UNIVERSITY OF NAIROBI

STUDENTS' AND TEACHERS' PERCEPTIONS OF FORMATIVE ASSESSMENT IN KENYA: THE CASE OF BUKURA AGRICULTURAL COLLEGE

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DECLARATION

This research project is my original work and has never been presented for degree or any other award in any university

Signature ……………………………………………… Date ………………………

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This research project has been submitted for examination with my approval as the university supervisor

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DEDICATION

To my wife Wambui, children: Wambaire, Macharia, Karanja and Mugweru do i dedicate scholarly script. I thank them for their support while undertaking this work. May they too become renowned scholars in future.

I would also like to thank my brother Macharia who hosted me throughout the entire period of undertaking my studies. May the almighty Lord bless you all.

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ABSTRACT

This research sort to investigate teachers' and students' perceptions of formative assessment. Perceptions are a person's views and outlooks emanating from experience as well as interaction with their environment. Students and teachers optimistic expression of formative assessment improves their self efficacy leading to improved learners' performance. The purpose of the study was to determine perceptions of students and teachers on formative assessment. The objectives of the study were; (a) To determine students' perceptions on formative assessment, (b) To determine teachers' *perceptions* on formative assessment, (c) To determine whether there was significant *variation in the perception* of students and teachers towards formative assessment practices across departments, and (d) To determine *formative assessment practices* used. Data was collected using the questionnaire and structured interview schedule. The study applied a combination of quantitative and qualitative (mixed research) designs. Purposive sampling technique was used where 63 lecturers and 321 students were obtained from a population of 1384 students and 74 lecturers were selected. Data analysis involved computation of statistics, descriptive statistics, tables and graphs, and One-Way Analysis of Variance (ANOVA). Content analysis was done on the open-ended questions. The results indicated that students and teachers had a more positive perceptions towards formative assessment. Overall, there were no significant variation in the perception of students and teachers on formative assessment practices across departments. Results from the study revealed that a variety of formative assessment practices are being utilized, which comprised of portfolios, projects, continuous assessment tests, peer assessment, student self assessment, and student own production. The conclusion shows that both teachers and students favored formative assessment as an effective method of classroom assessment. However, there is a need to enhance transparency as a way of achieving the goals of formative assessment.

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LIST OF ABBREVIATIONS AND ACRONYMS

APA   –   American Psychological Association

BHEI   –   Baghlam Higher Education Institution

CBET   –   Competency Based Education and Training

CDS   –   Cognitive-Design-System

ECD   –   Evidence-Centered Design

KASNEB   –   Kenya Accountants and Secretaries National Examinations Board

NRC   –   National Research Council

RoK   –   Republic of Kenya

SPSS   -   Statistical Package for Social Sciences

TVET   –   Technical and Vocational Education and Training

ZPD   –   Zone of Proximal Development

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

As the thinking on education shifts to competency based education, processes applied in terms of education assessment also change (RoK, 2017). This has been the case all over the world including Kenya. There is a shift in Testing in education whereby formative assessment is taking center stage. Thus terms such as Assessment For Learning (AfL) verses Assessment Of Learning (AoL). This requires new orientation and skills for teachers. Teachers all over are adapting the new skills. This has become a challenge. Despite the need for new capacities, there is also need to determine the perception of teachers as well as students as they adapt to these new ways. Perceptions held by a person towards a phenomenon matters and is important as it leads to better understanding, approaching and interacting with it (Gonzales, 2012). This calls for determination of one's perception. This study is on perception. According to Ounis (2017) perceptions entails a person's views and outlooks emanating from experience as well as interaction with the environment.

Udoukpond and Okon (2012) found that learners who viewed the teachers' formative assessment procedures to be "enhancing to learning", thus being constructive, had it demonstrated in their improved scores in summative assessment tests. They argue, to such students, assessments and feedbacks were motivating which boosted their studies. Comparatively, students who rated their teachers' formative assessment practices negatively performed relatively dismally and their perception was predisposed towards failure. The authors noted students' pessimistic expression of their instructors' formative assessment processes on students' low scores in the achievement test demonstrated such learners lacked self-efficacy.

In their study, Udoukpond and Okon (2012) found that learners who viewed the teachers' formative assessment procedures to be "enhancing to learning", thus being constructive, had it demonstrated in their improved scores in summative assessment tests. They argue, to such students, assessments and feedbacks were motivating which boosted their studies. Comparatively, students who rated their teachers' formative assessment practices negatively performed relatively dismally and their perception was predisposed towards failure. The authors noted students'

pessimistic expression of their instructors' formative assessment processes on students' low scores in the achievement test demonstrated such learners lacked self-efficacy.

Teaching, learning and assessment are critical elements in any educational structure. According to Kivuti (2015), assessment procedures entail judgement of students' work and performance. Assessment serves many purposes in teaching and learning process. If applied effectively assessment augments instructions that lead to improvement in learning. Ounis (2017) assert that owing to the obvious interaction between learning and teaching, assessment plays a critical role during learning. Learners can use assessment as an indication of what knowledge is, and how that knowledge is achieved. Despite the critical role played by assessment in supporting learning questions arises whether this is achieved. Instruction can be geared towards excelling on a test at the expense of knowledge construction that can be retained for a long period. According to Ho (2014) assessment should be used by instructors as a means of enhancing student's achievement as well as learning in the class. Mussawy (2009) argues that educators are in agreement that assessment can play multiple roles including diagnose students' weakness, grade students, determine performance, among others. According to Kivuti, (2015) assessment can be used internally as well as externally. Internal assessments involve the school-based assessment, comprising of project, excursions, class assignments, review exercise as well as teacher-constructed items. On the other hand, external assessments comprises of tests sourced from examining entities away from school.

According to Zulfiqar et al (2017) formative assessment are practices employed by instructors and learners to identify and react towards students' learning geared towards improvement of learning. Attaching practices to formative assessment implies that it is applied frequently within the continuum of learning. Al Kadri et al (2011) define "formative assessment" as the improved assessment aiming at relaying crucial message as a pedagogical tool in order to reinforce students' learning. Therefore summative and formative assessment should not be viewed as a kind of assessment, but more in context and of the assessment. Erikson (2016) note that instead of using the term formative assessment, many use *assessment for learning* emphasizing more on description of the assessment role.

In spite of heightened focus on formative assessment and linked pedagogical development, a detachment still persist between research and practice by the classroom teacher and the student, which calls for additional examination perceptions on formative assessment. Participation of classroom teacher and the student in learning assessment should be studied in depth. Formative assessment is considered as a process that involves both the learner and the teacher, and the information generated from the assessment provide a basis of what comes next in the learning. The role of the student and the teacher as partners during the assessment process delineates formative assessment from other forms of assessment. In the classroom, the student and teacher brings a variety of beliefs, values and experiences that greatly influence teaching and learning. Teachers' self efficacy, pedagogical attitude and subjective disposition can greatly affect their implementation of formative assessment.

Herritage (2007) point that teachers are equipped with skills on how to teach, but they are exposed less on skills on how to assess. The same applies to their administrators who lack skills in assessment and hence do not possess expertise to support the enhancement of assessment competencies. According to Popham (2009) teachers' lack of grasp of the concept of formative assessment as a profound impediment suggesting that if more teachers and administrators understand notion of formative assessment, more can be achieved. Summative and formative types of assessments need to complement one another and one should not replace the other in an education system. Pressure mounted on teachers and students to produce results can lead to formative assessment being neglected at the expense of summative assessment. William et al., (2004) observe while it is accepted that enhanced use of formative assessment improves learning, it is argued pressure on schools to improve students' results in externally set examinations overrides its use. Similarly, Heritage (2007) point that accountability has led to assessment being used as an agent of summarizing students' learning and ranking of students and schools. This is done at the expense improving instruction. Thus, the reciprocal relationship that exists between teaching, learning and assessment is lost. According to Black et al,. (2003) external assessments advocated for accountability and certification ends up doing more harm than good. Heritage (2007) points that accountability aspect during assessment lead to teachers viewing formative assessment as an added burden interfering with their teaching.

This study aimed to make a thorough investigation on students' and teachers' perception of formative assessment at Bukura Agricultural College. This study did not aim to investigate teachers and students' opinions and attitudes towards formative assessment, but to get a deeper insight of how they understand, think and use formative assessment. The study intended to reveal the meaningfulness of formative assessment via teachers' and students' perspective. The study was aimed at investigating teachers' and students' perceptions of formative assessment in their teaching and learning.

1.2 Statement of the Problem

Perceptions on assessment can help teacher and students increase or decrease chances of being successful in the classroom. According to Fennema and Romberg (1999 as cited by Ounis 2017) the manner in which teachers perceive assessment does have a profound effect on how they teach and test learners. Additionally, according to Udoukpond and Okon (2012) students' perceptions on their ability to succeed are instrumental in their involvement in school learning. Consequently, they argue, to be successful in their involvement in school learning, formative assessment procedures must be developed in such a manner as to enhance students' feeling of success. Foregoing views are reinforced by Mussawy (2009) who report that involving students' and teachers' perceptions in developing assessment tools is reasonably worthy since both students' preferences and teachers' opinions and views may affect students' learning and testing. Further, Ounis (2017) observed that teachers' perceptions on assessment have consequences on its implementation as well as on how information generated is used to enhance learning and teaching. Consequently, he emphasize, importance of aligning learning, teaching and assessment practices has led to an increased concern to investigate perceptions of teachers on assessment. According to Ho (2014) research on teachers' perceptions on formative assessment tends to suggest deficiency in teachers' knowledge and support during application of formative assessment processes on instruction, obstructing their ability to succeed and impacting on their confidence in implementing such practices during instruction. This study intends to shed light on teachers' and students' perceptions of formative assessment at Bukura Agricultural College.

1.3 Purpose of the study

This study's purpose was to determine perceptions of students and teachers on formative assessment.

1.4 Research Objectives

The research objectives that directed the study were:-

a) To determine students' perceptions on formative assessment.

b) To determine teachers' *perceptions* on formative assessment.

c) To determine whether there was significant *variations in the perception* of students and teachers towards formative assessment practices across departments.

d) To determine *formative assessment practices* used.

1.5 Research Questions

The questions that directed the study were:-

a) What are the students' perceptions on formative assessment?

b) What are the teachers' perceptions on formative assessment?

c) Is there significant variation in the perception of students and teachers on formative assessment across departments?

d) What formative assessment practices are used?

1.6 Significance of the Study

The study will produce a formative assessment framework that will be useful in several ways. It is expected that teachers, institution managers, Quality Assurance officers and Policy makers within the Ministry of Education will be informed concerning perceptions on formative assessment and how it affects learning and assessment. It is expected that teachers will be informed on various aspects of perceptions and hence will strive to maintain positive perceptions towards assessment which will ultimately lead to improvement in learning. It is also expected that institution managers will be informed about perceptions and hence will provide enabling teaching and learning environment that will forester positive perceptions towards assessment.

Through monitoring and evaluation, quality assurance officers will find this study resourceful whereby they are enlightened on perceptions and hence provide intervention to students and teachers. When developing curriculum, policy makers will benefit from information from this study whereby the intended curriculum will take cognizance of students and teachers perceptions. The study will also supplement the already available collection of valuable information on measurement and evaluation. Scholars and researchers will find the study a reference material towards enhancement of knowledge.

1.7 Terminologies

Assessment – Implies the procedure of collecting, synthesizing and deriving meaning from information aimed at determining extent of learning and/or improving learning.

Formative Assessment- Refers to practice used by instructors and learners to identify and react to student learning in that elicit effective feedback geared to enhance learning.

Perception – Refers to views, opinions and outlooks possessed by a person emanating from experience as well as the environment.

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Student/Learner– Refers to a person who receives instruction in order to acquire knowledge and skills.

Teacher/Lecturer/Instructor – Implies an individual who delivers instruction that equips learner with skills and knowledge.

CHAPTER TWO
LITERATURE REVIEW

2.1 Related Studies

Studies focusing on learners' and instructors' perspectives on formative assessment are limited. Brink (2017) reported that publications and studies on importance of formative assessment are enormous. However, with regard to teachers' understanding on how formative assessment affected their content delivery was scarce. The researcher further points that there is disconnect in literature in investigating whether perception of teachers and their comprehension of formative assessment are a resourceful tool for implementation during instruction.

While carrying out a study to investigate learners' perception of students with regard to the importance of formative assessment at Islamic International Medical College, Zulfiqar et al (2017) found that correct use of formative assessment was being applied in all modules; however feedback was rarely delivered on time and was often irregular. In addition, the study found pedagogical highlights of learners' progress was complex, which adversely impacted negatively on learners' motivation. The study found overreliance on summative assessment at the Medical College compelled students to only seek for the right responses at the expense of learning. In the study, it was concluded that enhanced application of formative assessment to be accompanied with timely feedback and more emphasis be geared towards remedial practices in order to gain more from formative assessment.

Al Kadri et al (2011) undertook a study targeting perception of students on assessment and the effective learning styles in two medical institutions. The study, found out that instructors applied formative assessment correctly which enabled learners identify learning objectives and enhanced their learning strategies. In effect, learners' ability to diagnose diseases was enhanced, and they could be able to apply theoretical knowledge towards caring of patient and plan for appropriate management practices. The study also found out that formative assessments provoked authentic and multidimensional learning. There was no concurrence among learners and instructors in the two institutions on the ideal regularity of formative assessment and its feedback, where regularity spanned from once in a couple of months to twice per week. Consequently, different views on frequency of formative assessment led to diverse perceptions on correct amount of time and effort

required to complete and evaluate learners' work. Regarding students' perception of authentic assessment during practical work, learners in the two settings favored and valued observed clinical assessment. The study found out that constructive and direct supervision enabled learners to include clinical knowledge in practical, sum up patients' background and resolve patients' challenges. By acting as examples supervisors' actions in training and assisting learners, their allegiance to clinical instructions and know-how were found to be critical elements in improving standards of learning and improvement of learners' scores during exams.

Ounis (2017) carried out a study aimed at exploring teachers' perceptions on oral assessment with a view to establish their belief, attitudes and views that impacted on their assessment procedures. The study found out that, secondary school tutors had higher and encouraging perceptions of the function of assessment in improving learners' scores; assessment enhance pedagogical processes consequently uplifting students keenness and involvement during learning. Due to a greater number of respondents regarding oral assessment as a critical element towards improving students' performance and supplement their concentration, motivation and involvement in class work, oral assessment was observed to possess a motivational perspective as well. On perceived purpose of conducting oral assessment, the study found that a major segment of respondents expressed that the fundamental reason of administering oral assessment was to make verdict regarding teaching as well as learning. Regarding source of oral assessment favored by tutors, from among self assessment, peer assessment and teacher assessment, majority of the respondents favored teacher-assessment at the expanse of the other two. The relatively lower value expressed towards of self assessment and peer assessment indicated teachers' lack of awareness of their usefulness.

While carrying out a study titled teachers' and students' experiences and perceptions of formative assessment, Erikson (2016) found that when defining formative assessment it was a matter of one's own interpretation. The study exposed that the students participating in the study expressed concern about not understanding the comments they received and mostly focused on the grade. Additionally, most students read the comments they received but did not process them in a way they could remember them, unless time was given during a lesson to do so.

Ho (2014) while carrying out a study on perception of teachers on formative assessment practices in an English language in a Hong Kong context found perception of teachers on formative assessment practices to be majorly positive. Additionally, teachers revealed masterly of application of formative assessment practices during lesson delivery. Besides, as a result of prior planning, instructors exhibited recognition of type of formative strategies to apply during instruction. From to the study it was evident from among the teachers that formative assessment practices were crucial towards students' learning. On being interviewed, teachers revealed applying feedback to augment students' learning by disclosing their strong areas, weak points and subsequent actions during learning. The interviewed teachers expressed knowledge of formative and summative assessment relationship. Teachers held believe that formative assessment is applied to prepare and support learners towards summative assessment.

