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The Challenges of and Strategies for Competency Based Assessment by Uganda National Examinations Board

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Abstract

The adoption of competency-based lower secondary education in Uganda in 2020 has been hampered by a mode of assessment that has traditionally placed a greater emphasis on memory than on critical and creative problem-solving. This study, covering 17 districts in five of the six Uganda National Examinations Board regions, employed quantitative research approach and cross-sectional survey research design to examine the extent to which the implementation of the lower secondary school curriculum could inform competency-based assessment of learning by UNEB. The study involved 491 learners randomly selected from secondary schools in the selected districts. These respondents completed the survey on Competency-based Learning. The results of the study revealed generally high levels of belief in and understanding of competency-based assessment, student progression through demonstration of mastery, and flexible assessment. Personalization, skills and disposition development were at moderate levels. The findings imply that the implementation of the competency-based curriculum seemed to take the shape of the old cognitive-based curriculum such that it did not adequately prepare the learners for a terminal competency-based assessment of the curriculum. Based on the results, we recommend that the Ministry of Education and Sports and Uganda National Examinations Board should raise public sensitization on the need for the adoption of competency-based assessment in the lower secondary schools in the country.

Keywords: *Competency-based assessment, Competency-based curriculum, Competency-based education, Examination, Lower secondary education*

Background

The global prevalence of Covid-19 has provided a critical test of the relevance of education in producing graduates with competitive job-related skills (Olesen, 2019). The post-Covid-19 period threatens to pose more challenges of compensating for the time lost during the lockdown, the readiness of the learners, and the quality of learning. This calls for education institutions to embrace a paradigm shift from content-based to Competency-Based Education (CBE) model which has been instituted at primary and lower secondary school levels of Uganda's education system.

The competency-based model describes the combination of specific knowledge, skills and personal attributes that enables someone to perform a task. CBE is used interchangeably with Competency-Based Curriculum (CBC) in this study to refer to education programs geared towards producing graduates who not only have knowledge but also can apply it in complex jobs and life-related situations (Klein-Collins, 2013).

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Initially, CBE was majorly designed for adult learners, but has become an innovation attracting institutions to design and offer it across the board (C-BEN, 2015; Fleming, 2015; Public Agenda, 2015). Increased interest by the U.S. Federal Government to fund and support higher education opportunities for adults working in the 1970s led to the development of several CBE degree programs (Klein-Collins, 2013).

Later CBE philosophy was institutionalized in some national qualification frameworks that included the United Kingdom, Republic of Ireland, Netherlands, and Germany (Mulder & Eppink, 2011). As such, CBE is not new since it has been applied by international development agencies and consultancy firms for capacity building and strategic planning in Latin- America, Asia and Africa.

Ford (2014) observes that calls for increased productivity, effectiveness and demonstrable outcomes from the education sector prompted expanded global interest in the development of competency-based education initiatives. According to Ford, the sixth generation of CBE model is characterized by online learning, study analytics, adaptive technology, and direct assessment. There are three different levels of use of competencies which include those related to training, education, and development (Mulder & Eppink, 2011). Since our study focuses on elementary secondary school education and preparing graduates for the competitive world of employment, the study will concentrate on integrated occupations associated with competencies at the education level. At this level, knowledge, skills, values and attitudes are integrated during the learning process and authentic assessment is administered to determine mastery of job-related competencies (Wesselink, 2010). In 1996, the Conference of Education Ministers of Francophone Countries summit in Yaounde recommended that member countries adopt competency-based approach reforms (Bernard et al., 2007). Education reforms according to competency-based approach were carried out in the 23 West-African countries under the assistance of the organization.

Within the East-African Community member states (Uganda, Kenya, Tanzania, Rwanda, South Sudan, and Burundi), each country took a different approach in adopting CBC, mainly focusing on inclusion of the 21st century skills in the curricula and at different levels of education. For example, Kenya started implementing CBC in the pre-primary and lower primary in 2018 (Muasya & Waweru, 2019) while Uganda reformed her education from content-based to competency-based curriculum in lower secondary in 2020 (National Curriculum Development Center [NCDC], 2020). Attempts have also been made to integrate competency-based curriculum particularly in business, vocational and technical education. For example, the Business, Technical, and Vocational Education and Training (BTVET) Department supported by the German Agency for Technical Co-operation (GTZ) set up the Uganda Vocational Qualification Framework (UVQF) secretariat in 2004 to monitor the implementation of Competency-Based Education and Training (Kyobe & Rugumayo, 2005). This was to link vocational institutions with the industrial sector by integrating job-related competencies into their curricula. It is anticipated that a shift to service rather than business models of education innovations such as CBC will provide competencies that are frequently associated with workforce needs required by employers (Kasirye et al., 2021; Kim, 2015) and also help countries to attain global development targets. However, there is a dearth of scientific evidence of competency-based curriculum (CBC) or competency-based education (CBE) and programs in higher education (Mbarushimana & Kuboja, 2016).

