduces the significance of physical presence in a classroom and discourages surface learning (Subramaniam & Kandasamy, 2011); (Schullo, et al., 2007). Synchronized environment complements collaboration since exchange of information is real-time and full-duplex so learners can obtain instant feedback from the community members as they work on a concept. Full-duplex means two-way exchange of videos and audio content amongst learners. In the synchronized mode learners are chatting, seeing each other face-to-face and expressing their emotions to colleagues. That way, the physical classroom environment is simulated. To develop virtual classrooms, we need to harness the present features of the internet. Bower (2007) lists a dozen of these features including; screen sharing, Webcam, VoIP, text Chat, Whiteboard, file upload/download to mention but a few.

IMPORTANCE OF THE STUDY

The main premise of the present study is to design and pilot a WIBEKI/01/2014 cyber-pedagogy and the mark distribution models which are meant to optimize the teaching, learning and assessment processes. The WIBEKI/01/2014 is a customised virtual classroom setup created on botho.blackboard.com platform. It focuses on students' multiliteracies, instructors' training requirements and formative and summative evaluation of the virtual classrooms. In this research, we intend to offer some guidance to the educators on how to customise existing open source/licensed applications into personal virtual classroom applications. The other innovation on the WIBEKI/01/2014 is the mark distribution algorithm used by cyber-learners and instructors during the assessment process. The algorithm allows learners to conduct self/peer assessment to evaluate the process of group activities and the instructor to use the well-designed rubric to assess the product of group activities. This framework therefore creates an assessment process where the final student mark combines the cyber-learner's academic achievement and team work capabilities.

STATEMENT OF THE PROBLEM

A survey conducted at Botho University in 2014 (Semester 1) amongst eighty one (81) students, established that a significant number of learners use ICT gadgets for interacting amongst themselves and their instructors. The digitized instructions presented on theICT gadgets they use are multimodal (mixture of text, graphs, audio and animation) and are difficult to understand due to their multimodality. Several solutions have been framed to combat such problems, perhaps the most popular one being critical cognitive skills amongst learners (to minimise conditioning of the user) and the virtual learning environment (to extend the classroom hours). The present research proposes critical multiliteracies for cyber-learners, the virtual learning platform and the mark distribution model for effective learning, teaching and transparent assessment of learners' work.

OBJECTIVES OF THE STUDY

The objectives of the present study include the:

- Review related literature in order to establish the current virtual platforms and collaboration tools on the virtual classrooms,
- Design the WIBEKI/01/2014 framework and apply the WIBEKI/01/2014 platform to simulate the virtual classroom model,
- Application of the mark distribution algorithm(MDA) to the group work assessment process,
- Evaluation of the effects of the above mentioned models regarding their relevance in supporting learning, teaching and, assessment.

HYPOTHESES

The proposed virtual learning platform and self/peer assessment algorithm are expected to improve student-student and student-teacher collaboration and transform assessment into a very transparent assessment system. For this purpose, we formulate the following hypothesis:

- H0: Student-to-student, teacher-to-student interaction and the quality of assessment would improve significantly with the use of WIBEKI/01/2014 and MDA models in active learning/teaching as compared to the traditional methods of teaching, learning and assessment. Furthermore, using the MDA model would enhance learners' accountability, participation and hence improve on the validity and transparency of assessment.
- H1: WIBEKI/01/2014 and MDA will be alternative learning, teaching and assessment approaches for higher education without significant changes to students' engagement and experiences.

RESEARCH METHODOLOGY

A. PARTICIPANTS

CATEGORY 1 PARTICIPANTS

These participants were involved in the pre-test analysis of ICT usage amongst Botho University students (Francistown). The sampling was random and 81 students volunteered with the information. In the sample, 42(51.85%) students are female and 39(48.15%) are male.

CATEGORY 2 PARTICIPANTS

To test the usability and effectiveness of the WIBEKI/01/2014virtual learning, 2 Post Graduate Certificate in Higher Education (PGCHE) classes were used. The first class is part time with 10 students. The part time group consisted of 1 male student teacher and 6 female student teachers. The student teachers were teaching in various schools in the Northern region of Botswana during the time of the study. The second PGCHE group is on block-release study mode. It consisted of 13 PGCHE students all of which are lecturers at Botho University in Francistown. In total there were 20 category 2 participants, 10(50%) are male and 10(50%) are female.

B. RESEARCH METHOD, DATA COLLECTION AND DATA CODING

ICT GADGETS USAGE STUDENT QUESTIONNAIRE

To initiate the present research, researchers sort to establish the extent of ICT usage gadget at Botho University by students. The ICT gadgets usage questionnaires were distributed amongst 81 learners at Botho University (Francistown campus) using random sampling. The survey sought to establish four key aspects; (a) how many learners own smart phones or a computer, (b) how easy learners got access to the internet, (c) how easily available are the social media to the students and (d) how the learners learnt to use the media or the internet.

WIBEKI/01/2014 SURVEY QUESTIONNAIRE

This questionnaire sought to get the participants' views on collaborative tools (wikis and discussion forums) provided in WIBEKI/01/2014 during assignment 3. Particularly, how these technologies facilitated collaboration, interaction, peer assessment and self assessment. Additionally, how these tools provided learning support to the participants. The researchers sought to establish if the participants engaged high mental activities such as application of concepts and synthesis, their perceptions of self and peer assessment and the benefits realized from the use of collaborative tools.