Yasar (2016) carried out a study aimed at investigating the competencies and perceptions of forthcoming science tutors on formative assessment practices. He found out that prospective science teachers did not possess a deep perception and understanding of formative assessment approaches. In addition, potential science teachers had very little knowledge on the function and meaning of the formative assessment approaches under study. However this cohort of teachers significantly lacked understanding on how to construct an assessment tool, scoring and deriving meaning from results yielded. The researcher expressed reservations on potential teachers' ability to use formative assessment practices during practice.

While carrying out a study aimed at investigating students' and teachers' perceptions of classroom assessment at Baghlan Higher Education Institution (BHEI) Mussawy (2009) found out that use of project and alternative assessment forms that demanded learners undertake outdoor work encountered a challenge owing to huge number of learners and a demanding teachers' work load. Traditional forms of assessment were dominant in the institution; assessment was mainly towards the end of the term leaving teacher with minimal opportunity to apply the assessment scores to better teaching and learning. The study highlighted that there was a likelihood a large number of teachers lacked knowledge or expertise to administer alternative assessments, or BHEI's management had not supported and encouraged application of alternative assessment methods. The study noted teachers persisted with traditional forms of assessment despite being aware of

their shortcomings which could be as a result of top-down manner of decision making in the higher education structure system where instructors lacked control but just implemented directives as given by the Ministry of Education. The study, indicated that apart from classroom assessment serving education purpose, they as well served political roles, whereby instead of being applied to enhance teaching and learning they were used as a tool to manage learners. The study revealed discussion on classroom assessment was rare at BHEI, high scores learners attained were either attributed to more effort, working hard, cheating as well as nepotism. The study underscored that students only worked hard during examination period. The preceding contradicts the ideal purpose of formative assessment.

2.1.1 Summary of outcomes from Related Studies

The studies reviewed dealt on students' and students' perceptions towards formative assessment. The studies reveal mixed perceptions on formative assessment. The following is a highlight of a summary arising from the related studies.

(a) Zulfiqar et al (2017) found that feedback on formative assessment was rarely and irregularly given.

(b) Alkadri et al (2011) indicate that formative assessment was applied correctly which enabled learners identify learning objectives and enhanced learning strategies.

(c) Ounis (2017) revealed that teachers had encouraging perceptions which led to improvement of learners' scores.

(d) Erikson (2016) found out that teachers had a challenge in defining formative assessment, while students did not understand comment given after assessment.

(e) Ho (2014) indicates that perception of teachers on formative assessment was positive.

(f) Yasar (2016) reported that prospective science teachers lacked a deep understanding of formative assessment hence there was likelihood of them encountering challenge during their practice.

(g) Mussawy (2009) found that traditional forms of assessment were emphasized at the expense of alternative forms of assessment.

2.2 Related Literature

2.2.1 The Concept of Formative Assessment

Assessment of students' performance is an integral aspect of the learning process. Several efforts directed to define assessment. According to Greaney (2001) assessment refers to an undertaking or process that is formulated to gather information regarding attitude, skills and knowledge on a student or a group of students. In adition, Lamprianous and Atharianous (2009) defined assessment as a process of soliciting and organizing information derived from purposeful actions (such as tests on performance or learning) aimed at making conclusion pertaining to learning and teaching, including concerning a person while performing comparisons severally in relation to formulated criteria. Thus assessment is a deliberate effort that sets signals about the state of affairs. Assessment is paramount during instruction. Edmund (2011), stress that teaching cannot continue neither can it be adequately understood if assessment is lacking.

There exists two broad categories of assessment exist, that is assessment of learning quite often referred as summative assessment and assessment for learning which is regarded as formative assessment. Gronlund (2006) argue that assessment approaches can be categorized as alternative and traditional depending on the complexity and realism of the assessment activities as well as duration taken to undertake an assessment. According to Caliskan and Kasikci (2010) alternative assessment and evaluation lays emphasis on the learner focusing on the stage of integration of knowledge and skills to authentic and meaningful situation while taking into consideration the learners' ability. The authors enumerates project, portfolio, peer evaluation, concept maps, self evaluation, performance assignments, structured grids, word association and descriptive branched trees, as adopted means alternative assessment and evaluation. Caliskan and Kasikci (2010) make a distinction that while traditional assessment and evaluation emphasize on cognitive area behaviors alternative assessment majors on affective and psychomotor domain. Conversely, according to the authors, matching items, short answer, multiple choice, Open-ended, true or false and items are universally recognized as traditional assessment and evaluation tests.

Scholars in pedagogical realm seem to differ in attaching meaning to the term 'formative assessment'. However, concurrence exists in their expression of the application of 'formative assessment' pointing that it is used to enhance learning by providing feedback to students and

teachers. Black, Paul, William and Dylan (1998), point that there does not exist a universally accepted meaning to formative assessment. Caffrey (2009) support the same sentiments by reporting that conspicuously, there does not exist a universally acceptance on what comprises "formative assessment" in the domain of pedagogy. However, Dunn and Mulvenon (2006) notes that while an assessment can be formulated and packaged as either summative or formative assessment; the real methods, information analysis, coupled with application of the information generated alienate summative assessment from formative assessment.

According to Sadler (1998), formative assessment is an assessment whose sole purpose is to elicit feedback on an activity in order to enhance and hasten learning. Similarly, Caffrey (2009), posit that formative assessment is that which is applied during instruction aimed to better instruction and curriculum. Black, Paul, William and Dylan (1998), report that formative assessments can be viewed as including all those performances carried out by students and their teachers, which return information as feedback meant to inform in order to adjust teaching and learning performances which they are undertaking.

One of the fundamental aspects related to formative assessment concern the feedback it elicits which can be used to enhance learning. As Edmund (2011) report, that formative assessment gives feedback to instructors regarding level of learners' skill development so as to modify instructional strategies and generate the necessary scaffolding. Further, Elliot (2011) argues that formative assessment involves inference making pertaining to learners' knowledge and ability. This implies that formative assessment is basically an assessment, as such, appropriate measurement approaches should be considered during its instantiation and conceptualization. Formative assessment involves three vital processes; the assessment of student work; providing clear feedback to the learners and applying elicited the feedback information in remediation as well as improving teaching-learning process.

2.2.2 Historical Perspective of Formative Assessment

To comprehend contemporary context with regard to formative assessment, there is need to highlight its evolution. Wiliam (2011) argue that, for many years it appeared the then instruction was of satisfactory standards, and there was no need of aligning it with the learners' needs. According to Wiliam (2011) the original learners centered form of instruction was initiated by

Frederic Burk, between 1912 and 1913. In 1948, Nobert Wiener introduced the concept of positive and negative feedback in learning. The scholar argue that in 1960s, educationist Benjamin Bloom together with his students at Chicago University started to investigate the notion that the normally learners' distribution of the outcome being not a merely a by chance occurrence, but one which could be attributed to instruction's shortcoming in responding to learners' individual difference. The author observe that the need of looking at feedback approaches, instead of only the nature of the information purse, with regard to behavioral sciences, was advocated for by Ramaprasad in 1983. According to Wiliam (2011) Sadler reinforced the use of the information in 1989, stressing that the phrase "feedback" as it is contemporarily applied and its role towards improving students learning was proposed by Black along with Wiliam in 1998.

2.2.3 Formative Assessment in Competency Based Education in Kenya

The study will be carried out when the country is transforming from the 8-4-4 system of education to a 2-6-6-3 competency based system of education under a new education Framework. According to a RoK (2017) report, the 8-4-4 system of education and assessment had shortcomings and was not responsive to the needs of the citizen. The report notes that assessment, which is paramount for the provision of high standard education over emphasized assessment of learning (summative assessment) at the expense of assessment for learning (formative assessment). As a result there has been severe competition for scores at the expense of knowledge and skill acquisition. The curriculum is highly limited in responding to students' ability, talents and gifts owing to over emphasis on examination. Consequently, wastage rates and drop out has been on the rise while unemployment remained high.

Competency based education framework envisages each citizen to be empowered, ethical and engaged through acquisition of high class skills and knowledge that they need to meet the 21st century demands. This will be achieved by providing ideal teaching, leaning surroundings and resources as well as a far fetching curriculum that gives each student competency oriented high standards learning that responds to every learner's needs.

The competency based education framework seeks to develop the following competencies for its citizen needed in the 21st century; problem solving, Communication and collaboration, Critical thinking and Learn to learn, Creativity and imagination, Self efficacy, Digital literacy, Citizenship,

and Digital literacy. The competency based framework will adopt competency based assessment. According to the RoK (2017), the competency based assessment is a paradigm shift that will seek integration of formative assessment approaches to enhance diagnostic practices which in turn will promote learning and enhance learning outcomes. The report adds that formative assessment will be undertaken during the learning process to generate prompt feedback to the learner and the instructor in order to identify learning shortcomings, correction, re-testing and for learner's and teacher's self evaluation. Students aptitudes, attitudes and abilities that will not adequately be revealed in written tests will also be emphasized in formative assessment. Assessment instruments to be used in the formative assessment include; observation, checklists, observation schedule, rating scales and rubrics, project method, questionnaires, journaling, question and answer portfolio, profiling, continuous assessment test, anecdotal records, progress report card and homework.

2.2.4 Role of Formative Assessment on Learning

Formative assessment serves an imperative purpose during the learning process. Brink (2017) argues that central purpose of formative assessment is assessment and promotion of student's learning during the entire learning period. To achieve this, learner's attitudes and motivation need to be captured and enhanced. According to Jones (2005) learners' knowledge and understanding of the following principles is important prior to any learning:

- The aim of learning.
- Reason of learning.
- The current status of learning.
- How to attain the aim.

The foregoing third principal can adequately be addressed through formative assessment.

According to Lamprianou and Athanasou (2009) if assessment is applied correctly it enables students learn in a manner which is meaningful and promote their motivation to learn. Formative assessment becomes handy in far as learner's self regulation learning is concerned. In learning, self regulation is demonstrated though persistently monitoring and adjustment of several diverse learning approaches which may entail formulation and orientation towards learning goals, setting

strategies to attain the goals, directing resources, coupled with reacting to feedback and results produced. Evaluation involves the use of the assessment-based information. Depending on the point of use in the learning process, formative assessment can serve summative purpose as well. Dunn and Mulvenon (2009) argue that while an assessment may be formulated as summative or formative, information generated from an assessment may be used for formative or summative purposes.

2.2.5 Teachers Attitudes and Dispositions

Teachers' beliefs, experience, perceptions, and attitudes have a profound impact on the teaching approaches. According to Covey (2004) dispositions are the "habits of mind," or "the intersection of knowledge, skill, and desire noting that these actions are neither intentional nor reflective. Smith and Skarbek (2013) stress that habits of mind include both cognitive encompassing reflection related to concrete experiences, observation, conceptualization, and experimentation. Ahmad et al (2013) refers attitude as a relative cognitive condition which influence the behaviors of a person. The authors distinguish that attitude may be positive or negative outlooks of an individual towards a phenomenon, thing or place. Omolara and Adebukola (2015) share the same sentiments by asserting that attitude is a mindset which influences a person's actions and thinking.

According to Ahmad et al (2013), there exists an obvious link between instructors' pedagogical attitude and their practices. The teacher's conscious or unconscious disposition has an impact on students' academic outcomes. Omolara and Adebukola (2015) argue that there exists a relationship between teachers' attitudes and learners' interest during learning, and that personal characteristics of a teacher influence learning more than instructional content and strategies applied. In effect, an effective pedagogical strategy must encompass learners' and teachers' interest. With a positive attitude the tutor can adequately guide and motivate the learner in acquiring skills knowledge, values and attitudes. According to Ahmad et al (2013) a classroom can be viewed within social context where every learner is at liberty during contributions and teachers' role is to make use of this freedom.

As earlier pointed out, teachers' attitudes may greatly influence their teaching strategies. In a study by Omolara and Adebukola (2015) to explore teachers' attitudes and their influence on learning and teaching of social studies it was found out that teachers had negative attitudes towards

the teaching as a result, their class attendance was irregular, their knowledge of the subject content was poor, their instructional delivery methods were monotonous and they lacked enthusiasm while teaching was lacking among the teachers. The foregoing was attributed insufficient parents' and students' support, low job satisfaction and motivation, students having negative attitude towards learning, low social status, insufficient governmental support, poor learning and teaching materials, poor supervision and delayed salary payments.

2.2.6 Role of the Teacher on Formative Assessment

Teaching is a critical element that is intertwined with learning and assessment in an educational process. The teacher provides and directs instruction accordingly. If applied appropriately, assessment guides and directs instruction. According to Brink (2017) it is imperative for teachers to have knowledge on formative assessment as an integral component of instructional approaches and effectively apply it for it to serve as an instructional tool. During assessment, teacher conduct assessments, analyze results, and incorporate the results with evidence from other sources to facilitate for excellent decision making of students' attainment and development. Jones (2005) argues that it is upon the teachers to set forth tasks and direct questions to learners. According to Elliot (2011) teachers make use of appropriate materials that involve incorporation of instructional, learning content, and assessment expertise in a developmental oriented sequential manner. To obtain a clear understanding on the effect and extent of learning several sources of information may be used. Lamprianous and Atharianous (2009) report that the teacher should gather information from several sources using diverse medium of assessment such as oral questioning, written tests, portfolios, computer-based assessments and group projects.

As highlighted elsewhere teachers should apply the results obtained from assessment to inform and modify instructional approaches accordingly. According to Jabbarifar (2009), during classroom assessment, since teachers formulate, apply and analyze the results, they may as well use the outcomes from the assessment in their own teaching. The author further suggest that classroom assessment and evaluation by the teachers can inform about their pedagogical development since information elicited from such evaluations equips teachers with important knowledge about their professional effectiveness. In this way instructors gets more insight and learns about their weak points in teaching through learner assessment results. Similarly, Elliot (2011) adds more weight in support by arguing that a formulated and applied formative assessment

should point out how teaching should be adjusted, clearly reveal to the teacher students knowledge status and ability. Jones, (2005) suggest that after every lesson teachers should evaluate themselves by posing questions based on; what the students have known and didn't know prior to the lesson and; how effectiveness the lesson was.

2.2.7 Feedback on Formative Assessment

For any formative assessment to have meaningful effect during instruction, it must produce information which is turned to teachers and learners in form of feedback. Several scholars have explored the meaning of feedback within educational context. According to Hattie and Timperley (2007), feedback is information generated from an entity which may be a peer, teacher, parent, experience, self or even a book concerning a person's understanding or performance. Sun and Suzuki (2013) shares the same views by asserting that feedback is information given by an assessment with respect to aspects of learners' performance or understanding. According to Nicol and Macfarlane-Dick (2007) in an instructional context, explicit goals, criteria, standards as well as other peripheral orientation dimensions (e.g. exemplars) assist in defining learning. According to Jabbarifar (2009), feedback and evaluation are intertwined with learning goals and classroom activities which are inseparable components in an instructional process. Thus, Classroom assessment and evaluation is like a feedback.

Additionally, feedback is an outcome regarding how a learner's current condition pertaining to learning and performance relate to set goals, criteria and standards. Form the foregoing it can be concluded that feedback is the information that is conveyed to learners, teachers, parents or other interested persons from an assessment concerning the current status and extent of student's learning. Feedback offers crucial information on progress and assists individuals to recognize their weak and strong areas objectively.

Valuable feedback should serve in improving teaching and learning. A distinguishing characteristic of formative assessment is effective feedback given by teachers to learners on their current status. According to Jones (2005) the quality of any feedback is influenced by the following parameters:

- the value of the feedback,
- and the way students perceive and apply the feedback.

Jones (2005) further emphasize effective formative assessment approaches depend value of feedback, its composition and the way it is perceived and applied by students, noting that personalized feedback assist weak learners and provoke more capable learners.

