American Journal of Health Research
2018; 6(4): 103-111
http://www.sciencepublishinggroup.com/j/ajhr
doi: 10.11648/j.ajhr.20180604.18
ISSN: 2330-8788 (Print); ISSN: 2330-8796 (Online)

Redesigning the Learning Assessment Tools for Community-Based Training Program in the Undergraduate Medical Education at a University in Ethiopia

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To cite this article:

Shewatatek Gedamu, Bekalu Ferede, Solomon Belay, Tsedeke Asaminew, Tesfamichael Alaro Agago, Equlinet Misganaw, Tefera Tadesse. Redesigning the Learning Assessment Tools for Community-Based Training Program in the Undergraduate Medical Education at a University in Ethiopia. *American Journal of Health Research*. Vol. 6, No. 4, 2018, pp. 103-111. doi: 10.11648/j.ajhr.20180604.18

Received: October 9, 2018; **Accepted**: October 31, 2018; **Published**: November 29, 2018

Abstract: In Ethiopia, the undergraduate medical education is a six-year program, which has three major curricular components, including Pre-medical, preclinical and clinical years. Upon successful completion of every year pre-clinical and clinical courses, students are required to complete community-based training program (CBTP) courses that demand a field work in the nearby community settings. The main intent of these courses is to develop general competencies of the graduates so that they become more socially accountable at the same time ensuring opportunities for lifelong learning in the community through training and services. In a general sense, the learning assessment provides an opportunity for students to improve their skills, reduce anxiety over grading, and improve relationships between learners and teachers. The aim of this study was to evaluate the existing learning assessment tools applied in the CBTP courses and improve them so that they become aligned with the expected graduate competencies specified in the undergraduate medicine curriculum in the University studied. This study used a case study design for the in-depth analysis of the learning assessment tools of CBTP courses. Guided by this, first the study comprises an analysis of the existing assessment tools being practiced in a university studied. Then, three FGDs were held with instructors, department heads, and students who participated in CBTP course implementation of the undergraduate medicine program. This was followed by a consultative workshop with relevant experts in Community-based education (CBE), to identify essential items to be included in the redesigned assessment tools. As a result of this study, the study participants identified the learning domains that were aligned to the core competencies. The corresponding guidelines for each assessment methods were developed. The tools were piloted in the field and they were found very comprehensive and feasible for use in the university studied. The findings of this study were suggested that the redesigned assessment tools can address the basic problems of the existing assessment methods, which were found, fragmented and had higher degrees of subjectivity.

Keywords: Learning Assessment, Community-Based Training Program, Undergraduate Medicine, Ethiopia

1. Introduction

In the global higher education space, the medical education's ultimate aim is to supply society with knowledgeable, skilled and up-to-date physicians, who demonstrate the ability to continuously improve patient care based on constant self-evaluation and lifelong learning, among others [1]. This implies that, medical education strives

to develop the relevant competencies in the graduates clearly mapping out the health care environment [2]. To this end, the medical education program has certainly a number of principal educational assumptions, such as the applications of experiential learning and reflective practice, and favoring curricular approaches within the realm of competency-based education [3].

Over the years medical education has made, and continues to make, its own significant popular advances, including: problem-based learning [4], simulation, structured assessments of clinical competence, supervision [5], and the use of technology to enhance learning, among others [2]. Other innovations include interprofessional collaboration amongst medical schools to develop online courses; faculty working in small groups to leverage this online content; and credentialing self-initiated and self-paced professional activities over the continuum of learning [6].

Since the beginning of medical education in Ethiopia in the 1950s, up until the last decade, the number of medical graduates did not exceed a few thousands [7, 8]. In his writing, Idriss states, the total number of physicians graduated from the three medical schools in Ethiopia was 3728, at the same time the enrollment capacity of these medical schools in the year 2006 was less than 350 students per year [9]. Recently, this has been drastically changed, as the Ethiopian government has implemented an over ambitious initiative to rapidly increase the quantity of physicians in the country [10]. Consequently, medical student enrollment throughout the country has leaped from a few hundred to approximately few thousand students per year [11]. As the then, Ethiopian Health Minster, Dr. Tedros Adhanom says: "This year [in 2012], for the first time, we enrolled 3,100 medical students, which is almost tenfold compared to what we used to enroll five, six years ago" [12]. While this has brought a continual increase in the number of physicians graduated over the years, many scholars have witnessed that the graduates are not up to the expected standards in terms of skills and competencies [13]. Part of the problem was that over expanded enrollment has not been backed up with intensification of resources and capabilities of those who are working in the system [11]. To achieve a realistic and long-lasting solution to the prevailing problems, a wise combination of policy instruments to stem the root causes; combating attrition with innovative strategies, coupled with a carefully planned scaling up of training quality doctors needs to be implemented, among others [9].