The adoption of CBE, facilitated with technology, is hoped to among others, foster lifelong learning. The education institutions are mandated to suit lessons for both formal and non-formal career paths, promote accountability (Brightwell & Grant, 2013) and enable learners to gain competence (knowledge, skills, and values) as the institutions strategize to enroll students throughout the year without being limited by space or geographical location of learners. By adopting the CBE model, it is further hoped that education institutions in the country will be more able to design efficient content, reduce the cost of content delivery and make education programs more affordable to the learners and parents who have been hit by

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the effects of the pandemic (Staskevia, 2019). In effect, poor cognitive academic performance with its attendant consequences such as dropout should get minimised.

The CBE model is underpinned by the constructivism theory that focuses on the centrality of the learner in organizing and undertaking education activities or programs. Constructivists believe in learners constructing knowledge through active engagement in authentic activities (Bartram, 2005). Geen and Gredler (2002) reveal that when learners are given clear goals for their learning and left to explore knowledge on their own, they will be able to develop skills and competencies. This will make learning more meaningful because it facilitates learners to apply content in an authentic work-related environment.

Generally, the adoption of CBE has been slow in Sub-Saharan Africa (Kiguli et al., 2011) and is expected to continue being as such in Uganda owing to the business rather than service model of provision of content-based education that has characterized the country since independence. The required shift from content-based education to the desired CBE in primary and secondary education in Uganda is further challenged by the mode of assessment that has largely rewarded recall rather than critical and creative solutions to extant problems. In this study, we aimed to garner students' perceptions of the extent of adoption of competency-based assessment in the face of the existing highly popularized content-based assessment. The specific study objectives were:

1. To examine the extent to which the implementation of the competency-based curriculum has prepared learners for competency-based assessment in lower secondary school in Uganda.
2. To determine the differences in the levels of implementation of the competency-based curriculum by regional location of the schools, gender of the learners, and ownership of schools.

The following research questions were answered to achieve Objectives 1 and 2 respectively:

1. To what extent has the implementation of the competency-based curriculum prepared learners for competency-based assessment in lower secondary school in Uganda?
2. What are the differences in the levels of implementation of the competency-based curriculum by regional location of the schools, gender of the learners, and ownership of schools?

Review of Related Literature

Mbarushimana et al. (2016) note that education institutions of many developing countries produce graduates with limited skills demanded by society and the employment market. These authors agree with Mulder and Eppink (2011) who observe that education in Uganda and Ethiopia is generally offered with limited attention to the development of work-related competencies. Further, Staskevia (2019) reveals that the current education acquired through a business-oriented content-based curriculum is important but not sufficient enough to produce graduates with competitive skills ready to serve in the employment market. The above studies indicate the need to improve the quality of education by either adopting tested education reforms elsewhere or rebranding their curricula, teaching, and assessment.

Studies (*e.g.*, Desrochers & Staisloof, 2016; Kabanga et al., 2018; Kafyuililo et al., 2012; Makulova et al., 2015; Mulder & Eppink, 2011; Simonds et al., 2017; Staskevia, 2019; Wambua & Waweru, 2019) have revealed that adoption of CBE improves the quality of education since learners can acquire demonstrable competencies in real-life situations. However, Porter (2014) questioned the criteria applied in determining the prior knowledge to include in the competency-based program, what constitutes a term in a self-paced program, and how progress is determined. These studies were either limited to developed countries, small sample size, a few programs, or newly established programs. They also do not explicitly explain the efficacy of the assessment of the CBE. Therefore, we undertook a critical investigation of the learners' perception of the adoption of competence-based assessment with a view to enhancing its buy-in among the stakeholders.

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Methodology

The study adopted quantitative approaches employing cross-sectional survey design. The study was conducted in 17 districts within five UNEB regions of Uganda (see Table 1). The five regions include Karamoja, central, western, south-western and eastern Uganda. The sample size for the quantitative arm of the study was 491 Senior 2 learners, determined using Krejcie and Morgan's (1970) table of sample selection for social sciences. Senior 2 students were chosen because they were the pioneers of the competency-based lower secondary school curriculum. Data were collected over a four-week period with the help of field staff who were trained by the team of researchers. Senior 2 class lists were obtained from the schools; students' names were written on pieces of paper, folded, churned, and the required number picked at random with replacement. Those who were selected were then engaged in data collection.

Table 1. Selected Regions and Districts

Region	District
Central Region	Kampala, Wakiso
Eastern Region:	Tororo, Iganga, Kapchorwa
Karamoja Region	Moroto, Kotido, Nakapiripirit, Abim
Western Region	Ibanda, Kamwenge, Masindi
South-Western	Kabale, Rukungiri, Kanungu, Ntungamo, Isingiro

A self-report Likert scale questionnaire on Competency-Based Learning (Ryan & Cox, 2016) was administered to the participants to examine the extent to which the implementation of the lower secondary school curriculum prepared them for competency-based assessment. The questionnaire had six sections A—F measuring the demographic characteristics, student understanding of competency-based education, progression through demonstration of mastery, personalization, flexible assessment, and development of specific skills and dispositions respectively. Progression through demonstration of mastery requires a student to demonstrate that he or she has learned what was expected before moving on to the next level. Personalization refers to the provision of individualized support, flexible pacing, and opportunities for student choice in how to demonstrate mastery. Flexible assessment includes exposure to multiple modes of assessment, which allows students to demonstrate mastery in a variety of ways rather than through only one assessment (for example, a written test). Development of specific skills and dispositions such as perseverance and a capacity to self-direct one's learning may be especially important in a competency-based learning system where student agency and choice are emphasized (Lewis et al., 2014).