If a feedback can correct or enhance students' progress, such a feedback plays motivational role as well. A feedback that fails to improve learning, is ineffective and of low value. Conversely effective feedback should result improved learning. According to Hattie and Timperley (2007) teachers and students should strive for and be informed by feedback noting that it is only in this way that assessment will be of value to them. Information obtained from assessment for learning should be used in improving instructional process. Information from assessment should effectively be applied to enhance learning and teaching (Bryant and Timmins, 2002).

Hernández (2012) contends that an assessment-oriented approach towards learning requires a paradigm change in the way feedback is viewed laying more emphasis on students' role towards feedback approaches as opposed to quality and quantity of feedback as has been the case. By applying "feed-forward" approach to feedback it will be clear to students on what to do with received information and train them on skills geared toward them becoming autonomous learners in assessing their work. By becoming autonomous the teacher will be relieved to engage in more meaningful instructional work. Assessment for learning provides feedback on the value of pedagogical practices and provides learners with a means to gauge their masterly of the content.

Feedback is a prerequisite assessment ingredient that can advance learning appropriately. Hattie and Timperley (2007) argue that feedback is an instructional practice which takes place after a learner has undergone learning where information is gathered about some aspect(s) of a learners' performance on a task. Nicol and Macfarlane-Dick (2007) argue that instructors conveys feedback information to learners regarding correct and wrong about their work highlighting their weakness and strength which enables learners make improvements on subsequent work. Nicol and Macfarlane-Dick (2007) postulate seven principles for any feedback to be effective. They include;

i.   A good feedback should be explicit in as far as what good work is(the goals to be attained, criteria and expected standards);

ii.   an effective feedback encourage enhancement of learner's self assessment and a reflection on their learning;

iii.   provides valuable information to learners concerning their learning

iv.   enhances peer and teacher discussion concerning their learning;

v.   enhances self efficacy and esteem;

vi.   provides information about the learners current status with regard to desired outcomes and provides the learner with means of closing the gap;

vii.   Provides opportunity to the teacher on how to modify instruction accordingly.

Hattie and Timperley (2007) postulate the following figurative representation of an effective feedback;

Purpose
To reduce discrepancies   between current understanding/performence and desired goals

The discrepancies can be reduced by:-
Students:
-Increased effort and employment of more effective strategies OR
-Abandoning, blurring, or lowering the goals
Teachers:
-Providing appropriate challenging and specific goals
-Assisting students to reach them through effective strategies and feedback

Effective feedback answers three questions
Where am i going? (the goals)   Feed up
How am i going?   Feed back
Where to next?   Feed forward

Each feedback question work at four levels:

Figure 1.2.7.1: Feedback Model

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2.2.8 Psychological Perspective of Assessment _

The integration of cognitive science and psychometrics dates back to many years. In 1957 when addressing American Psychological Association (APA) Cronbach advocated linking of differential and experimental psychology. According to Cronbach (1957) the former is the division of psychology involved with the investigation and measurement of personal attributes, while the latter gave rise to the present day "cognitive science".

Further, Pellegrino, Baxter and Glaser (1999), in reviewing findings in cognitive science reported how cognitive science can be linked to assessment planning. Additionally, the National Research Council (NRC) (2001) in "Knowing What Students Know" stressed importance of combining aspects of cognition and learning during assessment approaches. Embretson (1999) formulated what is termed Cognitive-Design-System (CDS) that laid emphasis in integrating priori construct validation during item development. The emphasis implied that prior to items formulation underlying cognitive approaches meant to be assessed are identified and captured in test stimulus aspects. Similarly Mislevy, Steinberg & Almond (2003) proposed Evidence-Centered Design (ECD) construct that entailed specification of a Learner Model which specify the aspects to be assessed and composition these aspects. ECD also highlight evidence in student's responses that serves as evidence for student's knowledge and skills acquired.

2.4 Theories of the Research

Educational researchers and psychologists have proposed many theories that explain how individuals gain, organize and apply skills and knowledge. These theories are mainly categorized into;

- Behaviorist learning theories
- Cognitive-constructivists learning theories and
- Social cultural learning theories

2.4.1 Behaviorists Theories of Learning

The main proponents of behaviorism theory were Watson and Skinner. Behaviorism gained root in 1880s and continued to evolve in the twentieth-first century and beyond. Basically, behaviorism entails observable and measurable facets of child's behavior. On behavior, behaviorist learning

theories lay emphasis on changes in behavior that emanate from stimulus-response associations elicited by the learner.

Pavlov's experiment on animals laid foundation for behaviorism. According to Weegar & Pacis (2012), Watson used Pavlov's results on animal's responses - stimuli association as a basis for his argument. In Pavlov's experiment with animals, he rang a bell when feeding dog. The sound caused dogs to salivate, since the dog had been conditioned to the feed. Results from the experiment made Pavlov conclude that the animals had been conditioned to respond to external stimuli. By extension, Pavlov argued that humans could as well be conditioned to respond to a stimulus.

According to Weegar & Pacis (2012) B. F. Skinner (1904-1990) also carried experiments with animals, the rats and pigeons where he invented the famous Skinner box. The animal could press a lever to access food. Whenever the rat pushed the lever and obtained food, the behavior was reinforced. Thus, behaviorists were more concerned with behavioral responses and were less concerned on what occurred in people's minds. Based on behaviorism, learning can be viewed as a change in behavior due to practice or experience. A behavior is reinforced through a reward and encouragement. A behavior can as well be relearned through a punishment.

2.4.2 Cognitive - Constructivist theories of Learning

Jean Piaget and a Russian psychologist Lev Vygotsky are among the proponents of cognitive constructivist theories of learning. Rummel (2008) argue that while Piaget held the opinion that cognitive development was a function of the mind, Vygotsky believed it was a social process attained through an interaction with a more informed member of the society. The theories lays emphasis on children's thinking, as it evolves with change in time. According to Dagar & Yadar (2016), Jean Piaget opinioned that knowledge is acquired in a continuous process of individual's knowledge construction. During the process of knowledge construction, a child undergoes the stages of assimilation, accommodation and equilibrium. Rummel, (2008) point that the fundamental role of the instructor is to motivate the child to enable them construct their own knowledge from their experience.

Cognitive-constructivist theories of learning have inherent characteristics as highlighted by Dagar & Yadar (2016). They which include;

- The role of the teacher ceases to be a dispenser of knowledge, but rather becomes a motivator, resource person and a guide.

- Knowledge is constructed through interaction between the learner and the teacher.

- It emphasizes on learner centeredness, learner directed and collaboration, where the teacher offers scaffolding and authentic engagements.

2.4.3 Social Cultural Theory of learning

The social-cultural constructivism theory as elucidated by a Russian, Lev Semenovich Vygotsky guided this study. The theory places greater value upon social cultural background of a child's growth. According to Vygotsky's theory, language is central to a child's cognitive development. Verenikina (2001) report that according to the theory Vygotskyan, language initially exists externally as a communicative function form, then, as a person internalizes language (inner speech) the discourse develops into a major form of a person's cognition. Mishra (2013) argue Vygotsky's theory also emphasizes a process known as internalization which explains how skills are acquired. Internalization entails the aspects of 'knowing how' where the skills are mastered through child's activities engagement within a society. A child selects a tool, owns it, and uses it in a manner that is unique to the child. This aspect is known as appropriation.

Vygotskian theory also emphasizes a notion of 'Zone of proximal development'. Verenikina (2001) posit that Zone of proximal development is Vygotsky's terminology for variety of tasks that a child can perform without help and ones completed under the assistance and guidance by a more skilled and experienced person. Thus, ZPD is the difference between what one can do with and without assistance. The ZPD postulates the lower limit and the upper limit in the learning process. According to Mishra (2013), the lower limit of ZPD is the extent attained by the child working without assistance. The upper limit is the level of additional tasks the child can accomplish with the assistance a more experienced peer.

Further, Vygotskian theory brings to the fore the model of scaffolding. Scaffolding is closely intertwined with ZPD. According to Mishra (2013) scaffolding involves regulating assistance and support to a child to suit a child's current level of performance. Myftiu and Topciu (2015) sum it

by asserting that in education, scaffolding is an instructional approach through which the instructor adjusts the strategy or learning task towards a more learner autonomy. Mishra (2013) report that using Vygotsky theory, teachers can enhance the intensity of questioning or specificity up to the point where the learner is able to elicit the correct response. According to Verenikina (2001) to teach based on ZPD involves responding to the student's current state of progress and give help which facilitates in attainment of their goals and enhance capability for prospect involvement. Similarly, according to Mishra (2013) to instruct based on scaffolding involves a more experienced and knowledgeable person providing supports or scaffolds to assist the student's development.

2.5 Conceptual Framework of the Research

Young (2009) assert that a conceptual framework is a figurative depiction, whereby a researcher conceptualizes and presents the interaction between variables in the study.

The conceptual framework depicting students' and teachers' perceptions of formative assessment is diagrammatically highlighted in figure 3.
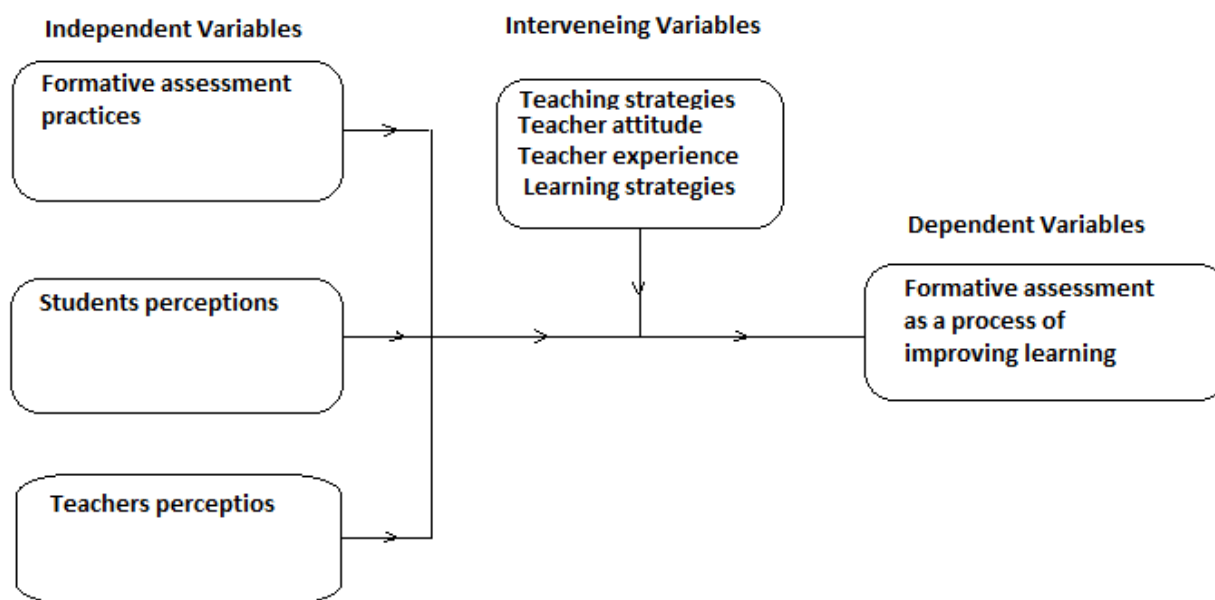
Figure 2.5.1: The Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section highlights study methodology comprising of study design, sample selection, sampling process, population selection, data collection procedures, instrument validity, instrument reliability, ethical consideration and information analysis procedures.

3.2 The Study Design

A combination of quantitative and qualitative (mixed research) designs was used in the study to investigate students' and teachers' perceptions of formative assessment. Burke Johnson et al (2007, p. 123) delineate mixed research design to be a form of study where by a team of researchers or a researcher integrate components of quantitative and qualitative research strategies, targeting the wider purpose on depth as well as breadth of corroboration and understanding. The qualitative and quantitative and methods augment and complement one another. According to Greene et al (1989, p. 259) complimenting enables clarification, illustration, enhancement, elaboration in the findings from one method against the findings from another.

3.3 Sample Selection

The study focused on students, lecturers, Heads of department and Directors of studies from Bukura Agricultural College. Departmental heads and Directors of studies were selected because of the crucial supervisory role they play during instruction and assessment processes.

3.4 The Sampling Process

The study applied purposive sampling technique where 63 lecturers and 321 students from a population of 1384 students and 74 lecturers were selected. Purposive sampling was applied in a manner that allowed representation from various departments within the College. Heads of departments and directors of studies were purposively sampled due to their deep grasp of College practices. Sample sizes were determined using Yamane's (1967) formula, at a confidence level of 95%.

$$n = \frac{N}{1+N(e)^2}$$

Whereby, n represent size of the intended sample,

N represent population size and

e represent the precision.

Department	Section	Number of Lecturers	Sample	Number of Students	Sample
Crop Science	Agricultural Engineering	8	7	50	11
	Horticulture	5	4	87	20
	Agronomy	12	10	360	81
Agricultural Extension and Community Development	Agricultural Economics	8	7	144	32
	Home Economics	5	7	15	4
	Agricultural Education and Extension	12	10	250	56
Biological, Physical and Applied Sciences	Biological and Physical Sciences	9	8	Nil	Nil
	Applied Sciences	3	3	7	2
Animal Health and Production	Animal science	6	5	404	91
	Animal Health	6	5	67	15
	Total	**74**	**63**	**1384**	**312**

Table 3.3.1: Sampling Frame Source: Director of Students' Affairs (2020)

The target population consisted of 4 Heads of department, 4 Directors of studies, 74 lecturers and 1384 students.

3.6 Data Collection Procedures

Table 3.2 shows a summary of data that was collection and respective collection instrument based on study objectives.

Objectives		Information to be Collected	Data Collection Instrument
One	To determine perception of students on formative assessments.	Perceptions of students on formative assessments.	Questionnaire
Two	To determine perceptions of teachers on formative assessments.	Perceptions of teachers on formative assessments	Questionnaire
Three	To determine whether there is significant variations in the perceptions of students and teachers on formative assessment practices across departments.	- Students' perceptions of formative assessments. - Teachers' perceptions of formative assessments	Questionnaire
Four	To determine formative assessment practices used by teachers	Formative assessment types/formats/frequency used by teachers	Interview schedule

Table 3.2: Summary of information collected and data collection instrument based on objectives

Information was gathered using questionnaires and structured interview schedule.

3.6.1: Questionnaire

One questionnaire solicited information from students. The questionnaire comprised of two segments, Section A, and Section B. Bio data about students, respective department, course of study, year of study and award after study information were collected in Section A. Information on students' perceptions of formative assessments was collected in Section B. Questionnaires were used owing to the huge number of respondents targeted, and were easy to administer and collect.

Since students were derived from a tertiary institution, they were literate and hence understood language used in the questionnaire.

The other questionnaire was administered to the teaching staff. Similarly, the questionnaire comprised of two parts, Section A, and Section B. Section A gathered tutor's bio data, that is, gender, age, academic qualifications, department, teaching experience, class size as well as teaching work load per week. Section B obtained information on teacher's perceptions on formative assessment.

3.6.2: Interview Schedule

One on one interview with all the four Heads of departments and eight Directors of studies using structured interview schedule was used to collect information on formative assessment practices. Interview schedule sought to determine the assessment practices spelt by the examination policy, formative assessment practices in the department, frequency of formative assessments, extent to which formative assessments are carried out and the contribution of formative assessment towards students' learning. Additionally, the interview schedule gathered suggestions concerning formative assessment in improving learning.

3.7 Validity and Reliability

Reliability and validity of the tools were ensured by using instruments that had been used in previous studies. Permission was sought before using the tools (refer to appendix B (b) (i), and (ii)). The research instruments were piloted in a post-secondary school institution. The pilot study assisted in identifying omissions, errors, ambiguity of statements and the problems which the respondents could encounter in answering the questions. The piloted tools were then revised and modified accordingly.

