

# **Practices of Need Assessment in Designing Modules in Higher Education Institutes: the Case of Colleges of Education in Amhara Region Universities**

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## **Abstract**

*This research investigated the practices of need assessment in designing modules in College of Education within Higher Education Institutes in Amhara region. The research looked into the training program conducted by Colleges of Education within the Universities. Relevant literature on the practice of module development and modular design were also reviewed. In the research different modular theoretical assumptions were examined and used in studying. Data were collected from three Universities namely Woldia University from the third generation, Wollo University from the second generation and Bahir Dar University from the first generation by employing questionnaires, unstructured and structured interviews and focus group discussion. Data analysis was made using chi-square, t-test and F-test for quantitative data and use of interpretational and reflective analysis for qualitative data. The findings showed that the practice of need assessment in designing modules was not done as intended. Here, critical gaps were not clearly identified and seen thoroughly. Moreover, principles of designing modules were not kept and used as needed. Eventually, it was concluded that the practices of need assessment in designing modules in the College of Education were found weak that requires consideration both from the government and institutions.*

**Keywords:** *Module, Higher Education Institutes, Amhara Region Universities*

## **1. Introduction**

For instruction and learning to become effective, the teacher must be concerned with the quality of instruction, which means that instruction, must make sense to the students; the appropriate strategy to use; the incentive to the students for them to learn; and sufficient time for learning to occur (Bedaure , 2012). Teachers must adapt instruction to the students' level of knowledge and development, motivate them to learn, and manage their behavior. According to Bedaure one important issue is matching tasks to students' abilities, or vice versa.

Whatever approach a teacher uses, a clear focus and explicit learning outcomes that students understand and are held accountable for learning; material or materials presented in a manner that elicits active inquiry and interest; guidance provided by the teacher as students interact with new materials or tasks; and feedback about the quality of students' learning are basics (Bedaure, 2012).

One instructional strategy, which has recently gained popularity, is modular instruction. Of all the various systems of individualized instruction, modular instruction is one of the recently used and combines many advantages of a number of separate instructional innovations, such as performance objectives, self-pacing, and frequent feedback (Hand et al., 2000).

For modular instruction, an individualized learning package or container which we call module is basic. That is a self-contained, independent unit of a planned series of learning activities designed to help the student accomplish certain well-defined objectives.

According to Hand et al. observation, modules have a variety of aims, which fall

broadly into four main categories. The first one is the development of the student as an independent learner and critical thinker. The second one is the enhancement of individual study skills such as writing essays and making the most of class sessions and lectures. The third one is the development of inter-personal attributes including working with others, presenting and communicating ideas and arguments, and active listening. The fourth is the provision of support for students during their transition into higher education and back out into the world of work.

As Russell (1974) has given an emphasis from the sound administrative point of view the importance of feasibility study as the beginning step in the modular instruction is mandatory. Russell recommended that professionals first investigate whether this mode of instruction is feasible under local conditions. According to this author, the next step is the design of new modules, if no modules are available. In Ethiopia, Higher Education Institutions have embarked on major reform since last decade. Of all important tools of the reform, Business Process Reengineering (BPR) and Teacher Education System Over all (TESO) were the most known. According to MOE (2012) in the reengineering of the teaching learning core process, modularization was proposed as a best way for the implementation of curricula and the production of competent graduates. Some of the reasons of this modularization were; the first one is that the existing curricula are discipline based and the courses are fragmented. They are not organized around competences. As a result, the curricula do not enable HEIs to produce competent graduates. Students who drop out from universities are simply wastage because they cannot be certified in any of the competences as a result of the fragmented courses; the second reason is that the existing curriculum does not say anything about student work load which is very important for students' success in their academic life. What is mentioned there is only the contact hour that the instructor uses only for the classroom. Hence, student workload is one of the central points in the modularization; the third is that there is a loose connection between the world of education and the world of work because of the inherent problem of the existing curriculum. Furthermore, the traditional curriculum focused on the teacher rather than the learner (MOE, 2012).

As Part of the curriculum, revision in higher education imposed by the National Qualifications Framework was the conversion of college subjects and courses to modules. The process was intended to improve portability and credit for achievement, in comparison with year-long subjects.

## **2. Statement of the problem**

As many evidences indicates, among many teachers in Ethiopia, the critical determinants of effective teaching, namely knowledge of the subject matter, pedagogical skills and motivation are actually lacking (Ambaye, 1999). Teachers' motivation is declining and teachers began to develop low self-esteem in their professional role, and felt that they were no more respected by others. As a result attrition of teacher is increasing and this in turn results in the possible deterioration of quality education (Menna and Tesfaye, 2000).