A number of measures were put in place to ensure good quality data through increasing the validity and reliability of the study results. Among these, we trained the data collection team (research associates) on how to handle the study procedures and study tools. The research team was actively involved in the whole process to ensure quality checks at every level. For management of the quantitative data, the questionnaires were sorted and those that were fully filled in were retained while the incomplete ones were discarded. The completed questionnaires were coded serially to avoid entering data from the same questionnaire more than once. The items were also coded and entered in SPSS. None of the items required reverse scoring.

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Descriptive statistics (frequencies, percentages, means, and standard deviations) were generated to determine the extent of implementation of the competency-based lower secondary school curriculum in Uganda as a precursor of readiness for competency-based assessment of the curriculum by UNEB. The mean levels of implementation were categorized as follows: 1—2.33 (low), 2.34—3.66 (moderate), and 3.67—5.00 (high). For the second objective, Kruskal-Wallis H Test plus the post hoc test were run to generate the differences in implementation of the competency-based curriculum by regional location while Mann-Whitney U test was run to establish the differences by gender of the participants and school ownership.

The participants under 18 assented to participate in the study through the consent of their heads of schools as representatives of their parents. Prior to the data collection session (*i.e.,* questionnaire administration), each participant was requested to give a signed informed consent to participate in the study. They were also informed that all information shared in the discussions would be kept confidential and all personal identifiers such as names would be removed during analysis and report writing. Data access would be restricted only to those involved in the study.

The research team asked for a full waiver of ethical review from the External Research Committee of UNEB. Permission to carry out the research was sought from the respective local governments. The objectives, benefits, and risks of the study were explained to the prospective study participants and informed consent sought before interviewing them as described above. Full consideration was given to consent, anonymity, confidentiality, and right to withdraw at any point in time of the data collection.

Results

Student Demographics

The quantitative data were gathered from 491 Senior 2 learners studying in the new lower secondary school curriculum in Uganda. The learners ranged in age from 13 to 20, with majority 15 and 16, typical of the delay in ascending to the next class due to school closures as a result of covid-19 pandemic. Participant distribution by school location decreased in the order semi-urban (52.5%), urban (28.5%), and rural (18.7%). Most of the participants (87.0%) were drawn from public schools, with majority (69.5%) studying in mixed rather than boys only (17.5%) or girls only (13.0%) schools. Participants came from schools on all the main foundation bodies. Their responses to the questionnaire items are presented in the following sections.

The Extent to Which the Implementation of the Competency-Based Curriculum Has Prepared Learners for Competency-Based Assessment in Lower Secondary School in Uganda

This study mainly aimed at examining the extent to which the competency-based curriculum was implemented and hence able to inform competency-based assessment by UNEB at lower secondary school level in Uganda. The results are presented according to the key aspects of competency-based education: student understanding of competency-based education, student progression through demonstration of mastery, personalisation of competency-based education, flexible assessment, and development of skills and dispositions.

Table 2: Student Understanding of Competency-based Learning and Assessment

Item	SD	D	U	A	SA	*M*	*SD*	Level
	n(%)	*n*(%)	*n*(%)	*n*(%)	*n*(%)			
The subjects I study at 'O' level prepare me for what I want to do after secondary school education.	27(5.5)	45(9.2)	12(2.4)	226(46.0)	181(36.9)	4.00	1.121	High

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The way we are studying gives students a lot of opportunity to show whether they have learned the important topics in subjects.	47(9.6)	74(15.1)	47(9.6)	210(42.8)	113(23.0)	3.55	1.260	Moderate
The syllabus we are following helps us to get more than one opportunity to pass a test or exam.	48(9.8)	82(16.7)	39(7.9)	179(36.5)	143(29.1)	3.58	1.323	Moderate
Homework is important to complete even if it is not graded.	42(8.6)	40(8.1)	29(5.9)	167(34.0)	213(43.4)	3.96	1.261	High
If two students in the same subject do different assignments, they still have the opportunity to earn the same grade in the subject as per the syllabus.	88(17.9)	142(28.9)	47(9.6)	134(27.3)	80(16.3)	2.95	1.390	Moderate
My current grades are a good reflection of what I have learned.	18(3.7)	20(4.1)	11(2.2)	204(41.5)	238(48.5)	4.27	.964	High
Most colleges and universities will understand and trust my grades from the examinations.	20(4.1)	16(3.3)	6(1.2)	136(27.7)	313(63.7)	4.44	.978	High
Overall						3.82	0.622	High

Results in Table 2 indicate that the learners expressed a generally moderately high level (M = 3.82, SD = 0.622) of understanding of the competency-based curriculum and its implementation. Majority (82.9 percent) agreed that the subjects they studied prepared them for what they wanted to do after secondary school education, meaning that the education surely inculcated competency in them. However, an appreciable proportion (34.3 percent) disagreed or were undecided as to whether the way they studied gave them a lot of opportunity to show whether they had learned the important topics in subjects. A number of them (34.4 percent) also disagreed or were undecided that the syllabus they were following helped them to get more than one opportunity to pass a test or examination. In this case, the mode of assessment during the teaching and learning may not have revealed assurance of opportunity of repeating failed tests during the terminal assessment. Whereas majority (77.4 percent) believed that homework was important to complete even if not graded, a certain section (22.6 percent) believed otherwise, which speaks to a tendency towards score oriented assessment. From these observations, it is gleaned that a number of students still have misgivings about the new curriculum and its implementation and assessment.