3.8 Ethical Consideration

The researcher was considerate and followed research sampling guidelines. The researcher sought consent from the National Commission for Science, Technology and Innovation and the institution's administration prior to conducting the study. The subjects had a right to participate or

decline to take part in the study. The researcher ensured respondents of confidentiality and that the findings will be used for academic purpose only.

3.9 Data Analysis Technique

The information solicited was arranged, cleaned, checked and coded. Data was then keyed in to the computer using the Statistical Package for Social Sciences, SPSS program. SPSS was preferred since it was quick and accurate in data analysis. Data processing involved editing, classification, coding, and tabulation in order to facilitate date analysis. Data analysis involved computation of various statistics, to determine relationship that existed between variables. Descriptive statistics was applied in data analysis. Information was presented in tables and graphs to enable interpretation. To determine whether there was variation in perception on formative assessment practices for both students and teachers across departments, a One-Way Analysis of Variance (ANOVA) was conducted. Content analysis was done on the open-ended questions to obtain qualitative data.

CHAPTER FOUR

RESULTS OF THE STUDY

4.1 Introduction

This section reports the results of the study after the information was cleaned and analyzed. The chapter is organized into demographic characteristics of the sampled population, perceptions of students on formative assessment practices, perceptions of teachers on formative assessment and formative assessment practices used at Bukura Agricultural College.

4.2 Demographic attributes of the Sampled Population

The study obtained data from students, teachers, departmental heads, and directors of studies. Table 1 and 2 provide a descriptive view of the demographic attributes of the sampled population.

4.2.0 Teachers Demographics

Table 4.2.0: Teacher's Background Information

Variable	Character	Count(N)	Percentage
Gender	Male	37	57.8
	Female	27	42.2
Age	25 – 29 years	1	1.6
	30 – 39 years	25	39.1
	40 – 49 years	23	35.9
	Above 49 years	15	23.4
Academic qualifications	Diploma in Education	1	1.5
	Post graduate diploma	7	10.9
	Bachelor of education degree	17	26.6
	Masters of education degree	4	6.3
	Other qualifications	35	54.7
Hours per week	Below 12 hours	23	35.9
	12 – 19 hours	27	42.2
	20- 29 hours	11	17.2
	30 or more hours	3	4.7

Class size	Below 20	0	0
	20 – 29	1	1.6
	30 – 39	0	0
	40 – 49	1	1.6
	Above	62	96.8
Department	Agricultural Extension and Community Development	17	26.6
		9	14.0
	Biological, Physical and Applied Sciences	22	34.4
	Crop Science	16	25.0
	Animal Health and Production	16	24.6
Teaching experience	Less than 1 year	2	3.1
	1 – 5 years	14	21.9
	5.1 – 10 years	15	23.4
	Above 10 years	33	51.6

The study obtained responses from teachers in four departments: agricultural extension and community development 26.6%, biological, physical and applied sciences, 14.0 %, crop science 34.4% and animal health and production 25.0%. From the table, most of the teachers were from the crop science department, followed by agricultural extension and community development, animal health and production and biological, physical and applied sciences. With respect to gender, most of the teachers at Bukura Agricultural College were male 57.8% while female accounted for 42.2 %.

Academically, teacher's qualification ranged from Diploma to Masters Degree. The largest percentage of teachers had other academic qualification (54.7%) other than education training related proficiency. Teachers with bachelor of education degree academic qualification ranked second at 26.6%. Post graduate diploma in education teachers accounted for 10.9% while teachers with master of education degree accounted for 6.3%. Only 1.5% of the sampled population of teachers had diploma in education.

The largest number of teachers had an experience in excess of 10 years of experience (51.6%) in the teaching profession, while 23.4% had been in the teaching profession for 6 to 10 years. 21.9% had been teaching for 1 to 5 years, while only 3.1% had been teaching for less than a year. Most of the teachers at the College were within the age bracket of 30 – 39 years at 39.1%, 35.9% (40-49 years) accounted for the second largest population of the sample. 23.4% of the sampled teachers were above the age of 49 years, while only 1.6% of the teachers were between 25-29 years of age.

In terms of work load, most of the teachers worked for 12 -19 hours per week (42.2%). Teachers working for less than 12 hours a week were the second popular group within the sampled population at 35.9%. Teachers working for between 20 to 29 hours accounted for 17.2 % while those working for more than 30hours were 4.7%. Majority of the respondents (96.8%) were teaching a classroom of more than 50 students. 1.6% of teachers indicated they taught classes with 40-49 and 20-29 students.

4.2.1 Students' Demographics

Table 4.2.1: Students' Background Information

Variable	Character	Count(N)	Percentage
Gender	Male	174	54.2
	Female	147	45.8
Department	Agricultural Extension & Community Development	97	30.2
		5	1.6
	Biological, Physical and Applied Sciences	109	34.0
	Crop Science	110	34.2
	Animal Health and Production		
Course of Study	Agricultural Irrigation & Drainage Engineering	10	3.1
		5	1.6
	Agricultural Human Ecology & Consumer Science	94	29.3
		20	6.2
	Animal Production	45	14.0
	Horticulture	32	10.0
	Agriculture and Biotechnology	34	10.6

	Agricultural Economics	6	1.9
	Agricultural Education and Extension		
	Information Communication	26	8.1
	Technology	33	10.3
	Agricultural Communication &		
	Community Development		
	Certificate in Agriculture		
Year of Study	First	153	47.7
	Second	168	52.3
Award after Study	Diploma	287	89.4
	Certificate	34	10.6

The study received responses from 321 students across four departments. Male students were more than (54.2%) female students (45.8 %). Animal health and production department had the highest number of respondents at 34.2%, while crop science department respondents were 34.0%. Biological, Physical and Applied Sciences department recorded the least number of respondents at 1.6%. Based on the year of study, 52.3% of respondents were second years while 47.7% were first year students. The study revealed 89.4% of the respondents were taking a diploma course while 10.6% were taking a certificate course.

4.3 Objective 1: Students' Perceptions of formative assessment

Students' perception on formative assessment was determined by asking students to rate five specific aspects that related to the use of formative assessment towards understanding and performance: congruence with planned learning, authenticity, student consultation, transparency, and student capability. Table 4.3.1 highlights their responses on a five point scale as; 1- Strongly disagrees, 2 – disagree, 3 – Neutral, 4 – Agree and 5 – Strongly agree.

4.3.1: Perception of Formative Assessment's Congruence with planned learning

Table 4.3.1: Students' perceptions of formative assessment's congruence with planned learning.

	Statement	1	2	3	4	5
1	Assessment tests what I memorize.	4.4%	5.0%	19.9%	41.1%	29.6%
2	Assessment tests what I understand.	0.9%	4.7%	15.3%	44.2%	34.9%
3	My assignments are about what I have done in class.	0.6%	3.1%	12.8%	40.8%	42.7%
4	How I am assessed is similar to what I do in class.	0.9%	3.1%	12.1%	43.3%	40.5%
5	I am assessed on what the teacher has taught me.	0.9%	3.1%	11.2%	37.1%	47.7%

Table 4.3.1 indicate that more students agreed (44.2%) and strongly agreed (34.9%) that assessment test what they understand as opposed to 41.1% of the students who agreed and 29.6% who strongly agreed that assessments test they memorize. A majority of respondents (42.7% strongly agree, 40.8% agree) felt assignments relates with what they do in class. The study found most of the students (43.4% agreed, 40.5% strongly agreed) opinioned assessment mirrors what they do in class. However 12.1% of the respondents were undecided and 0.9% (strongly disagree) and 3.2% (disagree) had a contrary opinion. 0.9% of the respondents strongly disagreed 3.1% disagreed that they are assessed on what the teacher have taught.

4.3.2: Perception of Authenticity of Formative Assessment

Table 4.3.2: Students' perceptions of authenticity of formative assessment

	Statement	1	2	3	4	5
6	I am asked to apply my learning to real life situations.	0.9%	4.0%	9.0%	35.5%	50.5%
7	The assessment tasks are useful for everyday life.	0.9%	2.2%	12.5%	34.9%	49.5%
8	I find assessment tasks are relevant to what I do outside of school.	0.6%	3.4%	12.8%	38.9%	44.2%
9	Assessment tests my ability to apply what I know to real-life problems.	0.9%	2.8%	14.0%	42.7%	39.6%
10	Assessment examines my ability to answer every day questions	1.6%	2.8%	12.5%	42.4%	40.8%
11	I can show others that my learning has helped me do things.	1.2%	2.2%	10.6%	32.1%	53.9%

Table 4.3.2 indicates that formative assessment at the College relates to application in real life context. In all the five items on authentic assessment, majority of the respondents affirmed by agreeing and strongly agreeing that their learning and assessment is applicable in real life situations, everyday life, outside school, solve real-life problems, answer every day questions and help them do things.

4.3.3: Perception of Consultation on Formative Assessment

Table 4.3.3: Students' perceptions of consultation on formative assessment

	Statement	1	2	3	4	5
12	It is clear about the types of assessment being used.	0.9%	4.7%	19.3%	44.5%	30.5%
13	I am aware how my assessment will be marked.	3.1%	10.0%	20.2%	42.1%	24.6%
14	My teacher explains to me how each type of assessment is to be used.	2.8%	7.8%	19.0%	43.6%	26.8%
15	I can have a say in how I will be assessed.	17.4%	16.5%	24.3%	24.9%	16.8%

Table 4.3.3 reveal a major segment of students felt they are consulted on types of assessment, marking of their assessment, and use of the assessment. However, a significant number of students (24.3% undecided, 16.5% disagree, 17.4% strongly disagree) felt left out on how they are assessed.

4.3.4: Perception of Transparency on Formative Assessment

Table 4.3.4: Students' perceptions of transparency on formative assessment

	Statement	1	2	3	4	5
16	I understand what is needed in all assessment tasks.	3.1%	8.1%	23.1%	38.6%	27.1%
17	I am told in advance when I am being assessed.	2.8%	6.9%	13.7%	41.1%	35.5%
18	I am told in advance on what I am being assessed.	10.3%	17.4%	22.1%	28.3%	21.8%
19	It is clear about what my teacher wants in my assessment tasks.	4.4%	7.8%	22.4%	39.6%	25.9%
20	I know how a particular assessment tasks will be marked.	12.5%	20.9%	19.6%	27.7%	19.3%

Table 4.3.4 reveal majority of students felt they understand what is needed in assessment tasks, are informed in advance on when and what to be assessed and what the teachers wants in an assessment. However, a significant number of respondents (17.4% disagree, 10.3% strongly disagree) felt they are not informed in advance on what is being assessed. Transparency on how particular assessment tasks are marked appeared to be relatively lower (19.6% of the respondents were neutral, 20.9% disagreed, 12.5% strongly disagreed).

4.3.5: Perception on Students Capabilities on Formative Assessment

Table 4.3.5: Students' perceptions of students' capabilities on formative assessment

	Statement	1	2	3	4	5
21	I can complete the assessment tasks by the given time.	1.9%	4.7%	17.8%	48.0%	27.7%
22	I am given a choice of assessment tasks.	6.5%	15.6%	18.7%	37.1%	22.1%
23	I am given assessment tasks that suit my ability.	3.4%	12.8%	22.4%	39.3%	22.1%
24	When I am confused about an assessment task, I am given another way to answer it.	25.5%	20.2%	22.7%	19.9%	11.5%

Table 4.3.5 highlight majority of students could complete the assessment tasks within the given time (48.0% agree and 27.6% strongly agree), 17.8% were undecided, and a handful (4.7% disagree and 1.9% strongly disagree) could not. Almost half of the students (37.1% agree and 22.1% strongly agree) felt they are given alternative assessment tasks. 22.4% of the students were undecided, while most of them (39.3% agree and 22.1% strongly agree) claimed they are given assessment tasks that suit their ability. Majority of the respondents were either undecided (22.7% neutral) and felt that when they are confused about an assessment task they are not given another way to answer it (20.2% disagree and 25.5% strongly disagree).

Figure 2.1.1: Average mean score on the students' perceptions on five broad areas.
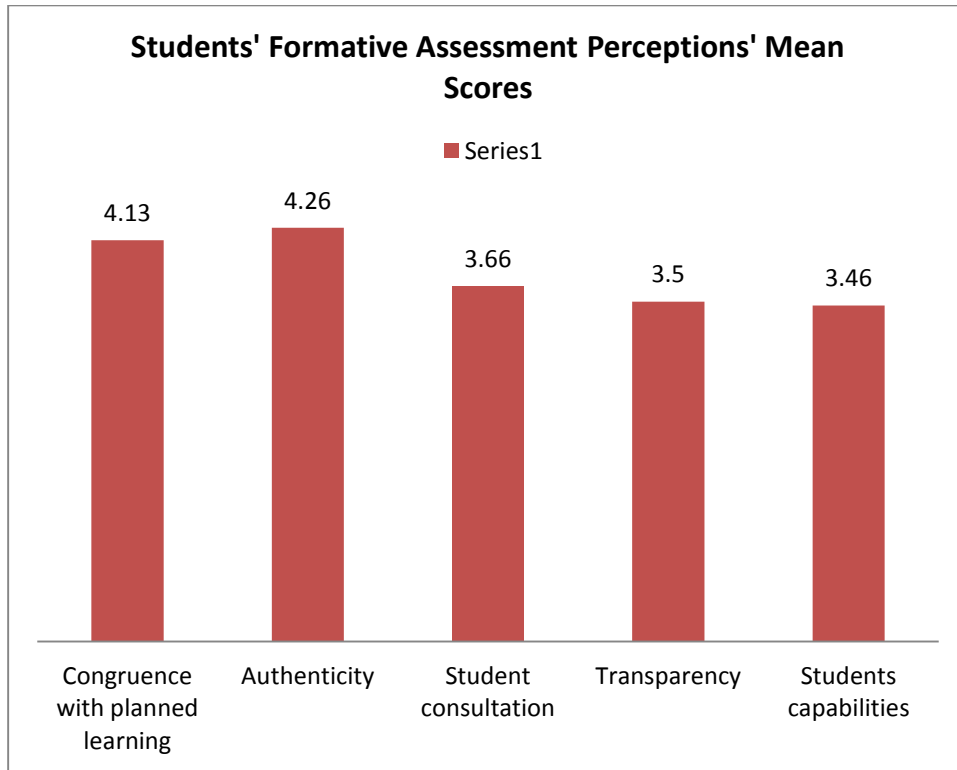
Ranked on descending order, Figure 4.1.1indicate respondents felt authenticity of formative assessment to be highest at a mean score of 4.26. Formative assessment's congruence with planned learning was ranked second at a mean score of 4.13. Students' consultation on formative was ranked third at a mean score of 3.66. Transparency of formative assessment was ranked fourth at a mean score of at a mean of 3.5. Students' perception towards their capabilities on formative assessment was ranked least at a mean score of 3.46. Overall, the study found that students had positive perceptions towards formative assessment at a mean of 3.80.

4.4 Objective 2: Teachers' Perceptions of Formative Assessment

Teachers were asked to indicate their extent of affirmation to statements on a 25 item questionnaire, on their perception towards formative assessment. The questionnaire addressed five thematic areas; Accountability of teachers in the assessment process, accountability of learners in the assessment process, students learning as a basis of use of formative assessment, use of varied practices and teacher competencies on formative assessment. Table 4.5 highlight their responses

on a five point scale, where 1- Strongly disagrees, 2 – Agree, 3 – Neutral, 4 – Agree and 5 – Strongly agree.