As stipulated in the newly revised Jimma University (JU) undergraduate medicine curriculum [2013], the objective of the program is to produce competent, compassionate and community-oriented general practitioner for Ethiopia with internationally recognized standard of excellence [14]. Students admitted to undergraduate medicine program in the country typically complete their training within six years [15]. General Pre medical courses (Basic English, Introduction to psychology, Sociology and others) are attended for the first six months, prior to completing pre-clinical year 1 and 2. Pre-clinical education consists of traditional didactic lectures and laboratory sessions of biomedical courses. Three clinical years (Year 3, Year 4, & Year 5) follow the pre-clinical years; students were exposed to all clinical subjects, ward attachments and community service. The last clinical year (Year 6) includes participation in a rural community health training program with other health professionals where students are assigned to rural areas in Ethiopia to gain clinical exposure and inter professional skills [16, 17]. Upon successful completion of each year courses, students are required to complete community based training program course in nearby community settings.

Community-Based Education (CBE) is an instructional strategy, which is carried out in a community context, outside the teaching hospital [18]. The aim of this CBE is to produce graduates who are responsive to the health needs of their community [19]. The introduction of community-based education including CBTP in Jimma University's education system has been nearly 30 years [20]. The ultimate purpose of including CBTP in to JUs curricula is to produce competent professionals who are responsive to the felt needs of the community. It also aims at producing professionals who are socially accountable and ensures lifelong learning in the community through training, research and services in the community [21-23].

A variety of CBE models have emerged around the globe, however, it remains questionable whether CBE is truly integrated within the health professional education curricula [24, 25]. Most scholars agreed that a well written course syllabus serves as a learning contract. It tells students what to do, when and why they should work on the activities [26]. But a research done in 2015 in Jimma University, the undergraduate medical education curriculum, the CBE courses were not clearly described with all important pedagogical components and this was found as the very reason for the perceived inability of the course to become sensible to the students' needs [27].

In the community- oriented programmes students are usually posted in different community sites to carry out similar activities, and are required to achieve the same objectives [28]. Often CBE courses are developed without parallel arrangements for the assessment of students learning [29]. If the content is not clearly defined initially, it is logical to expect difficulties in what to assess. The assessment of students in community settings is problematic partly because of the difficulty in controlling the field conditions [19]. When students carry out the same activities and are marked differently using different instruments, they are likely to develop negative attitudes towards the subject. Furthermore, if the criteria for rating student performance are not explicit and objective, the subjective results could lead to accusations of gender, racial, or ethnic discrimination which can lead to loss of morale and loss of interest in CBE [30]. Since it is not a conventional form of education it requires assessment methods different from those used in class learning or in the teaching hospital [18].

By way of saying learner-centered assessment researchers

are referring to a complete shift from a focus on instruction to a focus on student learning [31, 32]. Research shows that assessment is known to stimulate students learning and influence what they do and how well they do it [33, 34]. Under this influence, student learning assessment is considered as an integral part of quality teaching and learning experience for the learners [35], their long life learning process and their participation in the community and the national economy [36-38]. With this connection, provision of feedback, dialogue and peer assessment are the critical ingredients that facilitates student learning [39]. Studies highlight the close relationship between the type of assessment and the kind of learning activities that students actually engage in [32, 40]. If the assessment tools are not clearly stated, it may impede students' readiness, motivation and independent learning [41, 42].

Based on experience, it is clear that faculty members in the university studied commonly use a monotonous or repetitive learning assessment tools for CBTP courses in undergraduate medical education. Despite the fact that the learning assessment tools of the CBTP courses have been used for the last decade or so in the university, the contents, their practicability and alignment has not been checked yet. For instance, in a recent study, the CBTP program of the institution has been evaluated for its effectiveness, but the assessment tools were included in a more general terms than critically examined for their feasibility and alignment [25]. So little is known, about the nature of these assessment tools and how these assessment tools can be improved. Therefore, the purpose of this study was to examine the existing learning assessment tools used in the CBTP courses and further improve these tools so that they become more pertinent to the competencies for the undergraduate medicine program in a university in Ethiopia. More specifically, this study answers the following basic research questions.

(1) What is the nature of the existing learning assessment tools used in the CBTP courses in the undergraduate medicine program at a University in Ethiopia?
(2) What are the participants' responses to the challenges surrounding the implementation of the existing learning assessment tools in the CBTP courses in the undergraduate medicine program in a University in Ethiopia?
(3) How can the existing learning assessment tools, of the CBTP courses can be improved? How do teachers and students respond to the redesigned assessment tools?