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Table 3: Progression through Demonstration of Mastery

Item	SD	D	U	A	SA	*M*	*SD*	Level
	n(%)	*n*(%)	*n*(%)	*n*(%)	*n*(%)			
I know what I need to do to show my teachers that I am making progress on each new topic or content I have been taught.	17(3.5)	13(2.6)	10(2.0)	221(45.0)	230(46.8)	4.29	0.907	High
I must show my teachers that I have mastered each topic/content before I can move on to the next one.	22(4.5)	27(5.5)	20(4.1)	201(40.9)	221(45.0)	4.16	1.044	High
I am able to move on to the next topic/content when I have understood, even if other students have not yet understood.	37(7.5)	44(9.0)	24(4.9)	214(43.6)	172(35.0)	3.90	1.195	High
Students in my class work on the same topic at the same time	26(5.3)	34(6.9)	29(5.9)	218(44.4)	184(37.5)	4.02	1.091	High
I understand how the topics in my class will help me in the future.	21(4.3)	47(9.6)	35(7.1)	203(41.3)	185(37.7)	3.99	1.104	High
My teachers share examples of excellent work on each topic/content.	129(26.3)	182(37.1)	34(6.9)	82(16.7)	64(13.0)	2.53	1.376	Moderate
My teachers let me know how my work will be marked for each topic/content.	25(5.1)	14(2.9)	12(2.4)	185(37.7)	255(51.9)	4.29	1.018	High
My teachers give me a marking guide so that I know how I am progressing on each topic.	47(9.6)	44(9.0)	35(7.1)	197(40.1)	168(34.2)	3.80	1.264	High
Overall						3.87	0.577	High

The students' progression through demonstration of mastery (Table 3) was generally moderately high (M = 3.87, SD = 0.577). Most of them (91.8 percent) knew what they needed to do to show teachers that they were making progress on each new topic or content they had been taught. Some few of them (14.1 percent) disagreed that they needed to show their teachers that they had mastered each topic/content before they could move on to the next one. Some of the students (21.4 percent) were unable to move on to the next topic/content when they had understood, even if other students had not yet understood. Majority of the students, 345(70.3 percent), were not in agreement with the assertion that their teachers shared examples of excellent work on each topic/content with them. Still others (10.4 percent) disagreed that their teachers let them know how their work would be marked for each topic/content, and 25.7 percent disagreed that their teachers gave them marking guides so that they would know how they were progressing on each topic. This implies that national assessment of progression through demonstration of

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mastery will still face gaps among the learners, with some having the tendency of progressing at the pace of others.

Table 4: Personalization

Item	None	Some	Most	All	Not sure	*M*	*SD*	*Level*
	n(%)	*n*(%)	*n*(%)	*n*(%)	*n*(%)			
I am able to complete some or all of the topic requirements online using internet.	28(5.7)	35(7.1)	20(4.1)	173(35.2)	235(47.9)	4.12	1.142	High
If I complete a project that wasn't assigned at school but is related to a topic I am learning, I can be awarded marks for the project in that topic.	43(8.8)	47(9.6)	25(5.1)	199(40.5)	177(36.0)	3.86	1.251	High
I can earn marks for studying subjects at another school.	190(38.7)	95(19.3)	23(4.7)	81(16.5)	102(20.8)	2.61	1.610	Moderate
I can earn marks for doing community service.	77(15.7)	100(20.4)	66(13.4)	143(29.1)	105(21.4)	3.20	1.393	Moderate
	Never	Seldom	Sometimes	Often	Always	*M*	*SD*	*Level*
Students in my class all work on the same assignment at the same time	119(24.2)	131(26.7)	94(19.1)	97(19.8)	50(10.2)	2.65	1.312	Moderate
My teachers spend most of class time teaching the whole class theoretically	103(21.0)	129(26.3)	84(17.1)	114(23.2)	61(12.4)	2.80	1.339	Moderate
My teachers work with students in small groups or individually	29(5.9)	52(10.6)	14(2.9)	175(35.6)	221(45.0)	4.03	1.198	High
My teachers notice if I need extra help without me asking for help.	73(14.9)	122(24.8)	34(6.9)	140(28.5)	122(24.8)	3.24	1.439	Moderate

My teachers teach the material in several different ways in order to help students learn.	44(9.0)	53(10.8)	29(5.9)	185(37.7)	180(36.7)	3.82	1.279	High
	Never	**1-2 times**	**3-4 times**	**5 or more times**	**Not sure**	***M***	***SD***	***Level***
My teachers or a counsellor/advisor discussed how I am doing on each topic with me	61(12.4)	122(24.8)	29(5.9)	164(33.4)	115(23.4)	3.31	1.388	Moderate
My teachers gave me written feedback on my work	13(2.6)	52(10.6)	23(4.7)	210(42.8)	193(39.3)	4.05	1.049	High
I have had opportunities to choose how to show my teachers what I have learned	65(13.2)	113(23.0)	34(6.9)	172(35.0)	107(21.8)	3.29	1.379	Moderate
Overall						3.42	0.620	Moderate