RESEARCH METHOD AND DATA COLLECTION

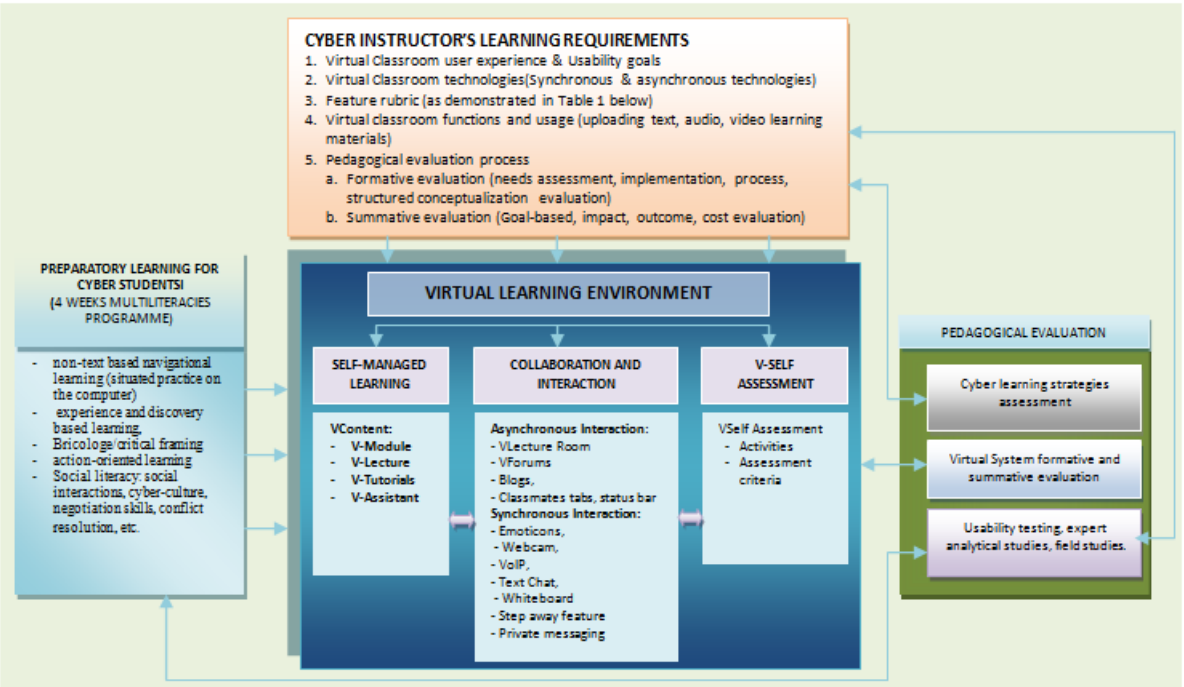
The analytical approach adopted in this study is pilot study. This study is traditionally known for its effectiveness in facilitating informed decisions on the reliability and applicability of new innovations such the educational management systems before they are tried on a lager scale. Although virtual classrooms are not new, in this study we chose to pilot the WIBEKI/01/2014 to ascertain its acceptability, effectiveness and its likely impact as a new tool of complementing the learning/teaching at Botho University. The sample size is relatively small and therefore we chose to use the feedback to improve the WIBEKI/01/2014 product. Baker (1994), acknowledged that a sample size of 10%-20% is ideal for conducting a successful pilot study. Furthermore, in this study three methods of data collection were used. Two questionnaires were distributed amongst the students; the first questionnaire was distributed at the beginning of the study to survey ICT gadgets usage amongst students, and the second questionnaire was distributed at the end of the collaborative activity to survey students' satisfaction with the virtual tools learning experience. Secondly, the WIBEKI model and Likert scale questions were reviewed by five experts to collect feedback on the completeness, content validity and relevance and applicability of the model and questions. The third method involved face-to-face follow-up interviews with nine students that were randomly selected from the two groups of the PGCHE students. Six students were selected from the part time class and three from the Block Release class. Each semi-structured interview lasted ten minutes. The interview questions were developed based on the questions from the WIBEKI/01/2014 usage questions.

DESIGN

THE VIRTUAL CLASSROOM FRAMEWORK

The WIBEKI/01/2014 framework consists of four(4) major components for implementing the cyber-learning environment; (a) the virtual learning environment model in the midst of the diagram, (b) the cyber-student preparatory-reading requirements, (c) the instructors' learning requirements to enable them to design customised cyber-learning environments and finally, (d) the pedagogical evaluation model, which is a model guiding the cyber-users on which evaluation processes could be conducted during the use of these virtual learning tools and also the evaluation of the impact of the virtual classroom on learning/teaching.

FIGURE 1: THE WIBEKI/01/2014 FRAMEWORK FOR INITIATING MULTILITERACIES AND SUPPORTING VIRTUAL CLASSROOM



THE CYBER-INSTRUCTOR'S LEARNING REQUIREMENTS

The cyber-instructor must be prepared to develop, use and evaluate the virtual classroom being used to support the cyber learning processes. The taxonomy considered relevant for equipping a cyber-instructor with fundamental skills for dealing with the cyber environment is outlined in table 1. Initially, the teacher is expected to be fluent with strategies to solicit for instructional goals of the virtual classroom from the community. The predominant attributes of the cyber-instructor constitute the ability to; (a) create a virtual classroom 'wish-list' from interviews and focus groups, (b) identify instructional challenges of the virtual classroom environment, (c) identify asynchronous/synchronous technology requirements for the preferred virtual classroom, (d) use the feature rubric to select the best virtual classroom tool (see table 1).