2. Methods

2.1. Research Design

In this study, the authors used a case study design taking the CBTP courses as a unit of analysis to the in-depth investigation of the learning assessment tools. Guided by this, the authors first collected and analysed existing documents relevant to the assessment of CBTP in order to provide background information. Over a period of nine months, the researchers redesigned, implemented and evaluated effective learning assessment tools to improve the quality of the assessment tools and teachers' capabilities of assessing students learning in undergraduate medical education program at a public university in Ethiopia.

2.2. Study Participants

In this study, three focus group discussions (FGDs) were held with sixty (n = 60) participants selected from Jimma University institute of health science instructors (n = 28), CBE coordinators (n =2), department heads (n = 8), senior managers (n = 2) and students (n = 20). This was followed by a consultative workshop with selected CBE instructors (n = 20), curriculum and assessment tool development experts (n = 5), to identify essential items to be included in the redesigned assessment tools.

2.3. Data Collection Instruments

Document analysis and focus group discussion were the data collection instruments used in this study. Jimma University institute of health science instructors and department heads who have been served for five year and above and who have an experience during CBTP course assessment for undergraduate medicine program were selected for FGD participation. Students who previously took two phases of CBTP courses were selected for FGD. The FGDs were facilitated by the researchers and invited expert on the area.

2.3.1. Document Analysis

The document analysis included curriculum of the program, the existing assessment tools, previous assessment questions and student grade records of the course. The principal focus was to find and interpret data that are relevant to give more comprehensive information for this study.

2.3.2. Students and Instructors FGDs

Focus group discussion guiding questions were prepared in advance. In students FGD, participants were described their experiences in CBTP assessment and their opinions about factors which decreased their attitudes and satisfaction on the course. In the first instructors FGD, participants were described their experiences in CBTP and expressed their views and opinions about having a common instrument for assessing undergraduate medicine students. In the second FGD, participants were asked what they thought shall be assessed in CBTP and how to assess it. The audio-taped information emerging from each FGD was transcribed, commented upon by each participant and analysed in to a useful coherently organized interview material.

2.4. Data Collection Procedures

Information relevant to CBTP assessment practice in a university was collected from existing documents in the institution. Then, three FGDs were held with instructors, department heads, and students. This was followed by a consultative workshop with relevant experts in CBE, to identify essential items to be included in the redesigned

assessment tools.

2.5. Ethical Issues

The protocol was approved by review board ethical committee of institute of health science, Jimma University, for evaluation and redesigning of assessment tool for undergraduate medicine students. All the participants of the FGDs and interviews were informed beforehand and their informed consent was secured before data collection. Study participants were approached for data collection with a brief explanation of the study purposes and after obtaining informed consents verbally through a face-to-face interaction with the data collectors. Similarly, documents were referred after obtaining permission from the respective officer at the different levels.

2.6. Preliminary Analysis

Training was arranged for tool developer by expertise and the trainees in turn developed redesigned assessment tool based on the curriculum competencies. The assessment tool development process was done through a synthesis of various viewpoints and triangulation of data sources from documents, focus group discussions and training. The draft tool was piloted for validation during the CBTP course.

3. Results

In this study, the collected qualitative data of FGD was transcribed and thematically analysed. Accordingly, data was organized in to three themes. These categories include: the existing, conventional, CBTP assessment tools and challenges surrounding implementation, the need for redesigning CBTP assessment tools, and description of redesigned CBTP assessment tools

3.1. The Conventional, CBTP Assessment Tools and Challenges Surrounding Implementation

In this study, the researchers analysed the views of selected FGD discussants like medical students, teacher, CBE coordinators, and senior managers. Accordingly, the existing CBTP courses assessment tools for undergraduate medicine students were reviewed for contents, weakness/ gap and strength, relevance and its alignment to the course competencies. One of medical students (S2) said "… *I used to be CBTP team leader twice after joining this University; However, I don't remind occasions that medical students including me considered CBTP as a course and its assessment methods*". Similarly, another medical student (S5) said that *CBTP assessment and the assessment result was predetermined in the minds of medical students including me as if we score excellent (Letter grade A) as far as we took part in data collocation in the community*. Another teacher FGD discussant (T5) pointed out that *the conventional CBTP assessment tool that we are using was totally subjective and there were no specified assessment methods.* In describing the issue one of the CBE coordinators (CBE 3) said

"... As a teacher supervising CBTP and CBE coordinator I do have experience. Regarding CBTP assessment tool, currently I learnt that the conventional assessment tool was obsolete, subjective and not aligned to the course competence. Furthermore, the major challenges we face during CBTP assessment were; there was no exam pool for CBTP assessment and the report document that we use for assessment was copy and paste because, there was no stringent mechanism to correct and due to this fact it became normal ".