According to the results in Table 4, the extent of personalization of the curriculum was generally moderate (M = 3.42, SD = 0.620), with an appreciable proportion (53.6 percent) unable or not sure to complete some or all of the topic requirements online using internet, and 44.8 percent claiming that they could never or were unsure to be awarded marks if they completed projects that were not assigned at school but were related to a topic they were learning. Majority of the students (59.5 percent) disagreed that they could earn marks for studying subjects at another school, implying that the curriculum needs to provide for a national transfer of marks accessible in any school for every learner. A good proportion (37.1 percent) disagreed or were undecided with the possibility of earning marks for doing community service.
According to the 24.2 percent of the participants, students in their class never worked on the same assignment at the same time. Majority of the participants (64.4 percent) agreed that their teachers spent most of class time teaching the whole class theoretically, meaning that the intended extent of practical implementation of the new curriculum is not yet up to the expected level. In other words, teachers are still stuck to their traditional teacher-centered pedagogical approaches they were used to during the implementation of the cognitive-based curriculum. About half (50.9 percent) of the participants were either not sure or claimed that their teachers never worked with students in small groups or individually. Others (43.7 percent) doubted or confirmed that their teachers never noticed if they needed extra help without them asking for help. To further confirm the teacher centeredness of the pedagogical approaches, 25.7 percent of the participants claimed that their teachers never or rarely taught the content material in several different ways in order to help students learn.

Some students (35.8 percent) never experienced or were not sure of teachers or counsellors/advisors discussing how they were doing on each topic with them. Others (41.9 percent) indicated that their teachers never gave or were not sure of being given written feedback on their work. Only 35.0 percent had had opportunities five or more times to choose how to show their teachers what they had learned. In essence, the curriculum had not been properly personalized by the learners so as to foster competency

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building. Its implementation was rather much characterized by the traditional strategies of teaching and learning.

Table 5: Flexible Assessment

Item	Never	1-2 times	3-4 times	5 or more times	Not sure	*M*	*SD*	*Level*
I have created drawings or models to show what I have learned	68(13.8)	122(24.8)	33(6.7)	165(33.6)	103(21.0)	3.23	1.389	Moderate
I have taken tests or quizzes to show what I have learned	22(4.5)	34(6.9)	25(5.1)	215(43.8)	195(39.7)	4.07	1.061	High
I have given a performance to show what I have learned (for example, performing in a video or skit/ play, playing an instrument)	56(11.4)	70(14.3)	29(5.9)	168(34.2)	168(34.2)	3.66	1.372	Moderate
I have given a presentation to show what I have learned	29(5.9)	35(7.1)	30(6.1)	192(39.1)	205(41.8)	4.04	1.139	High
	Never	**Seldom**	**Sometimes**	**Often**	**Always**	*M*	*SD*	*Level*
I have completed a project at school to show what I have learned	31(6.3)	30(6.1)	25(5.1)	191(38.9)	214(43.6)	4.07	1.139	High
I have completed a project in the community to show what I have learned	23(4.7)	10(2.0)	11(2.2)	158(32.2)	289(58.9)	4.38	0.984	High
If I do poorly on an test or exam on the first try, I can try again later.	56(11.4)	60(12.2)	35(7.1)	183(37.3)	157(32.0)	3.66	1.340	Moderate

To show that I have mastered a topic in a subject, I must demonstrate my learning in more than one way, e.g., by doing written test, oral test, play, etc.	21(4.3)	28(5.7)	17(3.5)	208(42.2)	217(44.2)	4.16	1.032	High
Overall						3.91	0.618	High

The flexibility of the mode of assessment was generally moderately high (M = 3.91, SD = 0.618) as shown in Table 5. An appreciable number of the participants had never or were not sure of having created drawings or models to show what they had learned (34.8 percent), having taken tests or quizzes to show what they had learned (44.2 percent), having given a performance to show what they had learned (for example, performing in a video or skit/ play, playing an instrument; 45.6 percent), and having given a presentation to show what they had learned (45.0 percent). With regard to projects, majority of the students had often (38.9 percent) or always (43.6 percent) completed a project at school to show what they had learned. Similarly, 32.2 percent had often and 58.9 percent had always completed a project in the community to show what they had learned. On the other hand, 30.7 percent reported that they never or rarely had opportunity to try again later if they did poorly on a test or examination on the first try. This implies that the mode of assessment of the learning outcomes is still far from meeting the desired expectation; the current implementation and assessment of the curriculum is mimicking that of the old cognitive-based curriculum. Majority of the students revealed that they often (42.2 percent) or always (42.2 percent) demonstrated their learning in more than one way, (e.g., by doing written test, oral test, play, etc) to show that they had mastered a topic in a subject.