TABLE 1: SUGGESTED INSTRUCTORS' VIRTUAL CLASSROOM FEATURE RUBRIC WHICH MIGHT BE ADOPTED BY THE INSTRUCTORS TO SELECT THE BEST VIRTUAL CLASSROOM APPLICATION

T => THE FEATURE IS PRESENT IN THE PRODUCT
F => THE FEATURE IS MISSING

FEATURE + FUNCTIONALITY	THE VC SYSTEM ALTERNATIVE	
	VC Alternative 1	VC Alternative 2
(A) SUPPORT OF VITAL COMMUNICATION MEDIA		
Does it support VoIP?	T	T
Does it support text chat?	T	T
Does it support full-duplex video communication?	T	T
(B) MECHANISMS FOR PRESENTING INSTRUCTIONAL MATERIALS COLLABORATION AND INTERCTION		
Does it support web browsing?	T	T
Is the whiteboard present?	T	T
Does it allow the users to load and present Power Point documents?	T	T
Can polling and quizzing be supported?	T	T
Is there any multimedia for presentation?	T	T
Can users share applications they use?	T	T
Can the VC facilitate interactive hand raising and real-time feedback?	T	T
(C) LOGISTICS	T	T
What plug-in are required to setup the VC tool?	F	T
Are playback for sound, audio and video supported?	T	T
Is the VC tool compatible with other platforms? Please state which ones.	WINDOWS XP plus.	LINUX, MAC OS

THE WIBEKI-VC: COLLABORATIVE CONTEXT

The WIBEKI/01/2014 learning environment was created using botho.blackboard.com tool of Botho University. Two PGCHE classes (1 FTWN-JAN-D8-LTA-10-1 and 1 FTWN-JUL-D8-LTA-10-1) in the Department of Further Education at Botho University (Francistown) participated in the study. The students were enrolled in the same course, "Learning Teaching and Assessment", and had the same instructor. The part-time group consisted of teachers who are relatively new to Higher Education but, all of them were graduates from Universities. All these are prospective teachers at tertiary institutions of learning/teaching. The group was given an activity that required them to make contributions on a wiki and comment on each other's work. The participants were then graded after 2 weeks. The block-release group consisted of teachers who are exposed to Higher Education at Botho University. The group was given 3 assignments and the collaborative assignment (see Appendix E) was the third assignment of the three assignments in the D8-LTA course. After the activities, each participant from each group was asked to complete a questionnaire and 16 students were selected for interviews. To facilitate collaboration and interaction amongst participants, the block-release students were divided into 3 working groups and tasked to prepare a motivational paper for a research conference "THE ROLE OF TECHNOLOGY IN TEACHING, LEARNING AND ASSESSMENT" using a wiki prepared by the instructor on the botho.blackboard.com platform for Botho University. Each group was to explicitly deal with 2 or more key points which were provided in the collaborative assignment 3. Each individual participant was then monitored to check the contributions he/she makes. This implies that mere participation in a group did not guarantee marks for an individual group member. This collaborative assignment was allocated 21 days to be completed by each group.

SELF AND PEER ASSESSMENT OF THE PRODUCT AND PROCESS

The final mark for each student was arrived at by considering the product (the motivational paper) the process (students contributions through wikis and overall collaboration) and mark distribution factor (DF) (Lejk & Wyvill, 1996). The product was assessed using the rubric included in appendix E. The product's mark was finalised and referred to as a group work mark (GM). The next step factored the assessment of the process. This involved team members determining how to share the group mark (GM) using a modified "…marks distribution model." (Lejk & Wyvill, 1996). The following model was used to derive the individual marks from a given group product mark:

To calculate Individual Final Mark (IFM) we use the following equation;

Equation 1: $\mathbf{IFM} = \mathbf{DF} * \mathbf{GM}$ *where IFM is individual final mark and DF is distribution factor, and GM is group mark.*

To calculate DF, we require a group score mean (μ). μ is the sum of all scores of the group members divided by the total number of the group members (n). We can model this as follows:

Equation 2: $\mu = (\sum_{i=1}^{n} \mathbf{x_i})/\mathbf{n}$

DF combines two forms of assessment factors that is; (a) the self assessment factor (SA) and the (b) peer assessment factor (PA). Self assessment involves an individual group member allocating himself/herself a score for each given criterion within the range -1 to 3. 3 indicates that the group member performed better than most of the group members, 2 indicates an average performance in that respect, 1 means not good as most of the group members, 0 indicates that the group member did not make any contribution in this respect and finally, -1 indicates that the group member was a hindrance to progress. The elements can be; the level of enthusiasm, suggesting valuable ideas to the group, helping the group to function well as a team, and so on. We can then model DF as follows:

Equation 3: $\mathbf{DF} = (\sum_{i=1}^{n} \mathbf{SA(i)} + \sum_{\substack{1 \le i \le m \\ 1<j<n}} \mathbf{PA(i,j)})/\boldsymbol{\mu}$

PA_i denotes the i^{th} criterion mark awarded to the individual by the peers. The lower limit is 1 indicating that at least there must be 1 or more criteria used to assess group activities. m is the total number of criteria used in that context. Similarly, SA_i denotes the i^{th} self assessment mark awarded by the individual towards his contribution against that element. PA_j is the j^{th} member of the group. n is the total number of group members in a given group. The same criteria were used for self and peer assessment. Appendix E presents mark calculations for the three groups that were involved in collaborative activity. The final mark

for the student is derived multiplying the product mark provided by the cyber-instructor by the DF factor obtained from students self and peer assessments (Lejk & Wyvill, 1996).