Moreover, some of the teacher participants reflected that CBTP as a course increase students exposure to the community through which students can identify the problem of community by doing community diagnosis and develop action plan for possible intervention. Regarding the importance of CBTP, the senior manager said

"*Through CBTP students can enhance the 21st century skills like communication skill, problem solving skill, data handling and analysis skill and decision making skill. However, I do have reservation to say the conventional CBTP was delivered and assessment tools were aligned with the objectives. Therefore, I recommend revision of the curriculum to align objectives with the teaching and assessment methods*".

3.2. Redesigning CBTP Assessment Tools

Although many factors influence redesigning of CBTP assessment tools, this study revealed that most of the FGD discussant viewed redesigning of CBTP assessment tool as one of the mechanism to develop required core competence. In line with this view, one of the teachers (T8) pointed out the principle behind "assessment drives learning". Accordingly, the discussant said that *the redesigning of CBTP assessment tools by itself can be considered as intrinsically motivating factor that leads to acquisition of the required knowledge, attitude and skills among undergraduate medical students*.

In this study the FGD discussant identified different assessment methods from the CBTP assessment tools which includes; project report evaluation, individual written exam, oral exam, peer evaluation, supervisor evaluation and community leader evaluation. Even though discussant agreed on the importance of all assessment methods found in the tools, the methods lack detail specification on objective measurement of competence. One of the students (S4) said "… *From the beginning when we attach for CBTP, the objective of attachment, teaching-learning method and assessment method should be clarified*". Another CBE coordinator (CBE 2) said that *the identified gaps from the existing CBTP assessment tools includes; absence of assessment guideline with clear specification, and the assessments were not aligned to the objective of the course which in turn affects the importance of the course to address the expected core competencies of the curriculum.*

Most of FGD discussant also recommended the redesigning of the assessment tools with specified guideline for each method to increase the objectivity of the course

assessment. Almost all of FGD discussant and curriculum and assessment experts together reached on consensus regarding introduction of various types of CBTP assessment methods in line with the core competences to be achieved and weight out of 100%. Table 1 presents the distributions.

Table 1. *Recommended assessment methods for CBTP courses in undergraduate medicine.*

Assessment Methods	Weight given (%)
Project report evaluation	20%
Individual written exam	20%
Oral exam	20%
Supervisors evaluation	25%
Peer evaluation	5%
Community leader evaluation	10%
Total	100%

As shown in Table 1, there are about 6 components of the redesigned assessment tool. Each component of this tool accounts for the 5-25% of the total marking for the course. Of all the components, peer evaluation accounted the least percentage score, whereas supervisor evaluation accounted the highest percentage score.

3.3. Description of the Redesigned CBTP Assessment Tools and Evaluation Outcomes

The researchers drafted the guidelines for the redesigned CBTP assessment tools as a first step in the process of contextualizing the tools for use in the existing realties of the University studied. This drafted guidelines was prepared based on the literature in the field of students learning assessment in higher education [32, 34] and based on the recommended assessment methods in the new innovative medical education in Ethiopia [10]. Table 2 presents the guideline for the redesigned tool with detail specification of each method and the weight given for each item.

Table 2. *CBTP courses assessment tool guideline for undergraduate medicine students.*

Knowledge, Attitude, skills, performance in each area/ domains	Percentage given (%)
Project report Evaluation	**Total 20%**
Title pages	1
Abstract (Summary)	3
Introduction	2
Objectives	1
Material and methods	5
Result	3
Discussion	3
References and annex	2
Individual Written Exam Evaluation	**Total 20%**
Demonstrates ability to critically review public health knowledge.	2
Generates hypothesis and articulates a strategy to test that hypothesis.	3
Ability to prioritize the community problems and generate intervention strategy relevant to their public health knowledge	3
Recognition of ethical issues in community documentation, plagiarism, confidentiality and ownership of intellectual property	3
Professional values which include excellence, altruism, responsibility, compassion, empathy, accountability, honesty and integrity, and a commitment to scientific methods	3
Applies principles and skills in medical biostatistics and clinical epidemiology to analysis of data	3
Demonstrates ability to initiate, complete and understand all aspects of his/her own survey.	3
Oral Exam	**Total 20%**
Knowledge of their role and ability to take appropriate action in maintaining and promoting the health of individuals, families and the community	4
Knowledge of important lifestyle, demographic, environmental, social, economic, psychological, and cultural determinants of health and illness of the community as a whole	4
Feeling responsible for others, Knowing where to find information, Knowing whom to contact to get things done and Ability to lead a group.	4
Synthesize and present information appropriate to the needs of the audience, and discuss achievable and acceptable plans of action that address issues of priority to the individual and community.	4
Active participation in community affairs, Good communication with others and Often discussion on various issues with others	4
Supervisors Evaluation	**Total 25%**
Ability to identify community problems	1
Ability to plan and develop data collection tools	2
Awareness of their own limitations	1
Ability to keep up to date with knowledge and skills	2
Technical skills [appropriate to evaluate peers]	1
Ability to multitask and work effectively in a complex environment	1
Ability to manage time effectively / prioritise	2
Willingness and effectiveness to share ideas for colleagues	2
Ability to take leadership role when circumstances required	1
Keeps clear, accurate, legible records contemporaneously	2
Communication skill with community during data collection	2
Ability to recognise norms and value of the community	1
Data collection skills	2
Verbal communication with colleagues	2
Report writing skill	2