Table 6: Development of Skills and Dispositions

	Never	Seldom	Sometimes	Often	Always	*M*	*SD*	Level
Teachers encourage students to respect the feelings of others.	68(13.8)	130(26.5)	64(13.0)	150(30.5)	79(16.1)	3.09	1.328	Moderate
Teachers show or explain to students how to treat each other with respect.	18(3.7)	25(5.1)	18(3.7)	176(35.8)	254(51.7)	4.27	1.009	High
When I have trouble learning something new, my teachers give me advice and strategies that help me to keep trying.	139(30.5)	174(38.2)	110(24.2)	2(0.4)	27(5.9)	2.17	1.170	Low
Overall						3.13	0.734	Moderate

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The main aim of the new lower secondary school curriculum is to produce life-long learners who have the requisite skills and dispositions to thrive in the world characterized as vulnerable, uncertain, complex, and ambiguous (VUCA). This is the core of competence-building in the curriculum. Results in Table 6 indicate a generally moderately low level of personal gains in development of skills and dispositions (M = 3.13, SD = 0.734). Less than half (46.6 percent) of the students reported often or always having teachers to encourage students to respect the feelings of others. On a good note, majority (87.5 percent) often or sometimes had teachers show or explain to students how to treat each other with respect. To the contrary, majority (92.9 percent) either never or seldom or just sometimes had teachers give them advice and strategies to help them to keep trying when they had trouble learning something new. This implies that the essence of the competency-based curriculum is not being realised effectively.

Differences in Levels of Implementation of the Lower Secondary Curriculum by Regional Location, Gender, and School Ownership

The second objective of this study sought to determine whether there were statistically significant differences by regional location, gender, and school ownership in the levels of implementation of the competency-based lower secondary curriculum as a precursor of competency-based assessment. The results are presented below.

Regional Variation in CBA Readiness

One of the objectives of this study was to establish whether there was regional variation in implementation of competency-based curriculum. A Kruskal-Wallis H nonparametric test was run to achieve this. The results are presented in Table 8.

Table 7: Kruskal-Wallis H Test of Difference for Regional Variation in Implementation of Competency-based Curriculum

Aspect of CBE	Region	Ranks		X^2	p
		N	Mean Rank		
Understanding of CBE	Central	21	261.57	29.458	< .05
	Eastern	100	293.90		
	Karamoja	90	254.30		
	Western	179	203.70		
	South-western	101	262.91		
Student Progression through Demonstration of Mastery	Central	21	247.71	15.737	.003
	Eastern	100	294.52		
	Karamoja	90	240.93		
	Western	179	226.41		
	South-western	101	236.85		
Personalisation	Central	21	305.31	23.190	< .05
	Eastern	100	278.10		
	Karamoja	90	274.33		
	Western	179	211.82		
	South-western	101	237.22		

Flexible Assessment	Central	21	342.93	26.546	< .05
	Eastern	100	288.84		
	Karamoja	90	244.63		
	Western	179	218.55		
	South-western	101	233.29		
Development of Skills and Disposition	Central	21	277.00	5.923	.205
	Eastern	100	253.29		
	Karamoja	90	268.66		
	Western	179	231.10		
	South-western	101	238.56		

Results in Table 7 indicate that apart from development of skills and dispositions, all other aspects of competency-based education varied significantly by region. To establish the exact regions that varied significantly in each aspect, a post hoc test of least square differences was run, presented in Table 8.

Table 8: Post Hoc Tests for Regional Variation in Competency-based Education

Dependent Variable	(I) Region where district is located	(J) Region where district is located	Mean Difference (I-J)	Std. Error	*p*
Student understanding of competency-based education	Central	Eastern	-.15966	.14639	.276
		Karamoja	-.01633	.14779	.912
		Western	.19511	.14067	.166
		South-western	-.02660	.14626	.856
	Eastern	Central	.15966	.14639	.276
		Karamoja	.14333	.08861	.106
		Western	.35477*	.07614	.000
		South-western	.13306	.08603	.123
	Karamoja	Central	.01633	.14779	.912
		Eastern	-.14333	.08861	.106
		Western	.21144*	.07880	.008
		South-western	-.01028	.08840	.907
	Western	Central	-.19511	.14067	.166
		Eastern	-.35477*	.07614	.000
		Karamoja	-.21144*	.07880	.008
		South-western	-.22172*	.07589	.004
	South-western	Central	.02660	.14626	.856
		Eastern	-.13306	.08603	.123
		Karamoja	.01028	.08840	.907
		Western	.22172*	.07589	.004

Progression through Demonstration of Mastery	Central	Eastern	-.10054	.13790	.466
		Karamoja	.05933	.13922	.670
		Western	.09088	.13251	.493
		South-western	.07284	.13778	.597
	Eastern	Central	.10054	.13790	.466
		Karamoja	.15986	.08347	.056
		Western	.19142*	.07172	.008
		South-western	.17338*	.08104	.033
	Karamoja	Central	-.05933	.13922	.670
		Eastern	-.15986	.08347	.056
		Western	.03156	.07424	.671
		South-western	.01352	.08328	.871
	Western	Central	-.09088	.13251	.493
		Eastern	-.19142*	.07172	.008
		Karamoja	-.03156	.07424	.671
		South-western	-.01804	.07149	.801
	South-western	Central	-.07284	.13778	.597
		Eastern	-.17338*	.08104	.033
		Karamoja	-.01352	.08328	.871
		Western	.01804	.07149	.801
Personalisation	Central	Eastern	.14167	.14637	.334
		Karamoja	.12130	.14778	.412
		Western	.38361*	.14066	.007
		South-western	.29290*	.14625	.046
	Eastern	Central	-.14167	.14637	.334
		Karamoja	-.02037	.08860	.818
		Western	.24195*	.07613	.002
		South-western	.15124	.08602	.079
	Karamoja	Central	-.12130	.14778	.412
		Eastern	.02037	.08860	.818
		Western	.26232*	.07880	.001
		South-western	.17161	.08839	.053
	Western	Central	-.38361*	.14066	.007
		Eastern	-.24195*	.07613	.002
		Karamoja	-.26232*	.07880	.001
		South-western	-.09071	.07589	.233
	South-western	Central	-.29290*	.14625	.046