4.4.1: Accountability of teachers in assessment process

Table 4.4.1: Accountability of teachers in assessment process

Statement	1	2	3	4	5
1. I try to understand why my students succeed or fail on an assessment or activity.	0%	1.6%	3.1%	42.2%	53.1%
2. If students do poorly on an assessment, it is my responsibility to re-teach.	7.8%	14.1%	14.1%	32.8%	31.3%
3. Assessment is a tool used only by the teacher.	25.0%	32.8%	21.9%	9.4%	10.9%
4. The teacher should offer on-going and appropriate feedback to the students.	0%	0%	0%	23.4%	76.6%
5. The teacher should reflect on multiple student data before drawing academic or social conclusions about a student's progress.	6.3%	4.7%	4.7%	39.1%	45.3%

Table 4.4.1: Indicate majority of teachers (42.2% agreed and 53.1% strongly agreed) felt they should find out why learners fail or succeed after assessment. More than half (32.8% agreed and 31.2% strongly agreed) of the respondents indicated they can re-teach if students perform dismally on a task. On the second item 14.1% were undecided, and 7.8% felt not being responsible. Item three revealed that most respondents (25% strongly disagree, 32.8% disagree and 21.9%) understood assessment provides information other users other than the teacher. The study found that all respondents (23.4% agree and 76.6% strongly agree, on item number 4) understood the crucial role of feedback during assessment. There existed misconceptions on a few respondents (4.7% neutral, 4.7% disagree and 6.3% strongly disagree) who seemed not to favor several basis of information in making judgement concerning students' learning.

4.4.2: Accountability of Students in the Assessment Process

Table 4.4.22: Accountability of students in the assessment process

Statement	1	2	3	4	5
1. Students should be actively involved in setting learning criteria.	12.5%	4.7%	20.3%	42.2%	20.3%
2. Students need opportunities to re-evaluate their understanding of the content.	0	0	3.1%	56.3%	40.6%
3. Assessment is a tool used by the learner.	18.8%	23.4%	28.1%	17.2%	12.5%
4. Students should modify or adapt their learning strategies to meet the requirements of the course/classroom.	1.6%	3.1%	4.7%	54.7%	35.9%
5. Students should ask questions and offer peer feedback during instruction.	0	3.1%	0	28.1%	68.8%

Table 4.4.2 indicate that highest of the respondents opinioned positively (42.2% agree, 20.3% strongly agree) students' involvement in setting learning criteria. 20.3% were undecided, 12.5% and 4.7% of the respondents viewed negatively students' involvement in setting learning criteria. Most of the teachers were either undecided (28.1% neutral) or perceived assessment being a tool not to be used by the learner (23.4% disagree, 18.8% strongly disagree).54.7% of the respondents agreed, and 35.9% strongly agreed students should alter their learning strategies to attain the course and classroom prerequisites. Apart from 3.1% who disagreed, all the other respondents had positive perception on students' asking queries and offering peer response during learning.

4.4.3: Perception on Student learning as a basis of use of formative assessment

Table 4.4.3: Perception on student learning as a basis of use of formative assessment

Statement	1	2	3	4	5
1. I pre-assess skill level or knowledge before beginning a unit or chapter.	3.1%	12.5%	4.7%	31.3%	48.4%
2. A homework grade is important to understanding student learning.	6.3%	1.6%	20.3%	45.3%	26.6%
3. End of Chapter or Unit tests are the best methods for documenting learning.	7.8%	17.2%	15.6%	25.0%	34.4%
4. Whole group instruction works because I can teach to the middle and work up or down based on the daily student responses.	7.8%	6.3%	35.9%	32.8%	17.2%
5. My day is too busy to fully implement formative assessment in my classroom.	26.6%	28.1%	23.4%	15.6%	6.3%

Table 4.4.3 indicate majority of the respondents agreed (31.3%) and strongly agreed (48.4%) while 4.7% (neutral), 12.5% (disagree) and 3.1% (strongly disagree) had reservations on pre-assessing skill level or knowledge before beginning instruction. Majority of respondents had positive opinions (45.2% agree, 26.6% strongly agree) on importance of homework grade in understanding student learning. 15.6% (neutral) of the respondents were undecided on whether tests at end of unit or chapter were the ideal techniques for highlighting learning. Majority of the respondents (26.6% strongly disagree, 28.1%) felt their workload does not impact negatively on classroom's formative assessment implementation.

4.4.4: Perception on Use of varied practices on Formative Assessment

Table 4.4.4: **Perception on use of varied practices on formative assessment**

Statement	1	2	3	4	5
1. Using a varied approach to questioning is part of the formative assessment process.	0%	3.1%	10.9%	53.1%	32.8%
2. Grades define student learning.	12.5%	26.6	31.3%	23.4%	6.3%
3. Lecture is the most effective way to teach in TVET institution.	46.9%	28.1%	18.8%	1.6%	4.7%
4. Documenting individual progress towards learning targets is a key factor in planning.	3.1%	0%	6.3%	54.7%	35.9%
5. There is time for student reflection during the instructional day.	3.1%	15.6%	17.2%	43.8%	20.3%

Table 4.4.4 reveal that 10.9% (neutral) of the teachers were undecided and 3.1% disagreed formative assessment entailed varied questioning approach, an implication that they fail to grasp formative assessment concept. Majority of the teachers (53.2% agree and 32.8% strongly agree) recognized formative assessment as one that uses varied questioning approach. Similarly, a larger percentage of the respondents (31.3% undecided, 23.4% agree, 6.2% strongly agree) misconstrued grade as one that define learning. A majority of the teachers felt lecture as not being most effective method of teaching.

4.4.5: Perception on Teacher's competencies on Formative Assessment

Table 4.4.5: Perception on teacher's competencies on formative assessment

Statement	1	2	3	4	5
1. It is important to give a study guide for tests.	6.3%	10.9%	23.4%	39.1%	20.3%
2. An assessment plan should be created before instruction begins.	0%	3.1%	1.6%	46.9%	48.4%
3. Assessment should only be used as an accountability piece for reporting grades.	17.2%	28.1%	10.9%	34.4%	9.4%
4. Differentiated instruction based on evidence of student learning is part of my daily planning.	0%	12.5%	26.6%	35.9%	25.0%
5. Formative assessment is used daily in my classroom.	10.9%	14.1%	28.1%	28.1%	18.8%

Table 4.4.5 indicate that majority of respondents felt that it is crucial to provide a study direction for tests (39.1% agree, 20.3% strongly agree) and an assessment plan should be formulated before embarking on teaching (46.9% agree, 48.4% strongly agree). While 10.9% of the teachers were undecided (neutral), a considerable number of them (28.1% disagree, 17.2% strongly disagree) had reservations on assessment being only applied as an accountability bit for providing grades. The study found most of the respondents viewed diverse instruction about student learning as a segment of their planning on a daily basis. The study further revealed 28.1% (neutral) of the teachers were not aware on whether they use formative assessment on daily basis in their classroom. 14.1% (disagree) and 10.9% (strongly disagree) of the respondents felt they do not use formative assessment daily in their classrooms.

Figure 4.1.2: Average mean score on the teachers' perceptions of formative assessment on five elements
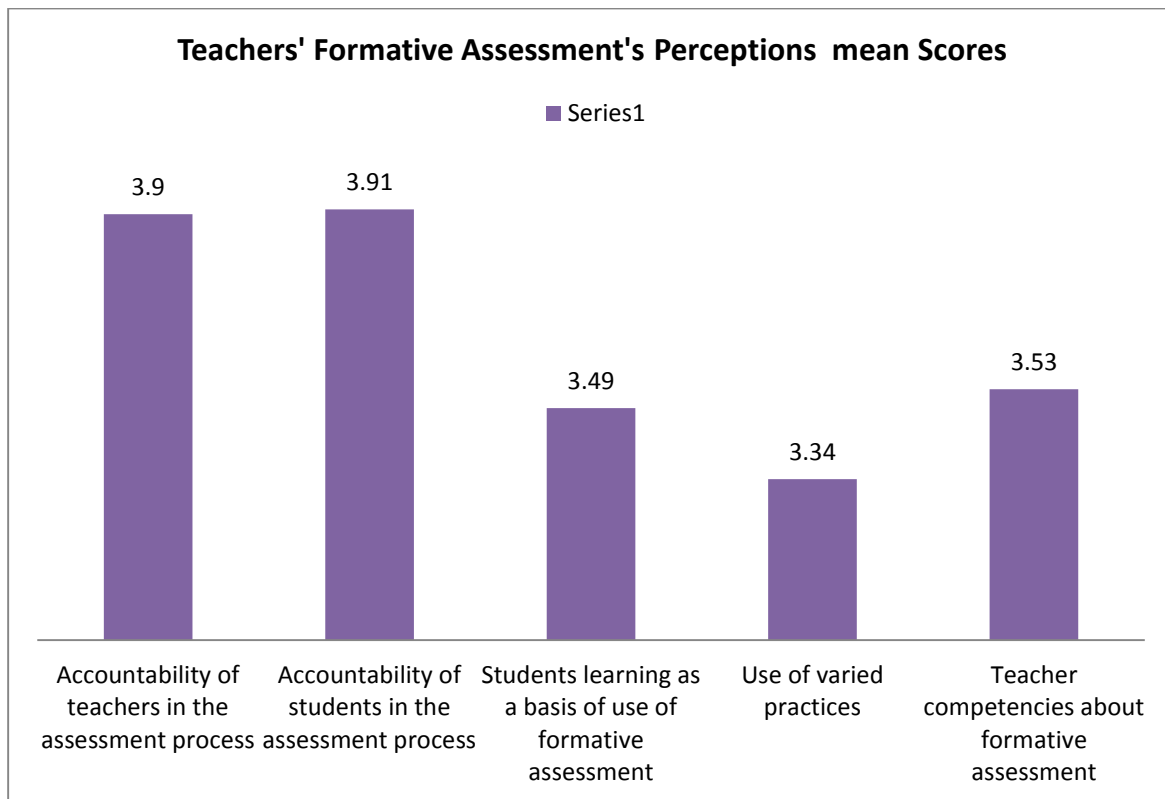
Figure 4.1.2 indicate respondents felt accountability of students during assessment process being highest (mean =3.91), followed by teachers accountability (mean = 3.9), teacher competencies (mean = 3.53), students learning as a basis of use of assessment (mean = 3.49) and used of varied practiced (mean = 3.34) in the diminishing order. On average, the study found teachers' perceptions of formative assessment at Bukura Agricultural College to be positive.

4.5 Objective 3: Whether there was significant variation on the perception across departments.

4.5.1: Variation of Students' Perception across Departments

To determine whether there was variation of students' perception on formative assessment practices across departments, the data was sorted departmentally and the 25 items on congruence with authenticity, planned learning, transparency, student consultation, and student capabilities analyzed.

Appendix D (a) captures the descriptive statistics for each of the tested items for perception. Under congruence with planned learning, there is an apparent variation in all the five items for congruence and planned learning. For example, the means suggest there was more emphasis on memorizing in Biological, physical and appliance sciences [m=4.0] as compared to the other departments. Similarly, the department rated lowly on the statement "assessment tests what I understand with a mean of 3.6. There was no major difference in the mean scores for the other three departments on the items of memorization and understanding. There was almost an equal distribution in mean scores for the remaining items of congruence for the other departments expect on Biological, physical and appliance sciences which rated highly on assignments tests what I have done in class [m = 4.8].

With reference to authenticity, all the items received a mean score that was above 4.0 indicating that the distribution of the responses was positively skewed toward agree and strongly agreed. The department of crop science had a consistently low mean [averaging at 4.05] for the six items on transparency. Overall, slight variation on the means scores was visible throughout the departments.

Overall, students remained reserved to comment on the nature of consultation on formative assessment practices. While the responses clarity on the types of assessment being used, and awareness on how assessment would be marked received high ratings in all departments with slight variations, students believed they did not have a say on how they were going to be assessed [mean score ranging from 3.03 for Agricultural extensions and community development, 3.4 for biological, physical and applied sciences, 3.04 for crop science and 3.1 for animal health and production]. With respect to transparency, students expressed understanding on what was needed in assessment tasks but with slight differences [means of 3.6, 3.8, 3.9, 3.7 and 3.9] as well as when they were being assessed. However, there was a major variation on the information given to student on what is being assessed. In the departments of agricultural extension and community development and Animal health and production, a mean of 3.2, and 3.1 respectively indicated that the students were either unaware of what is tested or wanted to remain neutral in disseminating this information. However, students from the departments of crop science and Biological, physical and applied sciences seemed to be aware of what is being assessed early in advance. As to whether students knew how particular assessment task was to be marked, students in crop science and animal health production were not aware [m=3.0, 3.0 respectively] of how specific tasks were to be marked. Students' capability was the last item of formative assessment practices.

The goal was to determine whether the students believed that the formative assessment tasks adopted in the school augmented their capabilities. In general, most of the departments registered a mean above 3.5 in 3 of the 4 items under student capabilities except for the department of Animal health and production on the choices of assessment tasks m= 3.1. All the departments rated lowly on the ability m=<2.9 to be given another way to answer confusing tasks.

Since analysis of the means as shown in Appendix D (a) indicates possible variation in the perception of students on the subsets of formative assessment practices in the College, the question is whether the differences in perception was significant to quantify difference in formative assessment approaches for the different department. To determine whether the variation in means was significant, a One-Way Analysis of Variance was conducted at 95% confidence level and p=0.05. The results as shown in Appendix D (b) indicate that congruence, authenticity and student consultation as measures of formative assessment practice were not perceived different among the

four departments. Each of the items for congruence, authenticity and student consultation recorded a low f statistic and a p value more than 0.05.

However, there was mixed results in the measures of transparency as a component for formative assessment. The items for transparency recorded high result for the F-statistic indicating the distribution of the response tended to differ within the groups. However, only "I am told in advance on what I am being assessed" [p= 0.049] and "I know how particular assessment task will be marked" [p = 0.003] proved to be significant enough to demonstrate difference in perception among the four departments. Imperatively, all the items on student capabilities recorded high F. statistic number and a lower p value of <0.05 except "when I am confused about an assessment task, I am given another way to answer it.

4.5.2 Variation of Teachers' Perception across departments

To determine whether there was variation of teachers' perception on formative assessment practices across departments, the data was sorted departmentally and the 25 items on teachers' formative assessment analyzed. The results of the analysis are captured in appendix D (c).

The descriptive statistics for the items of accountability of teachers in the assessment process indicate slight variation in the perception of teachers across the departments on their accountability during the assessment process. An average mean of 4.4688 indicated that teachers perceived understanding the student reason for failure to assess during an assessment or activity was important. There was slight variation on the priority to re-teach with an average mean of 3.65 noted on this item. Specifically, teachers in the department of crop science did not believe it was their responsibility to re-teach students who did poorly on an assessment [m = 3.3].

There was uniformity in the perception of teachers on the use of assessment tool at a mean of 2.4844 indicating that all departments believed that assessment tools were not to be used by teachers alone. Ongoing and appropriate feedback was highly valued among teachers in all departments. A mean of 4.7 confirmed the importance of this view. Equally, teachers felt that it was their responsibility to reflect on multiple sources of student data before drawing social and academic conclusion.

With respect to student accountability in the assessment process, teachers across the departments felt that students should be part of the assessment process. However, the nature of this involvement was not clearly captured in the statistics. For instance, in Agricultural Extension and Community Development and the department of animal health and production expressed reservation on whether students should be actively involved in setting the learning criteria [m = 3.4 and 3.3 respectively]. However, all the teachers from all the departments felt that students needed an opportunity to understand and revaluate their content. A mean score of 4.3 confirmed this conclusion. Teachers did not feel that it was necessary for students to use assessment tools [m = 2.8125]. However, modification of learning strategies and asking question and offering peer feedback were highly valued among teachers [m= 4.2 and 4.6 respectively].