Knowledge, Attitude, skills, performance in each area/ domains	Percentage given (%)
Ability to recognise and value the contribution of others	1
Peer Evaluation	**Total 5%**
Punctuality (Accessibility / reliability)	0.5
Ability to recognise and value the contribution of others	0.5
Contribution during group member meetings	1
Communication skill	0.5
Honest and objective when appraising and assessing colleagues (Leadership skill)	0.5
Keeps clear, accurate, legible records (Data collection Skill)	0.5
Participation during final report writing & presentation	0.5
Respect for community privacy, right for confidentiality	0.5
Polite, considerate and honest to community	0.5
Community leaders Evaluation	**Total 10%**
As no conflict b/n students and community	2
Individuals contribution in communities	1
Attitudes toward community problem	2
Physical presence in community activities	1
Communication skills	2
Respect for community values	2

As shown in Table 2, each component has a number of clear indicators with score values between 0.5 to 4 point scores. Here in this part of the results section we will present the participants response to these components.

The participants noted the strength of project report reviewing in the former tool which helps the learners to develop writing skills, positive attitude for research and as documentation for the coming generation. The Weakness identified was lack of standard protocol for document evaluation and lack of percentage or point's distribution for each section/ component. Moreover, according to the participant responses, individual written exam had the strength to measure the knowledge, skill and attitude of the learners. However, the continuous repetitions of items in the tools were identified as weakness, which discloses all questions they will be asked ahead of exam seat. The participants were recommended the written exam questions in the redesigned guideline should contain the three learning domains, should consider objectives of each CBTP phases, and should prepared by assigned supervisors ahead of time .

Oral exam also noted as important assessment methods to improve communication skill, Self-confidence and manner of speaking of the learners. The weakness recognized was unequal number of questions, more subjectivity on area of questions represented for each student. This may hinder appropriate student evaluation and feedback providing. In the redesigned guideline the participants recommended at least three questions per student should be asked with fair representation from each domain and at the end feedback should be given as part of summary.

Even though the supervisor evaluation enabled the supervisor engagement and identifying the students' status beginning from orientation until symposium; lack of Supervisors dedication, and attendance based evaluation were the key identified the weakness in this method of evaluation. All the supervisors must involve in evaluation but each supervisor should evaluate the learners independent of other supervisors' evaluation and reach conciseness on average at the end.

In addition to the above assessment methods peer and community leader evaluation also acknowledged in the redesigned assessment tool. The Strength of this evaluation is to increase the close relationship among student themselves and with the Community and they know the actual performance of the students than supervisors. It also helps to increase the role of community on the students learning. But, the identified weakness of this evaluation was biased in marking and scoring of students results. To increase the fairness of peer and community leader evaluation, the FGD participants recommended clear evaluation criteria, adequate orientation by supervisors about marking, Cross checking the consistency with other evolution results. Community leader evaluation criteria should be developed in the local language they can read it.

4. Discussion

According to the FGDs result the existing CBTP courses assessment tool for undergraduate medicine students in the University studied had limitations on its relevance and alignment to the course competencies. The participants also proposed standards for the improvement and developed guidelines for the redesigned assessment tool which aligned with the course objective. They also acknowledged CBTP as one of the community-based education and it should be offered in line up with the objective for medicine students in this institution. A study also recommended the institutions, to be clear in the curricula about what and why they need to assess and who will do the assessment [16].

All participants acknowledged the importance of CBTP course for the learners in good quality of exposure, in knowledge of community problem, knowledge of working with peer and community, communication skill, write up and data analysis skill, attitudes of physical presence and individual contribution in community activities and others. In line with our study another study evaluated the potential effectiveness of community-based education in enhancing training of health professions and provides contextual learning. The learning process increases the learner's ability to develop collaborative skills, innovation skills,

communication skills, critical reflection, teamwork and interpersonal relationships [17, 18].