RESULTS

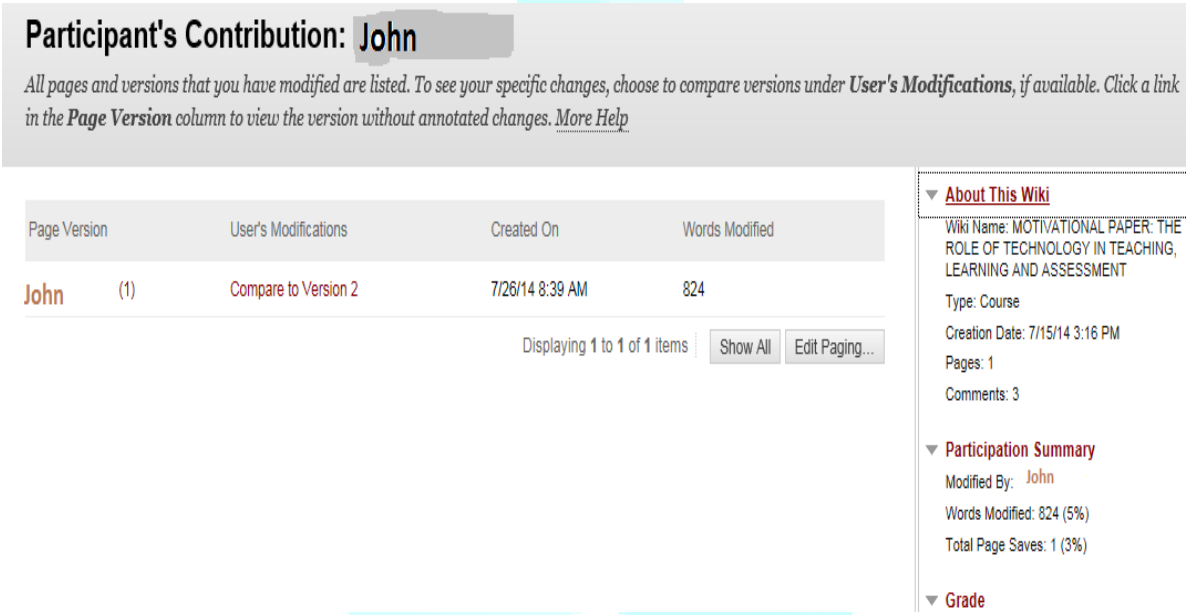
The results discussed in this section are presented according to the three fundamental tools that were used; the first results are based on the wikis and discussion forums, secondly the application of the marks distribution model (MDM); that combines a product mark with the process mark to derive the students' final mark, and finally, we present the results of the "collaboration tools usage questionnaire" that collects the participants' views on the implementation of the virtual learning process and virtual assessment.

WIKIS AND DISCUSSION FORUMS

Wikis were used to check if members of the group are making progressive contributions towards collaborative work. In particular, the "Participation Contribution" tool was used for this purpose. In this research the following facilities were used;

1) Compare to version X: compares the current wiki with the previous wikis done by the same participant. This enables the cyber-instructor to track some changes made to date and whether the participant's contributions are relevant to the assignment (product).
2) Participation summary: provides a summary in terms of the words modified and the total page saves. For example, figure 2 shows the words modified as 5% and total page saves as 3% for John in the wiki entitled "Motivational Paper: The role of teaching technology in teaching, learning and assessment."

FIGURE 2: PARTICIPANT'S CONTRIBUTION SUMMARY



Participant's contribution summary had a dual role in monitoring collaborative work of students; (a) it served as a moderation tool enabling the cyber-instructor to check and confirm extreme cases of cyber-students' assessment by peers or by themselves and (b) guided the group members during the process of developing the "motivational paper" during the collaborative group work. The cyber-instructor must keep checking regularly on the contributions made by group members to help them familiarise with the work being produced in order to upgrade and effectively use the wiki rubric during the assessment of the final wiki.

COLLABORATIVE TOOLS USAGE, SELF AND PEER ASSESSMENT STUDENT QUESTIONNAIRE 2014

The questionnaires were distributed amongst the Block Release class and 12 samples (of 13) were produced. The major questions discussed here relate to the views of participants on the benefit of the collaborative tools in facilitating virtual learning and their satisfaction. The key points of the survey are presented in Appendix D.

1) Benefits, effectiveness of the WIBEKI/01/2014 environment

The findings presented in the survey show that out of 12 respondents:

a) 11(91.67%) of the respondents either 'strongly disagree' or 'agree' with the suggestion that "WIBEKI/01/2014 tools expand and reinforce their educational content" and 1(8.33%) of the respondents "disagree" with the same suggestion that "WIBEKI/01/2014tools expand and reinforce their educational content". None of the respondents 'Strongly Disagree' the same suggestion.
b) Similarly, 11(91.67%) of the respondents 'strongly agree' or 'agree' with the view that "WIBEKI/01/2014motivated them to participate in collaborative work" while 1(8.33%) "Disagree." None of the responds 'Strongly Disagree';
c) Except for 1(8.33%) respondent, all respondents "strongly agree" 6(50%) or "agree" 5(41.67%) with the suggestion that "WIBEKI/01/2014enhances one's educational technology literacy";
d) 5(41.67%) respondents 'Strongly Agree' or 5(41.33%) 'agree' that through WIBEKI/01/2014they "Added more knowledge on their teaching/learning strategies". 2(16.67%) respondents "disagree" with the view. None all respondents either "Strongly Disagree" with this view.
e) None of the respondents, 'Strongly agree' that "WIBEKI/01/2014allows for well-paced classroom work" but, 10(83.33%) 'Agree', only 2(16,67%) disagree with the view that "WIBEKI/01/2014allows for well-paced classroom work". None of the respondents 'Strongly disagree' with the view.