There was minimal variation in perceptions as captured by the average means for the items of student learning as the basis of use of formative assessment across all departments [m=4.0, 3.8, 3.6, 3.4 and 2.4 for the five items of student learning as the basis of use of formative assessment]. Equally, there was almost uniformity in responses on the items that measured the use of varied practices during formative assessment across all the departments. However, there were major fluctuations in means across the departments on measures of teacher competence on formative assessment. For instance, teachers in the department of animal health and production differed significantly on with the other departments who seemed to favor giving study guides for tests [M= 3.0 compared to 3.6, 3.8, and 3.6]. Only teacher from the department of animal health and production [m = 4.1] seemed to use formative assessment in their daily classroom environment.

Since variations in perception in some of the measures of formative assessment practice for teachers were identified in appendix D (c), the next phase was to determine whether these variations were significant. This was achieved by conducting a One Way Analysis of Variance to compare the means for the various items in each department. The result of the analysis is captured by the appendix D (d). Both the F statistic and p values for the ANOVA analysis in every item for the various subcategories of formative assessment practice measures for teachers were not significant to support a conclusion of variation in perception of teachers towards formative assessment practice across the four departments. The F statistic figure across remained low and the p-value as indicated by the significance test did not go below 0.05. [refer to appendix D (d)].

4.6 Objective 4: Formative Assessment Practices Used.

The researcher had a one on one interaction with four heads of departments and four directors of studies. The interaction was carried out through structured interview consisting of seven items. Heads of departments and directors of studies were selected due to their supervisory role during curriculum implementation and their vast experience at the College. They were also custodians of student assessment results. The interview provided for an in-depth probing to determine status and opinions on formative assessment practices.

Item one sought to find out whether there was an examination policy within the College. The study found out that there was an examination policy in the College that applied for all departments. Item two sought to find out formative assessment practices spelt out in the policy. The researcher found out that the policy emphasized on sit in continuous assessment tests and practical assessments.

Item three sought to determine how formative assessment is carried out in the College. The study found out that in all departments, formative assessment entailed two sit-in continuous assessment tests, reports after every practical and progress report for project work. The weight given to each assessment differed for various courses. Formative assessment for animal health, information communication and technology, and agricultural education are regulated by respective professional bodies. The study found that in some instances Continuous Assessment Tests and Assignments were used as summative assessments.

Item four sought to determine respondents' perceptions on role of formative assessment towards students learning from head of departments' and directors of studies' point of view. The study found that continuous assessment tests were extensively used in all departments. In basic science department, persistent and immediate feedback was dominant during practical experiments which were offered on individualized basis. Assignments were found to be given on regular basis in all departments which are discussed with instructors. Formative assessments in form of continuous assessment tests, questions and answers, students' own productions and take away assignments were extensively used in Information Communication and Technology department. Field projects were dominant in crop science department which augmented class work.

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Item five sought to determine respondents' understanding and extent of use of common formative assessment practices. The researcher rated responses from the eight respondents on a five point scale as Never, Seldom, Sometimes, Often and Always. The study found three out of the eight respondents did not understand meaning formative assessment. All respondents demonstrated a thorough understanding of meaning of continuous assessment tests, peer assessment, student self assessment, portfolio, student's own production, and projects and their role in enhancing students' learning. Study findings on extent of application of formative assessment practices at the College are highlighted in table 4.3.

Table 4.5.1: Formative Assessment Practices used

Formative Assessment Practices	Never	Seldom	Sometimes	Often	Always
Portfolio	62.5%	25%	12.5%	0	0
Projects	0	0	0	50%	50%
Continuous assessment tests	0	0	0	0	100%
Peer Assessment	37.5%	50%	12.5%	0	0
Student Self Assessment	37.5%	62.5%	0	0	0
Students' Own Production	12.5%	62.2%	12.5%	12.5%	0

Table 4.5.1 indicates that Continuous assessment tests (100% always) and Projects (50% often and 50% always) dominate the formative assessments practices used in the College. Peer assessment (50% seldom), Students Self Assessment (62.5% seldom) and Students' Own Production (62.2% seldom) are rarely used in the College. The study found Portfolio (62.5% never) are not used in the College. The researcher found that most of the respondents possessed modest training on formative assessment practices.

CHAPTER FIVE
DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

5.1.1 Students Perceptions on Formative Assessment

Overall student had positive attitudes towards the constructs of formative assessment developed for this study but with variations. For example, students rated positively formative assessment's congruence in planned learning, authenticity, but raised reservation on grading and transparency. Positive student's attitude towards congruency, authenticity and reliability has been extensively documented in literature.

For instance, Al Kadri et al (2011) found that formative assessments provoked authentic and multidimensional learning. Students gain more in terms of quality and quantity if they connect and combine their individual knowledge to present experiences, more so when learners take charge in 'relating' and 'integrating' other than when tutors merely provide relevant examples (Udoukpong & Okon, 2012). In addition, the study demonstrated students felt they were consulted on types of assessment, marking of assessment and use of the assessment during formative assessment. However, the study found students had reservations on having a say on how they are assessed.

Additionally, in terms of transparency, the study indicate students felt they comprehend what is required in assessment tasks, are informed in advance on when and what to be assessed and what the teachers wants in an assessment task. Variation in results with respect to transparency and accountability can be explained by the individual difference in student variability on learning. Numerous studies have concluded that individual differences between students account for the large variability in the understanding of transparency and accountability among students Shute (2008), Kleij (2018). When characterizing transparency, the elements that constitute feedback on students' learning outcomes and the way in which feedback is provided is importance. Where feedback does not maximize student benefit, differences in learning is bound to occur and therefore differences in characterizing the transparency of the process.

5.1.2 Teachers' Perceptions on Formative Assessment

The study reported positive attitudes towards formative assessment among teachers. Teachers were acutely concerned about student performance as measured through the subset of accountability. Teachers made attempts to find out why students fail in an assessment, and were ready to re-teach if students performed poorly after assessment. Teachers rightly recognized that an assessment tool can be used by other stakeholders other than the teacher. This observation can be explained by teachers' beliefs on formative assessment. Studies show that teachers believe that formative assessment can be integral in enhancing student learning. Some researchers have argued that formative assessment is the great equalizer; moreover, the tool is known to help create greater equity for student outcomes.

Case study school reported by Black and William (1998 and other subsequent studies) found that students moved from failing to exemplary status over the years as they continued to implement formative assessment. Using formative assessment, teachers are able to establish the factors underlying variation in student achievement in specific subjects and adapt the most effective pedagogical strategies to address this problem (OECD, 2008).

In assessment of students' learning status and capability attained, it is paramount to solicit diverse information and find out the extent to which learners have achieved the learning goals of their curriculum (Mikre, 2010). Teachers seemed to apply different approaches to formative assessment, however, continuous and effective feedback during assessment were cited as the primary tenets in facilitating learning among students. Havnes et al., (2012) recommends changes in instructional strategies to move with the current level of student understanding.

However, teachers felt students need avenues to re-examine their comprehension of the subject matter and learners should adjust their learning strategies to attain the course and classroom requirements. Among the most valued items for displaying positive progress were the student's ability to ask questions and offering peer feedback during instruction (Mikre, 2010). The study highlights teachers' belief that student learning should be the basis of use of formative assessment. For example, teachers felt that they needed to assess knowledge or skill level prior to beginning a chapter or unit, while a homework grade is crucial to comprehend student's learning. However,

teachers had reservations on use of whole group instruction and end of unit or chapter assessment as ideal practices for revealing learning. This observation resonate with the recommendation by different scholars that the ultimate goal for using formative assessment should be to implement practices that lower gaps in understanding and performance and improve overall scores for students (Conderman, & Hedin, 2012).

The study revealed teachers felt work load was not an impediment towards their implementation of formative assessment. This finding contradicts Mussawy (2009) findings, where project and alternative assessment forms that demanded learners undertake outdoor work encountered a challenge partly due to a demanding teachers' work load. On the aspect of use of varied practices during formative assessment, the study indicates teachers had mixed perceptions. While teachers were hesitant to approve use of grade to define learning, and lecture method as an effective method in TVET teaching, they however appeared to endorse use of a diverse approach to assessment as part of the formative assessment practice, and documenting a person's status towards learning goals as a paramount element in planning. On the aspect of teachers perceptions towards teachers' competencies about formative assessment, the study indicate that majority of respondents felt that it is crucial to provide a study guide for assessment and an assessment road map should be developed prior to embarking on instruction.

5.1.3 Variations in the Perception of Students and Teachers on Formative Assessment Practices Across Departments

Overall, there were no significant variation in the perception of students and teachers on formative assessment practices across departments. Result from the One-Way Analysis of Variance revealed that congruence, authenticity and student consultation as measures of formative assessment practice were not perceived different among the four departments of Agricultural Extension and Community Development, Biological, Physical and Applied Sciences, Crop science and Animal health and production. However, there was mixed results in the measures of transparency as a component for formative assessment. In addition, measures of accountability of teachers in the assessment process were viewed variedly by students and teachers across the departments. Similarities in perception across department in the measure of congruence, authenticity, and student consultations can be explained by the uniformity in the subsets that defined these measures

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across departments. Congruence in assessment, authenticity and student consultations are universally defined unlike the measure of transparency which is relative to the observer. According to Box et al. (2015) variation in the understanding of transparency in formative assessment is influenced by assumption on what makes effective learning, the nature of feedback between student and teachers, and the overall process of student grading.

Additionally, there were major variations in means across the departments on measures of teacher competence on formative assessment. Through a One Way Analysis of Variance to compare the means for the various items in each department, the study revealed perceptions on formative assessment practice measures for teachers were not significant to support a conclusion of variation in perception of teachers towards competence as a measure of formative assessment practice across the four departments. However, it must be noted that the concept of competence in teaching is elusive and the assessors may not have been privy of the basic tenets in assessing teacher competency and therefore the variation in means.

5.1.4 Formative Assessment Practices Used At Bukura Agricultural College

Results from the study revealed that a variety of formative assessment practices are being utilized at Bukura Agricultural College. Teachers at the college used a wide range of formative assessment practices. The most commonly cited include portfolios, projects, continuous assessment tests, peer assessment, student self assessment, and student own production. The degree of use for any of these assessment approaches varied based on the context of the subject being studied. Explaining the differences in the use of the various types of formative assessment, Ounis (2017) argues that teachers tend to select the type and practice of formative assessment based on the goals, needs, and context of the learning process. Variation in the use of formative assessment practice is therefore considered health and reflective of the dynamic nature of learning. Nevertheless, Ounis (2017) warns that the relatively lower value expressed towards of self-assessment and peer assessment revealed tutors' unawareness of their usefulness.

Interestingly, the study revealed that a substantial number of supervisors did not comprehend the meaning of formative assessment. This observation could be attributed to the lack of training on pedagogical grounds. The finding was in congruence with Erikson, (2016) who found that when

defining formative assessment it a matter of respondents one's own interpretation. However, the study found supervisors demonstrated a thorough understanding of meaning of continuous assessment tests, peer assessment, student self assessment, projects, student's own production and portfolio and their role in enhancing students' learning. The very fact that supervisors understood the various types of formative assessment yet lack comprehensive understanding of the term itself can be explained by the common tradition in assessment. Continuous assessment tests, peer assessment, student self assessment, projects, student's own production and portfolio are primary variation of assessment used in many institution across the country. Most of the teachers are aware of these approaches to assessment and so are their supervisors.

5.2 Conclusion

This study was conducted with the purpose of investigating student's and Teacher's perception towards formative assessment. Results from the study demonstrated that both teachers and students favored formative assessment as an effective method of classroom assessment. Consequently, it was determined that there was no significant variation on congruence, authenticity and student consultation as measures of formative assessment across the departments. Based on these findings, it is apparent that formative assessment is as important to student as teachers. At its core, formative assessment provides instructors and students with feedback on ongoing teaching and learning with an aim of improving learning and attainment of instructional objectives. The fact that formative assessment is designed to enhance the learning process is part of the reasons why it seems to be favored by both students and teachers at the institution. However, it must be noted that there was variation in perception on the measures of transparency as a component for formative assessment. Transparency during any process of assessment is key to its effectiveness. As such, there is need to focus on developing ways to enhance transparency as one of the ways of achieving the goals of formative assessment.

5.3 Recommendations

Since this study utilized a case study approach to investigating the subject of perception on formative assessment, the recommendations made are specifically designed for the institution in question.

- The College management should put in place policy frameworks and regulations that highlight and ensure various formative assessment practices are applied in all departments, and are geared towards improvement of learning. To be practically effective, assessment should be 'formative' in nature, provide timely feedback and respond to learners' needs.

- The study revealed that the largest percentage of teacher respondents had other academic qualification other than education training related proficiency. Additionally, the study found out that some respondents did not understand meaning of formative assessment. Subsequently it is recommended that in-service training of teachers be carried out to equip instructors with assessment and evaluation skills.

- The study indicate the new alternative formative assessment practices, namely portfolio, peer assessment and self assessment were either rarely or not used at all at the College. It is recommended that teachers at the College be taken through regular workshops and seminars enlighten them on the paradigm shift in assessment, while at the same time enhance their perceptions of formative assessment.

- The study revealed there were variations in students' and teachers' perceptions towards formative assessment across the departments. Consequently, this study makes a case for further studies to establish the sources of the variations and their effect in students' learning. Besides, there is need to carry out research aimed at investigating factors influencing students and teachers perceptions of formative assessment.

- A scan through the literature revealed that studies on teachers' and students' perceptions of formative assessment are scarce. Perceptions towards a phenomena influence how a person react and interact with the phenomena. It is recommended that further studies be carried out in institutions, Sub-Counties and Counties on perceptions of formative assessment.

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Appendix A: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 570360

Date of Issue: 18/September/2020

RESEARCH LICENSE

This is to Certify that Mr.. samuel bundi mugweru of University of Nairobi, has been licensed to conduct research in Kakamega on the topic: Students' and Teachers' perceptions of formative assessment; A case of Bukura Agricultural College for the period ending : 18/September/2021.

License No: NACOSTI/P/20/6702

570360

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY &
INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

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Appendix B: Permission to carry out the study

(a)Permission to carry out research in the institution

SAMUEL B. MUGWERU,

UNIVERSITY OF NAIROBI

DEPARTMENT OF PSYCHOLOGY

P.O. BOX 30197,

NAIROBI.

18/9/2020.

THE PRINCIPAL,

BUKURA AGRICULTURAL COLLEGE,

P.O. BOX 23-50105,

BUKURA

RE: REQUEST FOR PERMISSION TO CARRY OUT A RESEARCH IN YOUR INSTITUTION

I am a post graduate student at the University of Nairobi pursuing a Master of Education degree in Measurement and Evaluation. My thesis is titled 'Students and Teachers perceptions of formative assessment; a case of Bukura Agricultural College. I hereby seek your permission before embarking on data collection in the College. Information collected will be used for academic purpose only. The researcher guarantees and will uphold respondent's confidentiality.

Kindly allow me to carry out this study in your institution.

Thank you.

Yours Faithfully,

SAMUEL B. MUGWERU
Cell phone: 0723366915
Email: mwalimu.fundi@gmail.com

(b)Permission to Use the Instruments

(i)Permission to use students' instrument

Sayed Ahmad Javid Mussawy <smussawy@umass.edu> Aug 28, 2019, 12:42 AM

to me

Dear Samuel,

Thank you for reaching out to me. You have my permission to use the annex in my capstone project. I wish you good luck.

Regards,
Mussawy

Sayed Ahmad Javid Mussawy
Ph.D. Candidate &
Assistant Residence Director (ARD) North D
University of Massachusetts Amherst
D120, 52 Eastman Lane
voice: 413-406-4666

(ii)Permission to Use the Teachers' Instrument

.... .

Home Email <mmbrink3@gmail.com> Thu, Aug 29, 2019, 3:43 AM

 to me

Samuel,

Hello and thank you for the email. You have my permission and well wishes as you pursue your degree. I hope my research can be of help to you. I would love to see your study when it is completed.

Best of luck,
Melanie Brink

Sent from my iPhone

(a)The students' questionnaire

DEPARTMENT CODE …………..   CODE …………..