The hot debate raised from scholars came together from different areas in this review have been identified that the current CBTP assessment tools were sticking with one or more weakness or gaps. They also recommend consideration of various assessment methods that the students should be assessed in all the aspects/skills relevant to the course objectives. This is consistent with Kaye and colleagues study which identifies deficiencies in the design and implementation of community-based education at several health professional training institutions, with major flaws recognized in curriculum content, inappropriate assessment and underutilization of opportunities for contextual and collaborative learning [19].

The study participants identified the CBTP course as it increases community exposure, team work, communication skill, report writing and data analysis skill and professionalism. Also, they suggested that the objectives of CBTP should be developed to improve students' responsiveness to the health needs of the society. Besides, they noted the importance of undertaking and supporting common assessment tools. As they said, assessment leads to a relationship development between the students and the supervisor. This relationship should be built on trust through setting mutual objectives and harmonious instruction. In terms of assessment, they believe that the Knowledge, Attitude and skill learning domains should be assessed. For this, different assessment methods should be used. As Boud points out, great care must be exercised in the selection and implementation of assessments, otherwise they can have counterproductive results [20].

The participants suggested the area of improvement for the redesigned assessment tool, the need for different assessment methods and how to develop each method. The redesigned assessment tool advanced more on the need for closed supervision, Objective based assessment, assessment methods aligned to learning domains and the importance of guideline for each assessment methods. This is consistent with the study done at University of the Western Cape which stated as, since there was an overlap of activities and objectives in CBE, clearly a common tool would have a significant advantage of ensuring that students could be assessed by precisely the same standards [12].

5. Limitations

The learning assessment tools were redesigned for the CBTP courses, which represent only a couple of courses in the medical doctor program. Thus, the findings may not be representative of results obtained with other courses representing pre-medical and clinical courses. Also, the study did not include faculty members from a larger population, multiple universities, different medical doctor programs or health professions educational programs. The researcher determined the use of student evaluations to evaluate improved teaching capabilities might introduce personal bias. As a result, a panel of experts was utilized to evaluate the quality of the redesigned assessment tools before and after the CBTP courses.

Others limitations included the short length of the CBTP course and limited opportunity for the participants to incorporate new assessment tools, improve assessment techniques and re-evaluate performance. In addition, the generalizability of the findings of the study to universities or other settings outside of a single institution is unknown. Although the participants volunteered for the study and represented one college, the cohort may have represented more motivated individuals with a desire to improve assessment tools.

6. Conclusions

The redesigned CBTP assessment tool has been developed with the relevant contributions of a number of professionals from the same institution. The tool expected to address the basic problem of the old assessment tool which was split and held a high level of subjectivity. This study provides evidence for the redesigning of learning assessment tools and their implementations and positive outcomes in medical education program. One of the main challenges facing the medical education staff today is how to design learning assessment instruments that are appealing and useful to staffs and at the same time bring about transformative practices [5, 32]. With this connection, it needs more empirical work that examines how learning assessment tools can be redesigned and become implemented across the different components of the curriculum. In this study, the learning assessment tools of a series of two CBTP courses were redesigned for medical education program. The authors then analyzed and discussed the entire process of redesigning by contextualizing the tools to meet local needs and examining the assessment culture that surrounded the implementation of the redesigned learning assessment tools.

Interpretations of the main findings suggest that redesigning learning assessment instruments are ultimately a local phenomenon that comes up as a consequence of a number of elements, including students' needs, determining targets, local constraints, and teacher's pedagogical values. The findings presented in this survey provide a case that sheds light on the importance of collaborative involvement of those institutional managers, academic staff members, students, and experts in the process of redesigning learning assessment instruments. Finally, the medical education institutions' leaders and academic members need to acknowledge that redesigning of the learning assessment instruments is not an end by itself; rather, during implementation, it becomes absorbed as part of the learning assessment cultural system in which they are being made.

7. Recommendations

The authors have several recommendations for medical education institutions seeking to improve their own learning assessment tools related to the field-based courses among

their undergraduate medical education students. Foremost, the authors advocate that medical education institutions try to collect and record information associated with CBTP courses should regularly go over their reading assessment tools so that quality concerns can be addressed and aggregated without compromising the desired outcomes expressed in the medical training curriculum. Also, the authors recommend other similar medical education institutions to follow suit and put the new instrument in place to establish a better evidence base for the measurement of students learning in CBTP courses. The staff should take ownership for use and further improvement of the tools. Integration into the curriculum is recommended for successful implementation of the tool. For further refinement of the tool, it would be necessary to conduct validity and reliability test using a broader sample of participants.

The fact that diverse types of learning assessment tools are used, with the help of the newly redesigned tools, over time could mean that greater opportunities can be created to spot trends in learning assessment tools used. In fact, demonstrating the full value of learning assessment tools is only possible when staff possesses evidence that allows them to examine the impact of the learning assessment tools on students learning and development [43].