In terms of group dynamics in dealing with the collaborative activity we have the findings on the survey show the following out of the 12 respondents:

f) None of the respondents say that "Team members' ability to devise effective methods of solving the problems" was "Extremely Effective", 7(58.33%) say it was "Very Effective", 4(33.33%) are saying it was "Somewhat Effective" and 1(8.67%) respondent is of the view that the group members were "Not so Effective" in that regard.
g) In terms of "Considering other team members' views", 3(25%) respondents said that the team members were "Extremely Effective", 4(33.33%) respondents said team member;
h) 4(33.33%) of the respondents said that team members' communication was "Extremely Effective" while 5(41.67%) of the respondents said that team members' communication was "Very Effective" and 3(25%) said communication was "Somewhat Effective". None of the respondents said the communication amongst team members was "Not so effective" or "Not effective at all."

i) 10(83.33%) of the respondents grade collaborative activity to 3(25%) "Very Often" and 7(58.33%) "Often" as a tool for fostering "Synthesis" mental activity on virtual space, only 2(16.67%) of the respondents think collaborative activities are "Sometimes" useful for promoting "Synthesis" mental activity. None of the students said these tools "Never" involving them in "Synthesis."

j) All of the respondents grade collaborative activity to 5(41.67%) "Very Often" and 7(58.33%) "Often" as a tool for getting in "Making Judgements about the value of information".

k) 8(66.67%) of the respondents, said 5(41.67%) "Very Often" and 3(25%) "Often" support the view that collaborative activities enabled them to engage in the "Application" mental activity. 4(33.33%) support the suggestion that these activities "Sometimes" foster "Application" mental activity and none said that collaborative activities "Never" support "Application" mental activity.

l) None of the respondents said self and peer assessment strategy are "Extremely Effective" if applied to promote "Fair marking and demanding work" for the students, 7(58.33%) said self and peer assessment are "Very Effective", 3(25%) said these assessments methods are "Somewhat Effective", and 2(%) said these assessments methods are either "Not so Effective" 1(8.33%) or "Not Effective at All" 1(8.33%);

m) 5 of the respondents supported the suggestion that self and peer assessment were 1(8.33%) "Extremely Effective" or 4(33.33%) "Very Effective" in getting "Valid grades" on students' performance. 5(41.67%) support the suggestion that the self and peer assessment are 2(16.67%) are "Not so Effective" in providing valid results. None of the respondents said the assessment was "Not Effective at All" for this purpose;

n) None of the respondents said self and peer assessment strategy are "Extremely Effective" in obtaining reliable and standard results, 5(41.67%) of the respondents said the assessments are "Very Effective" for "Reliable and standard assessment", 5(41.67%) said these assessments are "Somewhat Effective" and 2(16.67%) said these assessments are "Not so Effective" 1(8.33%). None of the respondents said the assessment are "Not Effective at All" as reliable and standard assessment criteria;

o) About transparency, 4(33.33%) of the respondents said the assessment strategy used was "Extremely Effective", 2(16.67%), 2(16.67%) said the assessment strategies are "Very Effective", 2(16.67%) said the strategies are "Somewhat Effective" and the remaining 4 said the strategies are either 3(25%) "Not Effective" or 1(8.33%) "Not effective at all".

p) 7(58.33%) of the respondents said the assessment strategies are either 3(25%) "Extremely Effective" or 4(33.33%) "Very Effective" in getting students "involved and accountable", 3(25%) of the respondents are rather neutral on this issue, 1(8.33%) said the strategies are rather "Not Effective" in this respect and 1(8.33%) said the strategies are "Not effective at all" in getting students "involved and accountable".

DISCUSSION AND IMPLICATIONS

THE WIBEKI/01/2014 VIRTUAL CLASSROOM

In the present study, WIBEKI/01/2014 was configured with four (4) fundamental elements that guide the learning, teaching and assessment processes; The first element is the cyber-instructors' learning requirements suggesting that the cyber-instructors themselves must go through formal training/orientation such as the skill of selecting the optimal features for the virtual classroom. Michael Kathy (2012) said that "…staff training and the establishment of effective support structures for safe, and rewarding virtual classroom are crucial." The second element is the Cyber-Student Preparation. The fundamental concern as learners interact with digitised instructions and hypertext on the virtual environment is the 'screening effect' or conditioning. Conditioned learners are passive, none-critical and require constant guidance in order to develop. WIBEKI/01/2014 proposes a total of 4 weeks to prepare the learners to become effective learners in the virtual classroom. However, it is to the discretion of an educational institution to create a sound cyber-pedagogy that suites this purpose. The fundamental activities must be wholesome and integrative to foster "visual literacy skills" (Michael, 2012). The digital/hypertext instructions presented on the screen are multimodal (Koh, 2001) and require a learner who is multi-skilled in order to read, understand and construct the meaning out of these instructions. (3) The third and core component of the WIBEKI/01/2014 is the 'virtual learning environment'; a combination of self-managed learning, collaborative tools and peer and self assessment. A survey of the conducted amongst the participants reveals that on average, 91% of the participants support the view that collaborative tools expand and reinforce their educational technology content and encourage them to participate actively in the learning process. A particular note has been made in this research about the benefits of collaborative work amongst participants. For example more than 90% of the participants strongly agree with the suggestion that WIBEKI/01/2014 provided a very productive platform for improving association amongst team members and fostering stronger working partnership, however not much of deeper learning seemed to be encouraged. Furthermore, an ideal virtual classroom must allow for synchronous and asynchronous exchanged of ideas where learners reflect and make valuable contributions to the collaborative activities (Wang & Newlin, 2001). WIBEKI/01/2014 platform provided such a platform. Notwithstanding, WIBEKI/01/2014 model had a couple of challenges. Students were aware of the relatively permanent nature of text-based forum postings, and were therefore generally more careful about what they wrote. The insecurity of 'appearing dumb' in front of their peers in the virtual classroom was a significant factor discouraging interaction. Wang (2012) made similar observations in the research on the influence of wikis in the students' behaviour towards collaborative work.