RESEARCH DESCRIPTION

Dear participant,

You are invited to take part in the study. The study is being carried out as a requirement for the award of a Masters degree of University of Nairobi. The information provided will be treated with utmost confidentiality and will be used for academic purpose. Do not write your name.

Please, respond to the questions as frankly and honestly as possible. I will appreciate your participation and cooperation in the study

Thank you.

Samuel B. Mugweru.

Cell Phone: 0723366915

Email: mwalimu.fundi@gmail.com

Please tick [√] the appropriate box or write your answer for the questions below on the spaces provided.

SECTION A: General Information

1. Gender

   Male [   ]   Female [   ]

2. Name of your department…………………………………..

3. Name of the course of study……………………………….

4. Year of study…………………………………………………..

5. Award after study.

   Diploma [   ]   Certificate   [   ]

   Other (specify)…………………………………

SECTION B: Students Perceptions of Formative Assessment

Using a scale of 1-5, where 1-strongly agree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree, please indicate your level of agreement to the statements in the table on use of formative assessment towards your learning and performance.

	Statement	1	2	3	4	5
	Congruence with planned learning					
1	Assessment in my tests what I memorize.					
2	Assessment tests what I understand.					
3	My assignments are about what I have done in class.					
4	How I am assessed is similar to what I do in class.					
5	I am assessed on what the teacher has taught me.					
	Authenticity					
6	I am asked to apply my learning to real life situations.					
7	The assessment tasks are useful for everyday life.					
8	I find assessment tasks are relevant to what I do outside of College.					
9	Assessment tests my ability to apply what I know to real-life problems.					

10	Assessment examines my ability to answer every day questions					
11	I can show others that my learning has helped me do things.					
	Student Consultation					
12	It is clear about the types of assessment being used.					
13	I am aware how my assessment will be marked.					
14	My teacher explains to me how each type of assessment is to be used.					
15	I can have a say in how I will be assessed.					
	Transparency					
16	I understand what is needed in all assessment tasks.					
17	I am told in advance when I am being assessed.					
18	I am told in advance on what I am being assessed.					
19	It is clear about what my teacher wants in my assessment tasks.					
20	I know how a particular assessment tasks will be marked.					
	Students Capabilities					
21	I can complete the assessment tasks by the given time.					
22	I am given a choice of assessment tasks.					
23	I am given assessment tasks that suit my ability.					
24	When I am confused about an assessment task, I am given another way to answer it.					

Adopted from: Mussawy, S. A. J. (2009). Assessment Practices: Students' and Teachers' perceptions of classroom assessment.

END. THANK YOU for participation

(b)The Teachers' Questionnaire

DEPARTMENT CODE …………..   CODE …………..

RESEARCH DESCRIPTION

Dear participant,

You are invited to take part in the study. The study is being carried out as a requirement for the award of a Master's degree of University of Nairobi. The information provided will be treated with utmost confidentiality and will be used for academic purpose only. Do not write your name. Please, respond to the questions as frankly and honestly as possible. I will appreciate your participation and cooperation in the study

Thank you.

Samuel B. Mugweru.

Cell Phone: 0723366915

Email: mwalimu.fundi@gmail.com

SECTION A: TEACHER'S DETAILS

1. Please mark the response that describe you *(Tick (√) the box that applies)*

Teacher Characteristics	Options	Tick(√)
Gender	Male	
	Female	
Age	Under 25 yrs	
	25 – 29 yrs	
	30 – 39 yrs	
	40 – 49 yrs	
	Above 49 yrs	
Academic qualifications	Diploma in Education	
	Post Graduate Diploma	
	Bachelor of Education degree	
	Masters in Education degree	
	PhD in Education	
	Other degree Specify ………………………	
Teaching experience	Less than one year	
	1 – 5 yrs	
	5.1 -10 yrs	
	Above 10 yrs	
Class size	Below 20	
	20 – 29	
	30 – 39	
	40 – 49	
	Above 50	
Lessons per week	Below 12	
	12 – 19	
	20 – 29	
	30 or more	

SECTION B: Teachers' Perceptions of Formative Assessment

Using a scale of 1-5, where 1-4, where 1- Strongly disagree, 2 – Disagree, 3 – Neutral, 4- Agree, 5 – Strongly agree, please indicate your level of agreement to the statements in the table below on your perception about formative assessment

Statement	1	2	3	4	5
Accountability of teachers in the assessment process					
1 I try to understand why my students succeed or fail on an assessment or activity.					
2 If students do poorly on an assessment, it is my responsibility to re-teach.					
3 Assessment is a tool used only by the teacher.					
4 The teacher should offer on-going and appropriate feedback to the students.					
5 The teacher should reflect on multiple student data before drawing academic or social conclusions about a student's progress.					
Accountability of students in the assessment process					
6 Students should be actively involved in setting learning criteria.					
7 Students need opportunities to re-evaluate their understanding of the content.					
8 Assessment is a tool used by the learner.					
9 Students should modify or adapt their learning strategies to meet the requirements of the course/classroom.					
10 Students should ask questions and offer peer feedback during instruction.					
Student learning as a basis of use of formative assessment					
11 I pre-assess skill level or knowledge before beginning a unit or chapter.					
12 A homework grade is important to understanding student learning.					
13 End of Chapter or Unit tests are the best methods for documenting learning.					
14 Whole group instruction works because I can teach to the middle and work up or down based on the daily student responses.					
15 My day is too busy to fully implement formative assessment in my classroom.					
Use of varied practices					

16 Using a varied approach to questioning is part of the formative assessment process.					
17 Grades define student learning.					
18 Lecture is the most effective way to teach in TVET institution.					
19 Documenting individual progress towards learning targets is a key factor in planning.					
20 There is time for student reflection during the instructional day.					
Teacher competencies about formative assessment					
21 It is important to give a study guide for tests.					
22 An assessment plan should be created before instruction begins.					
23 Assessment should only be used as an accountability piece for reporting grades.					
24 Differentiated instruction based on evidence of student learning is part of my daily planning.					
25 Formative assessment is used daily in my classroom.					

Adopted from: Brink, M. K., (2017). Teachers Perceived Understanding of Formative Assessment and how this Understanding Impacts their own Classroom Instruction.

END: Thank you for your participation

(c)Structured Interview for Heads of Departments and Directors of Studies

1). What examination policy is applied in assessing student performance in your department?

……………………………………………………………………………………………………

………………………………………………………………………………

2). What formative assessment practices are spelt out in the policy?

…………………………………………………………………………………………

…………………………………………………………………………………………

3) How are the formative assessment practices carried out?

…………………………………………………………………………………………

…………………………………………………………………………………………

4) What is your view on the contribution of formative assessments to students' performance in final examinations?

…………………………………………………………………………………………………

5) a) What do you understand by the following formative assessment practices?

Continuous assessment tests…………………………………………………………………..

Student self assessment…………………………………………………………………………

Peer assessment…………………………………………………………………………………

Student's own productions…………………………………………………………………….

Projects…………………………………………………………………………………………..

Portfolio…………………………………………………………………………………………

b) To what extent do the teachers in your department use the formative assessment practices mentioned in (a) above? (Never, Seldom, Sometimes, Often, Always).

6) What is the best formative assessment practice that you would recommend to teachers and why?

……………………………………………………………………

………………………………………………………………………………………………….

7) What suggestions would you make so that teachers can improve on the use of formative assessments?

…………………………………………………………………………………………………

End. Thank you for your time, effort and participation in the interview.

(a) Perception of students across department

Key

Dept 1 = Agricultural Extension and Community Development

Dept 2 = Biological, Physical and Applied Sciences

Dept 3 = Crop science

Dept 4 = Animal health and production

Descriptives

Congruence with planned learning		N	Mean	Std. Deviation	Std. Error
Assessment in tests what I memorize	Dept 1	97	3.8557	1.08002	0.10966
	Dept 2	5	4.0000	1.41421	0.63246
	Dept 3	109	3.9083	0.86647	0.08299
	Dept 4	110	3.8273	1.14025	0.10872
Assessment tests what I understand	Dept 1	97	4.0722	0.94920	0.09638
	Dept 2	5	3.6000	0.89443	0.40000
	Dept 3	109	4.0642	0.85283	0.08169
	Dept 4	110	4.1091	0.83880	0.07998
My assignments are about what I have done in class	Dept 1	97	4.2474	0.79098	0.08031
	Dept 2	5	4.8000	0.44721	0.20000
	Dept 3	109	4.2018	0.79092	0.07576
	Dept 4	110	4.1818	0.91051	0.08681
How i am assessed is similar to what i do in class	Dept 1	97	4.2680	0.74324	0.07546
	Dept 2	5	3.8000	0.44721	0.20000
	Dept 3	109	4.1376	0.90746	0.08692
	Dept 4	110	4.2000	0.85456	0.08148

I am assessed on what the teacher has taught me	Dept 1	97	4.3402	0.78907	0.08012
	Dept 2	5	3.6000	1.14018	0.50990
	Dept 3	109	4.3303	0.85044	0.08146
	Dept 4	110	4.1909	0.88302	0.08419
Authenticity					
I am asked to apply my learning to real life situations	Dept 1	97	4.3402	0.78907	0.08012
	Dept 2	5	4.6000	0.54772	0.24495
	Dept 3	109	4.2202	0.88567	0.08483
	Dept 4	110	4.3455	0.92306	0.08801
The assessment tasks are useful for everyday life.	Dept 1	97	4.3402	0.80217	0.08145
	Dept 2	5	4.6000	0.54772	0.24495
	Dept 3	109	4.2752	0.81504	0.07807
	Dept 4	110	4.2727	0.90776	0.08655
I find assessment tasks relevant to what i do outside school	Dept 1	97	4.2165	0.75314	0.07647
	Dept 2	5	4.4000	0.89443	0.40000
	Dept 3	109	4.1743	0.89073	0.08532
	Dept 4	110	4.2818	0.87924	0.08383
Assessment tests my ability to apply what i know to real life problems	Dept 1	97	4.2577	0.79423	0.08064
	Dept 2	5	4.8000	0.44721	0.20000
	Dept 3	109	4.1651	0.87680	0.08398
	Dept 4	110	4.0727	0.84277	0.08035
Assessment examines my ability to answer every day questions	Dept 1	97	4.2165	0.76685	0.07786
	Dept 2	5	4.8000	0.44721	0.20000
	Dept 3	109	4.0642	0.92572	0.08867
	Dept 4	110	4.2364	0.89778	0.08560
I can show others that my learning has helped me do things	Dept 1	97	4.3505	0.86652	0.08798
	Dept 2	5	4.8000	0.44721	0.20000
	Dept 3	109	4.3670	0.72853	0.06978
	Dept 4	110	4.3182	0.95717	0.09126

Student Consultation					
It is clear about the types of assessment being used	Dept 1	97	4.0412	0.93450	0.09488
	Dept 2	5	3.8000	1.09545	0.48990
	Dept 3	109	4.0275	0.90736	0.08691
	Dept 4	110	3.9182	0.79137	0.07545
I am aware how my assessment will be marked	Dept 1	97	3.7010	1.11023	0.11273
	Dept 2	5	3.8000	0.83666	0.37417
	Dept 3	109	3.8716	1.01927	0.09763
	Dept 4	110	3.6727	0.98716	0.09412
	Total	321	3.7508	1.03390	0.05771
My teacher explains to me how each type of assessment is to be used.	Dept 1	97	3.7629	0.92165	0.09358
	Dept 2	5	4.4000	0.89443	0.40000
	Dept 3	109	3.8991	1.07104	0.10259
	Dept 4	110	3.8182	0.99708	0.09507
I can have a say on how i will be assessed	Dept 1	97	3.0309	1.24544	0.12646
	Dept 2	5	3.4000	1.51658	0.67823
	Dept 3	109	3.0459	1.46177	0.14001
	Dept 4	110	3.1182	1.29027	0.12302
Transparency					
I understand what is needed in all assessment tasks	Dept 1	97	3.6495	1.10907	0.11261
	Dept 2	5	3.8000	1.30384	0.58310
	Dept 3	109	3.9358	0.95525	0.09150
	Dept 4	110	3.7545	1.01535	0.09681
I am told in advance when i am being assessed	Dept 1	97	3.9897	1.06551	0.10819
	Dept 2	5	3.8000	1.30384	0.58310
	Dept 3	109	4.1560	0.96393	0.09233
	Dept 4	110	3.8545	0.98462	0.09388

I am told in advance on what i am being assessed	Dept 1	97	3.2062	1.21568	0.12343
	Dept 2	5	3.4000	0.89443	0.40000
	Dept 3	109	3.6147	1.26131	0.12081
	Dept 4	110	3.1818	1.32846	0.12666
It is clear about what my teacher wants in my assessment tasks	Dept 1	97	3.8557	1.10858	0.11256
	Dept 2	5	4.0000	1.41421	0.63246
	Dept 3	109	3.7706	1.10246	0.10560
	Dept 4	110	3.6182	0.95765	0.09131
I know how a particular assessment task will be marked	Dept 1	97	3.6082	1.20378	0.12223
	Dept 2	5	3.6000	0.89443	0.40000
	Dept 3	109	3.0092	1.42397	0.13639
	Dept 4	110	3.0273	1.23005	0.11728
Student Capabilities					
I can complete the assessment tasks by the given time	Dept 1	97	3.7526	0.91322	0.09272
	Dept 2	5	3.6000	1.34164	0.60000
	Dept 3	109	4.1468	0.73062	0.06998
	Dept 4	110	3.9455	0.98462	0.09388
I am given a choice of assessment tasks.	Dept 1	97	3.5052	1.05202	0.10682
	Dept 2	5	3.8000	1.30384	0.58310
	Dept 3	109	3.8716	1.21793	0.11666
	Dept 4	110	3.1909	1.16914	0.11147
I am given assessment tasks that suit my ability	Dept 1	97	3.5979	1.05731	0.10735
	Dept 2	5	3.8000	1.30384	0.58310
	Dept 3	109	3.8807	1.00669	0.09642
	Dept 4	110	3.4273	1.08754	0.10369
When i am confused about an assessment task, i am given another way to answer it.	Dept 1	97	2.9485	1.28591	0.13056
	Dept 2	5	3.0000	1.58114	0.70711
	Dept 3	109	2.6697	1.54593	0.14807
	Dept 4	110	2.5455	1.14649	0.10931

(b)Students' perceptions ANOVA Analysis

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Congruence with planned learning						
Assessment in tests what I memorize	Between Groups	0.460	3	0.153	0.142	0.935
	Within Groups	342.780	317	1.081		
Assessment tests what i understand	Between Groups	1.269	3	0.423	0.548	0.650
	Within Groups	244.936	317	0.773		
My assignments are about what i have done in class	Between Groups	1.950	3	0.650	0.942	0.421
	Within Groups	218.785	317	0.690		
How i am assessed is similar to what i do in class	Between Groups	1.658	3	0.553	0.788	0.501
	Within Groups	222.367	317	0.701		
I am assessed on what the teacher has taught me	Between Groups	3.801	3	1.267	1.761	0.155
	Within Groups	228.074	317	0.719		
Authenticity						

I am asked to apply my learning to real life situations	Between Groups	1.519	3	0.506	0.673	0.569
	Within Groups	238.562	317	0.753		
The assessment tasks are useful for everyday life.	Between Groups	0.755	3	0.252	0.355	0.785
	Within Groups	224.534	317	0.708		
I find assessment tasks relevant to what i do outside school	Between Groups	0.793	3	0.264	0.368	0.776
	Within Groups	227.605	317	0.718		
Assessment tests my ability to apply what i know to real life problems	Between Groups	3.774	3	1.258	1.798	0.147
	Within Groups	221.802	317	0.700		
Assessment examines my ability to answer every day questions	Between Groups	3.862	3	1.287	1.717	0.163
	Within Groups	237.659	317	0.750		
I can show others that my learning has helped me do things	Between Groups	1.154	3	0.385	0.530	0.662
	Within Groups	230.067	317	0.726		
Student Consultation						