Second, it is important to identify the outcomes of the learning assessment tools. While our study redesigned the learning assessment tools for a particular component of the medical education program, other studies may wish to seek evidence for the potential benefits of redesigning the learning assessment tools for the other components of the medical education program. For example, researchers can consider other learning outcome measures such as students' sense of belonging, satisfaction, and student learning or development outcomes.

Finally, as the results in this paper suggest redesigning a learning assessment tool is associated with first-year students' retention and academic success. The authors recommended that practitioners working in areas such as new student orientation or academic advising encourage medical education students to explore and use their CBTP courses as a means to obtain practical experiences. Additionally, future researchers can consider redesigning other learning assessment tools within the medical education curriculum not considered here, particularly pre-clinical and clinical courses. Finally, we recommend that future researchers consider developing additional ways to gather information from medical education students regarding the benefits of the newly redesigned learning assessment tools on their learning outcomes; for example, quantitative research may reveal broader insights into the meaningfulness of the redesigned learning assessment tools and their impacts on students' learning and development.

Acknowledgments

The authors generated the primary data for this study from part of the corresponding author's research project work. The Institute of Health Sciences, Jimma University, Ethiopia fully funded this project. The authors would like to express our gratitude to Institute of Health Sciences for the financial support.

Authors' Contributions

All authors contributed almost equally to the work. Shewatatek Gedamu, Solomon Belay, and Bekalu Ferede conceived the study concept and participated in the whole process of the tool development. Tefera Tadesse, Tesfamichael Alaro, Tsedeke Asaminew and Equlinet Misganaw supervised FGDs data collection and carried out the analyses. Tefera Tadesse, Shewatatek Gedamu and Tesfamichael Alaro also shaped up the manuscript for publication. All authors reviewed and approved the final manuscript.

Competing Interests

No competing interest to declare.

References

[1] Swanwick, T., *Understanding medical education.* Understanding Medical Education: Evidence, Theory and Practice, 2013: p. 1-6.

[2] Ten Cate, T. J. O., L. Snell, and C. Carraccio, *Medical competence: the interplay between individual ability and the health care environment.* Medical teacher, 2010. 32(8): p. 669-675.

[3] Holmboe, E. S., et al., *Faculty development in assessment: the missing link in competency-based medical education.* Academic Medicine, 2011. 86(4): p. 460-467.

[4] Mann, K. V., *Theoretical perspectives in medical education: past experience and future possibilities.* Medical education, 2011. 45(1): p. 60-68.

[5] Dent, J., R. M. Harden, and D. Hunt, *A practical guide for medical teachers*. 2017: Elsevier Health Sciences.

[6] Mehta, N. B., et al., *Just imagine: new paradigms for medical education.* Academic Medicine, 2013. 88(10): p. 1418-1423.

[7] Webb, A. H., *Beginnings of Medical Education in Ethiopia.* Journal of the National Medical Association, 1957. 49(3): p. 160.

[8] Mariam, D. H., *Brief overview of the literature relevant to Human Resources for Health (HRH) in Ethiopia.* Ethiopian Journal of Health Development, 2013. 27(1): p. 1-5.

[9] Idriss, H. M., *The dire state of medical schools in Ethiopia & fear for the future, a consultant physician's perspective*, T. E. Observatory, Editor. 2014, The Reporter.

[10] Abraham, Y. and A. Azaje, *The new innovative medical education system in Ethiopia: background and development.* Ethiopian Journal of health development, 2013. 27(1): p. 36-40.

[11] Mengistu, B. S., et al., *Student and faculty perceptions on the rapid scale-up of medical students in Ethiopia.* BMC medical education, 2017. 17(1): p. 11.

[12] Marco, W., *Ethiopia's Crowded Medical Schools*, in *PRI's The World* K. Anders, Editor. 20, 12, 2012.

[13] Desalegn, A. A., A. Berhan, and Y. Berhan, *Absenteeism among medical and health science undergraduate students at Hawassa University, Ethiopia.* BMC medical education, 2014. 14(1): p. 81.

[14] Jimma University, *Jimma University School of medicine (Unpublished document): Revised Curriculum for the Degree of Doctor of Medicine*. 2008, Jimma University,: Jimma, Ethiopia.

[15] Deressa, W. and A. Azazh, *Attitudes of undergraduate medical students of Addis Ababa University towards medical practice and migration, Ethiopia.* BMC medical education, 2012. 12(1): p. 68.

[16] Mulatu, T., et al., *Assessment of the community-based training programme at Jimma University, Ethiopia.* Ethiopian Journal of Health Development, 2000. 14(special issue): p. 239-252.

[17] Talib, Z. M., et al., *Investing in community-based education to improve the quality, quantity, and retention of physicians in three African countries.* Education for health (Abingdon, England), 2013. 26(2): p. 109.