WIBEKI/01/2014 SELF AND PEER ASSESSMENT

In this study, the strength and weaknesses of the self and peer assessment became apparent. The strengths are; (1) learners develop good negotiation skills, (2) there is an increase in collaboration and interaction and hence "collective intelligence" is improved. These findings seem to concur with Garry Falloon's (2011) research on the applicability of Web2 technologies in development of collaborative tools. In the present research, it was established that the virtual classroom setup is "…useful for relationship and community building and for diminishing learner isolation…" On the contrary, the assessment strategies discussed (MDA) face the challenge of curbing problems of overrating or underrating amongst learners (Lejk & Wyvill, 1996).

MULTILITERACIES

The success of the WIBEKI/01/2014 model rests solely on the preparatory programmes that the educational institutions facilitate amongst the cyber-instructors and the cyber-learners. This is part of the cyber-pedagogy. Ideally, a successful cyber-learner must be equipped with specific multi-dimensional skills (meta-cognitive skills) in order to interact with the cyber-colleagues and to interpret the computer-based instructional materials that have become common on the virtual learning space. A cyber-learner thinks critically, navigates the hypertext cautiously and interprets the multimodal (textual, audio and visual) forms of digital instructions. Furthermore, a cyber-learner, regardless of the field of study is assumed to be computer literate. A cyber-learner must also engage in group-work. Therefore, this learner must negotiate effectively during this process in order to score good marks. In a nutshell, a cyber-learner is a student who is able to; (a) communicate well, think critically, interpret with ease the non-text based instructions presented to them.

FINDINGS

The findings of the present study can be summarised as follows:

a) WIBEKI/01/2014 is a useful tool in collaborative learning, teaching and assessment.

b) WIBEKI/01/2014 enhances students' learning experience due to student-student and student-instructor interaction.

c) Although the mark distribution model is useful, it has been established in this study that there are chances of social loafing amongst students. These students tend to grade themselves higher during self-assessment. Therefore a detection mechanism must be in place to minimize as proposed by Mark Lejk and Wyvill, 1996.

CONCLUSIONS

This study found that using the WIBEKI/01/2014 collaborative tools for developing group work and online assignments at Botho University was not as efficient as expected. When the PGCHE students were doing assignment 3, it was noticed that they could not convene on time for discussions because they were busy with other chores of the University. The group members reported having worked as individuals and met once to discuss progress. However, the primary purpose of the WIBEKI/01/2014 model seems to have been achieved because it is on the success of the online discussion forums, synchronous chats and online interaction

amongst students that matters in the virtual space. However, the setback was that the students lacked the appreciation that there is no urgent need to meet face-to-face when discussing on the virtual classroom space.

Assessment and effective feedback are part of the learning process and one wonders how this can be done best on the virtual classroom. Blackboard provides a platform for monitoring students' engagement, contributions to the discussion forums and summary of each participant's contributions. Furthermore, when using Blackboard the instructor can grade the students based on these contributions (botho.blackboard.com, 2012). However, educators need to take a holistic approach when dealing with the assessment of the cyber-learners by factoring in the assessment of the product and process (Lejk & Wyvill, 1996). In that way, the instructor will take assess the cyber-learner's professional development and personal grooming abilities.

LIMITATIONS OF THE METHODOLOGY

The benefits of the WIBEKI/01/2014 model have been listed but, crucial issues need to be discussed that may challenge its implementation. These include;

- Network reliability: network connectivity may be slow or not sufficient to handle multiple responses at the same time as discussed in the KatSRS model (Nkomo, Samsom-Zulu, & Chirau, 2014)
- Administration of the MDF for self and peer assessment requires rigorous monitoring and may be time consuming: Application of the algorithm, monitoring the use of the strategy against under and over rating amongst the cyber-learners is crucial. This becomes more stressing to the cyber-instructor if there are instances of social loafers.
- Learning preferences amongst students is no longer emphasised if there is over reliance on the WIBEKI/01/2014 model: The lack of face-to-face student, teacher interaction may disadvantage those students who prefer face-to-face and verbal communication with their instructors.

SCOPE FOR FURTHER RESEARCH

These findings are crucial and point to the need to prioritise the implementation of the activities suggested in the WIBEKI/01/2014 model because some learners are not IT literate to use the collaboration tools and more so the value and capabilities of the virtual tools on the internet. We need to capitalise on the "preparatory learning" of the model to train the learners on how to access the internet, use hyper text links, and interpret graphics texts on the digital instructions (Koh, 2001). Additionally, the same learner must have the diplomacy of a good team player (cyber-learner multiliteracies). Similar results have been confirmed in separate studies in non-Western countries (Wang, 2012). To that effect, cyber-instructors must focus on the effective use of the collaborative tools in promoting academic achievement amongst cyber-learners and make comparative studies on the efficiency of these tools against existing educational technologies such as KatSRS (Nkomo, et al., 2014) for the same purpose.

In order to optimize the MDA model, we need to find ways of involving learners in the whole process of assessment such as design of the assessment criteria, assessing themselves and their colleagues and evaluating the assessment process itself (Lejk & Wyvill, 1996). In that way, some high degree of process ownership, belonging and accountability will be achieved amongst the cyber-learners.