		Eastern	-.15124	.08602	.079
		Karamoja	-.17161	.08839	.053
		Western	.09071	.07589	.233
Flexible Assessment	Central	Eastern	.24792	.14614	.090
		Karamoja	.36806*	.14754	.013
		Western	.47463*	.14043	.001
		South-western	.44018*	.14601	.003
	Eastern	Central	-.24792	.14614	.090
		Karamoja	.12014	.08846	.175
		Western	.22671*	.07601	.003
		South-western	.19226*	.08589	.026
	Karamoja	Central	-.36806*	.14754	.013
		Eastern	-.12014	.08846	.175
		Western	.10657	.07867	.176
		South-western	.07213	.08825	.414
	Western	Central	-.47463*	.14043	.001
		Eastern	-.22671*	.07601	.003
		Karamoja	-.10657	.07867	.176
		South-western	-.03445	.07577	.650
	South-western	Central	-.44018*	.14601	.003
		Eastern	-.19226*	.08589	.026
		Karamoja	-.07213	.08825	.414
		Western	.03445	.07577	.650

Post hoc test results in Table 8 indicate that students' understanding varied significantly between the Eastern and Western regions, Karamoja and Western regions, and South-western and Western regions. Progression through demonstration of mastery varied significantly between the Eastern and Western regions, and Eastern and South-western regions. Personalisation of the curriculum differed significantly among students in the Central and Western regions, Central and South-western regions, Eastern and Western regions, and Karamoja and Western regions. Flexible assessment varied significantly between the Central and Karamoja regions, Central and Western regions, Central and South-western regions, Eastern and Western regions, and Eastern and South-western regions. In each of these cases, the former region exhibits a higher mean than the latter.

Differences in Competency-based Assessment Readiness by Gender of Learners

The study also sought to determine whether the implementation of competency-based lower secondary school curriculum in Uganda varied significantly among male and female students. Given that the number of male and female students was not equal, Mann-Whitney U test—the non-parametric equivalent of the t-test—was run. The results are presented in Table 9.

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Table 9: Mann-Whitney U Test of Difference in Competency-based Education by Gender of Students

Aspect of CBE	Sex of student	N	Mean Rank	Sum of Ranks	Mann-Whitney U	*p*
Student understanding of competency-based education	Male	265	262.32	69513.50	25621.500	.006
	Female	226	226.87	51272.50		
Progression through demonstration of mastery	Male	265	245.06	64941.00	29696.000	.873
	Female	226	247.10	55845.00		
Personalisation	Male	265	265.87	70456.00	24679.000	.001
	Female	226	222.70	50330.00		
Flexible assessment	Male	265	239.09	63358.00	28113.000	.241
	Female	226	254.11	57428.00		
Development of skills and dispositions	Male	265	249.65	66158.00	28977.000	.533
	Female	226	241.72	54628.00		

Results in Table 9 indicate that there was a significant difference (U = 25621.500, p = .006) in student understanding of competency-based education between male (Mean Rank = 69513.50) and female (Mean Rank = 51272.50) students. Similarly, male students (Mean Rank = 70456.00) exhibited a significantly higher personalisation (U = 24679.000, p = .001) than female students (Mean Rank = 50330.00). The other aspects of implementation of the curriculum did not vary significantly by gender of the students. Most probably, the implementation of the curriculum tended to resemble the previous mode of teaching sciences which traditionally favoured male students rather than female students such that the female students got biased against the "new" curriculum.

Differences in Competency-based Assessment Readiness by School Ownership

In this study, we also intended to determine whether the implementation of the competency-based lower secondary school curriculum varied between private and public schools. Given unequal numbers of participants from private and public schools, Mann-Whitney U test was run and the results are presented in Table 10.

Table 10: Mann-Whitney U Test of Difference in Competency-based Education by School Ownership

Aspect of CBE	School ownership	N	Mean Rank	Sum of Ranks	Mann-Whitney U	*p*
Student understanding of competency-based education	Public	427	243.53	103987.50	12609.500	.318
	Private	64	262.48	16798.50		
Progression through demonstration of mastery	Public	427	249.11	106368.00	12338.000	.209
	Private	64	225.28	14418.00		
Personalisation	Public	427	244.98	104608.00	13230.000	.682
	Private	64	252.78	16178.00		
Flexible assessment	Public	427	242.18	103411.00	12033.000	.123
	Private	64	271.48	17375.00		

Development of skills and dispositions	Public	427	246.60	105296.50	13409.500	.808
	Private	64	242.02	15489.50		

It is interesting to note that the results in Table 10 do not reveal any statistically significant difference between public and private schools in mean levels of the implementation of the various aspects of competency-based curriculum as a precursor of adoption of competency-based assessment. This implies that the private schools were probably as well resourced as the public schools to handle the new lower secondary school curriculum, or the sample of the few private schools was biased towards an equal match in capacity to the public schools in running the competency-based curriculum.