[18] Hamad, B., *Community‐oriented medical education: what is it?* Medical education, 1991. 25(1): p. 16-22.

[19] Fülöp, T., *New approaches to a permanent problem. The integrated development of health services and health manpower.* WHO chronicle, 1976. 30(11): p. 433.

[20] Jimma University, *Team Training Program Tracer study report*. 2013, Jimma University: Jimma, Ethiopia.

[21] Jimma University, *Community Based Education Guideline*. 2003, Task Force, Jimma University: Jimma, Ethiopia.

[22] Asefa, M., *Why Should Students Of The Different Discipline In Jimma University (JU) Be Involved In Community Based Education (CBE)?* Ethiopian Journal of Education and Sciences, 2010. 5(1).

[23] Asefa, M., *Brief Communication: Imaginative, Innovative, and Creative Curriculum (IICC).* Ethiopian Journal of Education and Sciences, 2008. 3(2): p. 107-119.

[24] Hays, R., *Community-oriented medical education.* Teaching and Teacher Education, 2007. 23(3): p. 286-293.

[25] Kristina, T., G. Majoor, and C. Van der Vleuten, *Does Community-Based Education come close to what it should be? A case study from the developing world: students' opinions.* EDUCATION FOR HEALTH-ABINGDON-CARFAX PUBLISHING LIMITED-, 2006. 19(2): p. 179.

[26] Squires, D. A., *Curriculum alignment: research-based strategies for increasing student achievement*. 2009, Thousand Oaks, Calif: Corwin Press.

[27] Ferede, T., et al., *An Investigation into the Practice of Community Based Education (CBE) Field Activities: Perceptions, Supervision and Challenges.* Ethiopian Journal of Education and Sciences, 2015. 10(1): p. 65-94.

[28] Mpofu, R. and A. Imalingat, *The development of an instrument for assessing Community-Based Education of undergraduate students of Community and Health Sciences at the University of the Western Cape.* Education for Health (Abingdon, England), 2006. 19(2): p. 166-178.

[29] Shipengrover, J. A. and P. A. James, *Measuring instructional quality in community‐orientated medical education: looking into the black box.* Medical Education, 1999. 33(11): p. 846-853.

[30] Salvia, J., J. Ysseldyke, and S. Witmer, *Assessment: In special and inclusive education*. 2012: Cengage Learning.

[31] Webber, K. L., *The Use of Learner-Centered Assessment in US Colleges and Universities.* Research in Higher Education, 2012. 53(2): p. 201-228.

[32] Falchikov, N., *Improving assessment through student involvement: Practical solutions for aiding learning in higher and further education*. 2013: Routledge.

[33] Wiliam, D., *What is assessment for learning?* Studies in Educational Evaluation, 2011. 37(1): p. 3-14.

[34] Brown, G. A., J. Bull, and M. Pendlebury, *Assessing student learning in higher education*. 2013: Routledge.

[35] Tadesse, T., C. E. Manathunga, and R. M. Gillies, *Making sense of quality teaching and learning in higher education in Ethiopia: Unfolding existing realities for future promises.* Journal of University Teaching & Learning Practice, 2018. 15(1): p. 4.

[36] Siham, E.-K., *Assessment: the road to quality learning.* World Journal of Science, Technology and Sustainable Development, 2012. 9(2): p. 99-107.

[37] McDowell, L., et al., *Does assessment for learning make a difference? The development of a questionnaire to explore the student response.* Assessment & Evaluation in Higher Education, 2011. 36(7): p. 749-765.

[38] Tadesse, T. and R. Gillies, *Nurturing Cooperative Learning Pedagogies in Higher Education Classrooms: Evidence of Instructional Reform and Potential Challenges.* Current Issues in Education, 2015. 18(2): p. 1-18.

[39] Hernández, R., *Does continuous assessment in higher education support student learning?* Higher Education, 2012. 64(4): p. 489-502.

[40] Newble, D. and D. Swanson, *Psychometric characteristics of the objective structured clinical examination.* Medical Education, 1988. 22(4): p. 325-334.

[41] Kibwana, S., et al., *Preparing the health workforce in Ethiopia: A Cross-sectional study of competence of anesthesia graduating students.* Education for Health, 2016. 29(1): p. 3-9.

[42] Tadesse, T. and W. Melese, *The Prevailing Practices and Challenges of Curriculum Reform in Ethiopian Higher Education: Views and Responses from Within.* Australian Journal of Teacher Education, 2016. 41(10): p. 87-106.

[43] Saifi, S., et al., *Assessing the quality of assessment techniques at higher education level.* International Journal of Business and Social Science, 2011. 2(12): p. 273.