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APPENDICES

A. THE RESULTS OF THE SURVEY CONDUCTED AT BOTHO UNIVERSITY ON STUDENTS' OPINION AND USAGE OF ICT GADGETS

	Not Present	Family Shares	Another member owns	I have my own
A. Which of the following technologies are present in your home?				
1) Desktop	33	21	9	18
2) Laptop	6	0	12	63
3) Wireless WiFi Internet Access	39	6	21	15
4) Internet	48	15	3	15
5) PDA	30	15	30	6
6) Mobile phone	9	0	6	66
7) Digital camera	24	6	27	24
8) Portable MP3 player	36	18	9	18

B. How did you learn to use the computer?					
1) I taught myself	I taught myself	From family	From friends	University	High school
	24	18	6	9	24

C) How is your knowledge & skills for using ICT's?	Poor	Average	Good	Excellent
	0	15	50	16

D) Where do you get access to the internet off-campus?	No access	At home	Café	Library	Friend/Relative	Work
	0	42	15	12	12	0

E) What ICT's do you mainly use off campus?	
1) I do not use any	3
2) Desktop	3
3) Laptop/PDA	23
4) Cellular phone	32
5) A combination of the above	20

F) Does ICT you use have internet?	Yes	No	Don't use one
	60	18	3

B. COLLABORATIVE ACTIVITY: ASSIGNMENT 3

Postgraduate Certificate in Higher Education
Learning, Teaching and Assessment
Assessment Number 3 (20% of module marks)

The massive use of ICT in learning (students), teaching (educators) and its general application in social networks(facebooking, sms, yim, twittering, etc) nowadays is an indicator for us to think differently about assessing the role of educational technology in the teaching, learning and assessment processes.
Imagine your team (PGCHE) is tasked to prepare a motivational paper for a conference *"THE ROLE OF TECHNOLOGY IN TEACHING, LEARNING AND ASSESSMENT"*

1) You are to collaborate and prepare a report using wikis on **botho.blackboard.com** entitled *"THE ROLE OF TECHNOLOGY IN TEACHING, LEARNING AND ASSESSMENT"* addressing the following key points/questions;
   - What constitutes educational technology?
   - What may be expected of current and future educational technology?
   - What use, and in some cases misuse, is being made of technology learning, teaching and assessment?
   - What has research shown us about the role of technology?
   - What do we still need to know?
   - What methodologies are appropriate for evaluating the effectiveness of technology in education processes?
   - Challenges of ET
   - Uses & Applications of ET
   - Software & Hardware Tools for ET
2) Since there are 14 members in the PGCHE programme and 4 working groups, maybe you can devise to split according those groups or whichever way you suggest, it is acceptable to me.
3) Each group must explicitly deal with 2/more topics as specified above and make contributions. Please note, each individual would be monitored on the contributions he/she make, being in a group would not guarantee makes for an individual.
4) Assessment criteria are supplied on the next page.
5) The work will be assessed on of 28th of July 2014.

Assessment criteria
The final mark for an individual will be influenced by the self assessment and peer assessment. For step 1 and 2, use **method 1** as discussed on the 4th of July 2014. Please refer to the pack for Week 2 Day 4. As for step 3, do not worry, the instructor will finalise the marks.

Step 1: Inter-group criteria
As a team, you need to convene and assess each working group's contribution and agree on the mark you can allocate to each group. At this level, you are not to criticise an individual but, an entire group's contribution to the report. I will initiate the group assessment by allocating the marks after I have gone through the document and allocated a mark for the entire document. It is your duty as PGCHE programme team to work amicably on this issue. I do not want to have too much influence, but in case you have a problem, please feel free to contact me for assistance.

Step 2: Within-group criteria

Obviously, by now you have agreed on a mark for each group. Now group members know their contributions as well. Split the mark you have amongst yourselves. Use the evidence on blackboard to arrive at the final mark. I will also check blackboard contributions so that I accept the rationale and validity of your approach.

Step 3: final criteria for each member:

This work constitutes 20% of the final mark. Participants will receive a Fail (below 40%), Pass (40-54%), Merit (55-69%) or Distinction (70-100%).