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It is clear about the types of assessment being used	Between Groups	1.156	3	0.385	0.497	0.685
	Within Groups	245.816	317	0.775		
I am aware how my assessment will be marked	Between Groups	2.512	3	0.837	0.782	0.505
	Within Groups	339.550	317	1.071		
My teacher explains to me how each type of assessment is to be used.	Between Groups	2.576	3	0.859	0.859	0.463
	Within Groups	317.000	317	1.000		
I can have a say on how i will be assessed	Between Groups	1.011	3	0.337	0.187	0.905
	Within Groups	570.341	317	1.799		
Transparency						
I understand what is needed in all assessment tasks	Between Groups	4.363	3	1.454	1.373	0.251
	Within Groups	335.806	317	1.059		
I am told in advance when i am being assessed	Between Groups	5.186	3	1.729	1.703	0.166
	Within Groups	321.811	317	1.015		
I am told in advance on what i am being assessed	Between Groups	12.731	3	4.244	2.642	0.049

	Within Groups	509.256	317	1.606		
It is clear about what my teacher wants in my assessment tasks	Between Groups	3.352	3	1.117	0.991	0.397
	Within Groups	357.209	317	1.127		
I know how a particular assessment task will be marked	Between Groups	24.207	3	8.069	4.861	0.003
	Within Groups	526.222	317	1.660		
Student Capabilities		550.430	320			
I can complete the assessment tasks by the given time	Between Groups	8.617	3	2.872	3.633	0.013
	Within Groups	250.586	317	0.790		
I am given a choice of assessment tasks.	Between Groups	25.785	3	8.595	6.453	0.000
	Within Groups	422.240	317	1.332		
I am given assessment tasks that suit my ability	Between Groups	11.594	3	3.865	3.475	0.016
	Within Groups	352.487	317	1.112		
When i am confused about an assessment task, i am given another way to answer it.	Between Groups	9.077	3	3.026	1.682	0.171
	Within Groups	570.125	317	1.799		

(c)The Perception of Teachers Across Departments

Key

Dept 1 = Agricultural Extension and Community Development

Dept 2 = Biological, Physical and Applied Sciences

Dept 3 = Crop science

Dept 4 = Animal health and production

Descriptives

		N	Mean	Std. Deviation	Std. Error
Accountability of teachers in the assessment process					
I try to understand why my students succeed or fail on an assessment or activity	Dept 1	17	4.2353	0.56230	0.13638
	Dept 2	9	4.4444	1.01379	0.33793
	Dept 3	22	4.5455	0.50965	0.10866
	Dept 4	16	4.6250	0.61914	0.15478
	Total	64	4.4688	0.64164	0.08021
If students do poorly on an assessment, it is my responsibility to re-teach	Dept 1	17	3.6471	1.22174	0.29632
	Dept 2	9	4.0000	1.00000	0.33333
	Dept 3	22	3.3182	1.52398	0.32491
	Dept 4	16	3.9375	1.06262	0.26566
	Total	64	3.6563	1.27514	0.15939
Assessment is a tool used only by the teacher	Dept 1	17	2.4706	1.12459	0.27275
	Dept 2	9	2.5556	1.33333	0.44444
	Dept 3	22	2.5909	1.46902	0.31320
	Dept 4	16	2.3125	1.19548	0.29887
	Total	64	2.4844	1.27232	0.15904
The teacher should offer on-going and appropriate feedback to the students	Dept 1	17	4.7647	0.43724	0.10605
	Dept 2	9	4.8889	0.33333	0.11111

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	Dept 3	22	4.6364	0.49237	0.10497
	Dept 4	16	4.8750	0.34157	0.08539
	Total	64	4.7656	0.42696	0.05337
The teacher should reflect on multiple student data before drawing academic or social conclusions about a student's progress	Dept 1	17	4.4706	0.51450	0.12478
	Dept 2	9	4.5556	1.01379	0.33793
	Dept 3	22	3.8636	1.24577	0.26560
	Dept 4	16	3.8750	1.36015	0.34004
	Total	64	4.1250	1.11981	0.13998
Accountability of students in the assessment process					
Students should be actively involved in setting learning criteria	Dept 1	17	3.4118	1.22774	0.29777
	Dept 2	9	3.7778	1.20185	0.40062
	Dept 3	22	3.6818	1.17053	0.24956
	Dept 4	16	3.3125	1.40089	0.35022
	Total	64	3.5313	1.23402	0.15425
Students need opportunities to re-evaluate their understanding of the content	Dept 1	17	4.1176	0.33211	0.08055
	Dept 2	9	4.5556	0.52705	0.17568
	Dept 3	22	4.3636	0.58109	0.12389
	Dept 4	16	4.5625	0.62915	0.15729
	Total	64	4.3750	0.54917	0.06865
Assessment is a tool used by the learner	Dept 1	17	3.2353	1.09141	0.26471
	Dept 2	9	2.4444	1.13039	0.37680
	Dept 3	22	2.9545	1.39650	0.29774
	Dept 4	16	2.3750	1.31022	0.32755
	Total	64	2.8125	1.28329	0.16041
Students should modify or adapt their learning strategies to meet the requirements of the course/classroom	Dept 1	17	4.1176	0.99262	0.24075
	Dept 2	9	4.2222	0.66667	0.22222
	Dept 3	22	4.0000	0.81650	0.17408
	Dept 4	16	4.5625	0.51235	0.12809
	Total	64	4.2031	0.80039	0.10005

Students should ask questions and offer peer feedback during instruction	Dept 1	17	4.5882	0.50730	0.12304
	Dept 2	9	4.5556	0.52705	0.17568
	Dept 3	22	4.4545	0.91168	0.19437
	Dept 4	16	4.9375	0.25000	0.06250
	Total	64	4.6250	0.65465	0.08183
Student learning as a basis of use of formative assessment					
I pre-assess skill level or knowledge before beginning a unit or chapter	Dept 1	17	4.2941	0.84887	0.20588
	Dept 2	9	4.4444	1.01379	0.33793
	Dept 3	22	3.7273	1.35161	0.28816
	Dept 4	16	4.1875	1.16726	0.29182
	Total	64	4.0938	1.15083	0.14385
A homework grade is important to understanding student learning.	Dept 1	17	4.0000	0.79057	0.19174
	Dept 2	9	4.2222	0.66667	0.22222
	Dept 3	22	3.7727	1.19251	0.25424
	Dept 4	16	3.5625	1.20934	0.30233
	Total	64	3.8438	1.04226	0.13028
End of Chapter or Unit tests are the best methods for documenting learning.	Dept 1	17	3.5882	1.32565	0.32152
	Dept 2	9	4.2222	1.30171	0.43390
	Dept 3	22	3.5000	1.37148	0.29240
	Dept 4	16	3.4375	1.31498	0.32874
	Total	64	3.6094	1.32877	0.16610
Whole group instruction works because I can teach to the middle and work up or down based on the daily student responses.	Dept 1	17	3.1176	0.92752	0.22496
	Dept 2	9	3.8889	1.36423	0.45474
	Dept 3	22	3.4091	1.00755	0.21481
	Dept 4	16	3.6250	1.20416	0.30104
	Total	64	3.4531	1.09732	0.13717
My day is too busy to fully implement formative assessment in my classroom.	Dept 1	17	2.5294	1.17886	0.28592
	Dept 2	9	2.1111	1.36423	0.45474
	Dept 3	22	2.4091	1.09801	0.23410

	Dept 4	16	2.6875	1.40089	0.35022
	Total	64	2.4688	1.22109	0.15264
Use of varied practices					
Using a varied approach to questioning is part of the formative assessment process	Dept 1	17	4.1176	0.60025	0.14558
	Dept 2	9	4.4444	0.52705	0.17568
	Dept 3	22	3.8636	0.83355	0.17771
	Dept 4	16	4.4375	0.72744	0.18186
	Total	64	4.1563	0.73934	0.09242
Grade define student learning.	Dept 1	17	2.5882	1.12132	0.27196
	Dept 2	9	3.1111	1.16667	0.38889
	Dept 3	22	3.0455	0.95005	0.20255
	Dept 4	16	2.6875	1.30224	0.32556
	Total	64	2.8438	1.11581	0.13948
Lecture is the most effective way to teach in TVET institution.	Dept 1	17	2.0000	1.06066	0.25725
	Dept 2	9	2.0000	1.41421	0.47140
	Dept 3	22	1.7727	0.86914	0.18530
	Dept 4	16	1.8750	1.20416	0.30104
	Total	64	1.8906	1.07078	0.13385
Documenting individual progress towards learning targets is a key factor in planning.	Dept 1	17	4.0000	1.00000	0.24254
	Dept 2	9	4.4444	0.52705	0.17568
	Dept 3	22	4.0909	0.52636	0.11222
	Dept 4	16	4.4375	1.03078	0.25769
	Total	64	4.2031	0.81998	0.10250
There is time for student reflection during the instructional day.	Dept 1	17	3.5294	1.00733	0.24431
	Dept 2	9	4.2222	0.44096	0.14699
	Dept 3	22	3.3182	1.08612	0.23156
	Dept 4	16	3.8125	1.27639	0.31910
	Total	64	3.6250	1.07644	0.13456
Teacher competencies about formative assessment					
It is important to give a study guide for tests.	Dept 1	17	3.6471	0.93148	0.22592
	Dept 2	9	3.6667	1.41421	0.47140
	Dept 3	22	3.8182	0.90692	0.19336
	Dept 4	16	3.0625	1.34009	0.33502

	Total	64	3.5625	1.12511	0.14064
An assessment plan should be created before instruction begins.	Dept 1	17	4.2941	0.77174	0.18718
	Dept 2	9	4.6667	0.50000	0.16667
	Dept 3	22	4.4091	0.59033	0.12586
	Dept 4	16	4.3750	0.80623	0.20156
	Total	64	4.4063	0.68357	0.08545
Assessment should only be used as an accountability piece for reporting grades	Dept 1	17	3.1176	1.31731	0.31949
	Dept 2	9	2.6667	1.32288	0.44096
	Dept 3	22	3.0455	1.25270	0.26708
	Dept 4	16	2.6250	1.40831	0.35208
	Total	64	2.9063	1.30589	0.16324
Differentiated instruction based on evidence of student learning is part of my daily planning.	Dept 1	17	3.7647	1.09141	0.26471
	Dept 2	9	3.6667	0.86603	0.28868
	Dept 3	22	3.4545	1.01076	0.21550
	Dept 4	16	4.1250	0.80623	0.20156
	Total	64	3.7344	0.97983	0.12248
Formative assessment is used daily in my classroom.	Dept 1	17	3.5294	1.12459	0.27275
	Dept 2	9	4.1111	1.05409	0.35136
	Dept 3	22	2.9091	1.15095	0.24538
	Dept 4	16	3.1250	1.40831	0.35208
	Total	64	3.2969	1.24314	0.15539

(d)Teachers' Perception On Formative Assessment Across The Departments Anova Analysis

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
I try to understand why my students succeed or fail on an assessment or activity	Between Groups	1.452	3	0.484	1.186	0.323
	Within Groups	24.486	60	0.408		
	Total	25.938	63			
If students do poorly on an assessment, it is my responsibility to re-teach	Between Groups	4.845	3	1.615	0.993	0.402
	Within Groups	97.593	60	1.627		
	Total	102.438	63			
Assessment is a tool used only by the teacher	Between Groups	0.771	3	0.257	0.152	0.928
	Within Groups	101.213	60	1.687		
	Total	101.984	63			
The teacher should offer on-going and appropriate feedback to the students	Between Groups	0.696	3	0.232	1.290	0.286
	Within Groups	10.789	60	0.180		
	Total	11.484	63			

The teacher should reflect on multiple student data before drawing academic or social conclusions about a student's progress	Between Groups	6.202	3	2.067	1.704	0.176
	Within Groups	72.798	60	1.213		
	Total	79.000	63			
Students should be actively involved in setting learning criteria	Between Groups	2.054	3	0.685	0.438	0.727
	Within Groups	93.883	60	1.565		
	Total	95.938	63			
Students need opportunities to re-evaluate their understanding of the content	Between Groups	1.985	3	0.662	2.333	0.083
	Within Groups	17.015	60	0.284		
	Total	19.000	63			
Assessment is a tool used by the learner	Between Groups	7.764	3	2.588	1.618	0.195
	Within Groups	95.986	60	1.600		
	Total	103.750	63			
Students should modify or adapt their learning strategies to meet the requirements of the course/classroom	Between Groups	3.102	3	1.034	1.665	0.184
	Within Groups	37.258	60	0.621		
	Total	40.359	63			

Students should ask questions and offer peer feedback during instruction	Between Groups	2.268	3	0.756	1.834	0.151
	Within Groups	24.732	60	0.412		
	Total	27.000	63			
I pre-assess skill level or knowledge before beginning a unit or chapter	Between Groups	4.885	3	1.628	1.244	0.302
	Within Groups	78.553	60	1.309		
	Total	83.438	63			
A homework grade is important to understanding student learning.	Between Groups	3.081	3	1.027	0.943	0.426
	Within Groups	65.357	60	1.089		
	Total	68.438	63			
End of Chapter or Unit tests are the best methods for documenting learning.	Between Groups	4.124	3	1.375	0.770	0.515
	Within Groups	107.111	60	1.785		
	Total	111.234	63			
Whole group instruction works because i can teach to the middle and work up or down based on the daily student responses.	Between Groups	4.138	3	1.379	1.154	0.335
	Within Groups	71.722	60	1.195		
	Total	75.859	63			

My day is too busy to fully implement formative assessment in my classroom.	Between Groups	2.058	3	0.686	0.448	0.720
	Within Groups	91.880	60	1.531		
	Total	93.938	63			
Using a varied approach to questioning is part of the formative assessment process	Between Groups	3.922	3	1.307	2.571	0.063
	Within Groups	30.515	60	0.509		
	Total	34.438	63			
Grade define student learning.	Between Groups	3.039	3	1.013	0.806	0.495
	Within Groups	75.399	60	1.257		
	Total	78.438	63			
Lecture is the most effective way to teach in TVET institution.	Between Groups	0.621	3	0.207	0.173	0.914
	Within Groups	71.614	60	1.194		
	Total	72.234	63			
Documenting individual progress towards learning targets is a key factor in planning.	Between Groups	2.381	3	0.794	1.191	0.321
	Within Groups	39.978	60	0.666		
	Total	42.359	63			
There is time for student reflection during the instructional day.	Between Groups	5.999	3	2.000	1.791	0.159

	Within Groups	67.001	60	1.117		
	Total	73.000	63			
It is important to give a study guide for tests.	Between Groups	5.657	3	1.886	1.527	0.217
	Within Groups	74.093	60	1.235		
	Total	79.750	63			
An assessment plan should be created before instruction begins.	Between Groups	0.840	3	0.280	0.587	0.626
	Within Groups	28.598	60	0.477		
	Total	29.438	63			
Assessment should only be used as an accountability piece for reporting grades	Between Groups	2.968	3	0.989	0.568	0.638
	Within Groups	104.469	60	1.741		
	Total	107.438	63			
Differentiated instruction based on evidence of student learning is part of my daily planning.	Between Groups	4.221	3	1.407	1.500	0.224
	Within Groups	56.263	60	0.938		
	Total	60.484	63			
Formative assessment is used daily in my classroom.	Between Groups	10.667	3	3.556	2.461	0.071
	Within Groups	86.692	60	1.445		
	Total	97.359	63			

Appendix E: Turn-IT-IN

STUDENTS' AND TEACHERS' PERCEPTIONS OF
FORMATIVE ASSESSMENT IN KENYA: THE CASE OF
BUKURA AGRICULTURAL COLLEGE

ORIGINALITY REPORT

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