Discussion

This study had two main objectives: (a) to determine the extent to which the competency-based curriculum prepared students for competency-based assessments in lower secondary school in Uganda; and (b) to identify the differences in the levels of competency-based curriculum implementation by regional location of schools, gender of students, and ownership of schools. According to a growing corpus of research, essential components of competency-based learning include advancement through demonstration of mastery, personalization, flexible assessment, and the development of specific skills and dispositions (Patrick & Sturgis, 2011, 2013; Scheopner Torres et al., 2015; Steele et al., 2014). Prior to advancing to the next level, a student must demonstrate that they have mastered the anticipated material through demonstration of mastery. Personalization is exemplified by individualized support, flexible scheduling, and options for students to demonstrate proficiency in a variety of ways. Flexible assessment exposes students to numerous forms of evaluation, allowing them to demonstrate mastery in a variety of methods as opposed to only one. (for example, a written test). In a competency-based learning system that places a strong emphasis on student agency and choice, the development of certain skills and dispositions, such as perseverance and the capacity to self-direct one's learning, may be especially important (Lewis et al., 2014). According to Freeland (2014) and Haynes et al. (2016), interest in competency-based and other student-centered reforms at the secondary level continues to grow, but research lags behind.

The study results indicate generally high levels of belief in and understanding of the competency-based curriculum, student progression through demonstration of mastery, and flexible assessment. Personalization, and skills and disposition development were at moderate levels. According to Lassnigg (2015, p. 11),

> CBE should 'eradicate the notion of failure', address students instead of teachers as 'focal point', give students 'as much time as needed to learn' and 'always opportunity to certify', bringing formative assessment to the fore; teacher should 'manage learning' instead of 'dispensing information', and schools should be transformed in to 'learning centres.'

Competency-based education is therefore based on observable activities demonstrated as opposed to seat-time, assessment by criterion-referencing as opposed to standardized testing involving national comparison of candidates, balanced curriculum based on selection of a small number of key major objectives as opposed to segmented behavioral curriculum, explicit measurement of mastery of skills as opposed to slippery measurement involving comparison of students against each other, and flexible time structure as opposed to floppy time structure.

Results in Table 7 and 8 indicate significant differences in students' understanding of competency-based education, progression through demonstration of mastery, personalization, and flexible assessment by region. Results in Table 9 indicate a significant difference between male and female students in student understanding of competency-based education. Similarly, there was a significantly higher personalisation among male students than among female students. Results in Table 10 do not reveal any statistically significant difference between public and private schools in mean levels of the implementation of the

various aspects of competency-based curriculum as a precursor of adoption of competency-based assessment.

Lower secondary education in Uganda transitioned from a focus on content to competencies in 2020. Assessment strategies that prioritize memorization over analytical and inventive problem-solving hinder competency-based education. This study revealed extensive trust and familiarity with competency-based education, as well as advancement through demonstrated competence and flexible assessment. Personal development, as well as advancement in skills and personality traits, was average. We argue that students are not adequately prepared for a culminating competency-based assessment because the competency-based program frequently resembles the prior cognitive-based curriculum. On the basis of the findings, it is recommended that the Ministry of Education and Sports and UNEB inform junior high and senior high schools about the significance of CBA. As observed by Kiguli et al. (2011), the adoption of CBE has been slow in Sub-Saharan Africa and this trend is anticipated to continue in Uganda due to the business rather than service model of content-based education provision that has characterized the country since independence. Further complicating the necessary transition from content-based education to the desired CBE in secondary education in Uganda is the assessment method, which has primarily rewarded recall rather than critical and creative solutions to existing problems. It is therefore important to broaden the strategies for contextualizing and enhancing the adoption of competency-based assessment.

Conclusions and Recommendations

In Uganda, lower secondary education switched from a content-based to a competency-based system in 2020. Assessment methods that place more emphasis on memory than on analytical and creative problem solving are detrimental to competency-based education. According to this study, competency-based education is widely accepted and widely known. It also promotes development through demonstrated competence and flexible evaluation. The increase in competencies and character attributes was ordinary, as was personal growth. We contend that because the competency-based curriculum frequently resembles the previous cognitive-based curriculum, learners are not sufficiently prepared for a final competency-based assessment. The Ministry of Education and Sports and UNEB are advised to inform people about the value of CBA in junior high and high schools in light of the findings. We further recommend initiatives to garner stakeholders' perceptions of challenges and resistance that Uganda National Examinations Board (UNEB) is likely to face in adopting competence-based assessment in the face of the existing highly popularized content-based assessment. Strategies for ensuring buy-in among the stakeholders should also be populated. Generally, there is need to amplify the sensitization of the citizenry on the need to adopt the competency-based curriculum and hence assessment in education institutions in the country.

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