C. RUBRIC FOR COLLABORATIVE ACTIVITY: ASSIGNMENT 3

ELEMENT	Exemplary 3	Proficient 2	Partially Proficient 1	Unsatisfactory 0	POINTS
Content	Provides a fresh and balanced perspective on the topic.	Provides original ideas with a minimum of personal bias.	Provides one or two original ideas which include some personal bias.	Does not provide any original ideas and personal bias is obvious.	2/3
	Provides comprehensive insight, understanding, and reflective thought about the topic.	Provides a moderate amount of insight, understanding, and reflective thought about the topic.	Provides only minimal understanding, or reflective thought about the topic.	Provides no understanding or reflective thought about the topic.	2/3
	Explains all ideas clearly and concisely in a logical progression with effective supporting evidence.	Explains most ideas clearly and concisely with supporting evidence.	Incompletely explains ideas and does not effectively use supporting evidence.	Fails to explain ideas clearly, and does not use any supporting evidence.	2/3
	Presents all information in a style that is appealing and appropriate for the intended audience.	Presents information in a style that is generally appropriate for the intended audience.	Presents information in a style that is often inappropriate for the intended audience.	Presents information in a disjointed, unpolished style which is inappropriate for the intended audience.	2/3
Organization	Uses a consistent organizational structure that includes grouping related information, defines specialized vocabulary and/or provides a table of contents.	Uses an organizational structure which groups some but not all, related information, defines specialized vocabulary and/or provides a table of contents.	Uses a loosely defined organizational structure which attempts to group similar items.	Fails to provide a consistent organizational structure, and information is difficult to locate.	3/3
Text Layout	Makes frequent and effective use of headings, fonts, bullet points and white space to enhance the content's visual appeal and increase readability.	Makes occasional use of headings, fonts, bullet points and white space to enhance the content's visual appeal and increase readability.	Makes minimal use of headings, fonts, bullet points and white space to enhance visual appeal and readability.	Makes no use of headings, fonts, bullet points or white space to enhance visual appeal and readability.	2/3
Citation	Consistently uses standard bibliographic format to cite sources.	Uses standard bibliographic format to cite sources most of the time.	Does not use standard bibliographic format to cite sources, and citations are incomplete.	Does not cite any sources.	1/3
	Accurately cites all sources of information to support the credibility and authority of the information presented.	Most sources are cited accurately, and support the credibility of the information presented.	Few sources are cited accurately, and they fail to adequately support the credibility of the information presented.	Does not provide any accurate information about sources used.	2/3
Group/Partner Collaboration	Contributes equally with other group members in researching, writing, and editing.	Assists group members with most of the researching, writing and editing.	Provides minimal assistance to group members in researching, writing and editing, and does not follow through with all tasks.	Provides no assistance to group members in any of the researching, writing and editing and does not follow through with any of the tasks.	2/3
	Meets all goals and deadlines.	Usually meets goals and deadlines.	Occasionally meets goals and deadlines.	Does not meet goals and deadlines.	2/3
	Exhibits appropriate wiki etiquette when editing and respects the work of others.	Exhibits appropriate wiki etiquette most of the time and generally respects the work of others.	Exhibits a minimal knowledge of wiki etiquette and often fails to respect the work of others.	Exhibits no knowledge of wiki etiquette and fails to respect the work of others.	4/3
Writing Mechanics	Edits the text with no errors in grammar, capitalization, punctuation, and spelling.	Edits the text with minor additional editing required for grammar, capitalization, punctuation, and spelling.	Edits the text, but errors in grammar, capitalization, punctuation and spelling distract or impair readability. (3 or more errors)	Edits the text but numerous errors in grammar, capitalization, punctuation, and spelling repeatedly distract the reader and major revisions is required. (more than 5 errors)	2/3
				TOTAL POINTS	21/30

D. COLLABORATIVE TOOLS USAGE, SELF AND PEER ASSESSMENT STUDENT QUESTIONNAIRE

A. The benefits of collaborative tools in promoting learning teaching and enhancement of educational technology content- Which of the following do you agree with most?

	Strongly Agree	Agree	Disagree	Strongly disagreed
1. They expand and reinforce educational content.	2	9	1	0
2. They motivate me to participate.	3	8	1	0
3. Exposed me to new teaching/learning strategies.	5	4	2	0
4. Enhanced my educational technology literacy.	6	5	1	0
5. They allow for well-paced classroom work.	0	10	2	0

B. Group dynamics and wellness through use of collaborative- Which of the following do you think was extremely effective during the collaborative activity amongst your group members.

	Extremely Effective	Very Effective	Somewhat Effective	Not so Effective	Not effective at all
1. Team members identified and created effective ways to solve the problems.	0	7	4	1	0
2. Team members considered views of other members in the team.	3	4	4	1	0
3. Team members solicited for information for the benefit of completion of the group activity.	2	6	3	1	0
4. Communication amongst team members.	4	5	3	0	0
5. Team reporting wellness.	3	4	5	0	0

C. The effectiveness of self and/or peer assessment in gauging individual performance from the product and the process- In which of the following areas do you think this form of assessment is an extremely effective strategy.

	Extremely Effective	Very Effective	Somewhat Effective	Not so Effective	Not Effective at All
1. Fair and demanding and allows for deserving students to be awarded.	0	7	3	1	1
2. Valid in promoting students performance in reading, listening and understanding.	1	4	5	2	0
3. Reliable and standard assessment criteria.	0	5	5	2	0
4. Enables effective time and resource management.	1	4	4	2	1
5. In being transparent.	4	2	2	3	1
6. Equipping me with team work negotiation skills.	1	4	4	2	1
7. Manage me to manage my own learning	2	5	3	2	0
8. Makes students get involved and accountable for the assessment.	3	4	3	1	1

E. AN EXAMPLE OF HOW DERIVE THE GROUP MEMBERS' MARKS USING THE MDF ALGORITHM

Marks awarded to:	Bertha			Kitso			William		
Marks awarded by:	Be	Ki	Wi	Be	Ki	Wi	Be	Ki	Wi
Motivation/responsibility/time management	3	3	2	1	3	3	1	2	2
Adaptability	2	2	3	1	2	2	1	3	3
Creativity/originality	3	3	2	2	3	2	2	3	2
Communication skills	2	2	2	2	3	3	2	2	2
General team skills	2	2	3	2	2	3	1	2	3
Technical skills	2	3	2	2	2	2	2	3	2
Totals		43				40		38	

We apply equation 2 to get μ:

μ = (43+40+38)/5 = 40.33333

We apply equation 3 to calculate the DF:

Bertha's DF = 43/40.33 = 1.066204

Kitso's DF = 40/40.33 = 0.991818

William's DF = 38/40.33 = 0.942227

We use equation 1 to get IFM where group score is 57%:

Bertha 1.066*57% = 60.77

Kitso 0.992*57% = 56.53

William 0.942*57% = 53.71

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With sincere regards

Thanking you profoundly

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