Despite the government's efforts such as establishing the Teacher Development Program (TDP) and commissioning the World Bank Project on Education Quality Improvement Project, the quality of teachers and education in general continues

to decline. Perhaps the most powerful indictment of the seriousness of declining quality in teacher development and consequently the student learning can be seen in preparation of teachers in all levels.

According to Daniel (2004) observation, in most higher education, lecture method was dominating in the teaching learning process. It persists as a common mode of instruction in colleges of further education and elsewhere. Such understanding does not consider the central person, a student, who is in reality the main actor of the teaching learning process. Due to the rapid expansion rate of HEIs, many challenges are left untouched as a result many poorly prepared graduates were produced. Among all, one of the most critical constraints in higher education for quality education is poor organization of teaching module. To make the teaching learning process more effective and efficient, it is apparently very important that teachers have to look the necessary competencies, abilities, knowledge, and skills while she/he develops a module (Rosenberg, Sindela & Hardman, 2004).

Thus, based on the stated critical professional development limitation in enhancing quality education in HEIs in Ethiopia, this study is planned to examine the status of modularization with a special focus on Practices of need assessment in designing modules.

### **3. Objective of the Study**

The general objective of the study is to examine the Practices of need assessment in designing modules in CTE within the HEIs in enhancing quality education. The specific objectives of the study include:

- To check whether or not the practice of module development has gone through an effective gap analysis
- To examine the criteria considered in identifying students entry behavior
- To identify the level of awareness made on teachers on module development
- To examine the scope of learning outcome and competencies being considered
- To check whether or not Problems and Professional Profile were brainstormed

### **4. Key Issues Influencing the Quality of Teaching and Learning in College of Education**

As different authors indicated educational quality has no universally accepted definition. Each country's policies defined quality explicitly or implicitly according to its own economic, political, social, and cultural visions (USAID, 2006). Virtually all countries, however, include two key elements as the basis of quality: students' cognitive learning (which is what achievement tests usually measure) and their social, creative, inter-personal, and emotional development. One of the major indicators of quality education is cognitive learning that is the main explicit objective of most education systems, although there is a wide disagreement on what to measure as cognitive learning and how to measure it. The social, creative, and emotional development is rarely assessed in a significant way (Leu, 2005 and UNESCO, 2004). In improving quality of education, many countries increasingly focus on understanding complex interactions that take place at the school, classroom, and community levels as the primary engines of quality and as a way of engaging local actors to address the frequently weak link between policy and practice (Farrell 2002). Of the factors that contribute to education quality at the local level, quality of teaching is

recognized as the key, the factor without which other quality inputs are unlikely to be successful (USAID, 2006). Focusing on teachers' and principals' roles on quality is particularly important because they are the professionals primarily responsible for interpreting and implementing the constructivist, active-learning, and student-centered pedagogical approaches to improving education quality that underlie the reform policies of many countries.

As USAID identified in a research made in Ethiopia, quality education fell into three clear categories - input, process, and output factors. From the input side it depends on resources such as textbooks, desks, teaching materials, libraries, and classrooms. Teachers and community are also considered a crucial resource. The need for qualified teachers who have appropriate subject knowledge and pedagogical skills and community involvement are an important determinant of quality education, including teachers' interactions with parents as well as the communities' financial and other contributions to schools. From the Process side quality factors relate to teachers' and students' activities and interactions in the classroom. The use of student-centered approach and employing various teaching strategies and materials to motivate students as well as continuously assessing student performance have a significant impact on the improvements of quality education. The other important factor is the output factor which focused on scoring high on exams and achieving promotion to the next grade. This includes students' behavior, attitudes, and inter-personal characteristics of active learning such as the nature and extent of students' participation and cooperation with each other and the growth of their self-confidence. How students behave in school - adhering to the rules and regulations as well as attending regularly and punctually. In this case, quality learning also involves students demonstrating and using what they have learned in practical settings in their everyday lives.

#### **4.1.1 Modularization**

Modularization is not a new concept. It has been introduced into many domains, frequently in an intuitive, natural way, on many occasions without conscious thinking about the benefits it brings.

In fact, the process of modularizing a course offers interesting opportunities to improve instruction. A course using a modular design divides up its content into learning activities that target specific concepts relevant to that domain. It is a process of breaking a large program into modules.

Modularization is regarded as one of the methods contributing to raising the efficiency and flexibility of education and training and also for ensuring mobility of people. Modular teaching is one of the most widespread and recognized teaching learning techniques in America, Britain, Australia and other western countries. In addition, modular teaching is used in almost all subjects like natural sciences and medicine and even in social sciences as well as in computer education. All kinds of subjects are being taught through modules (Farooq, 1997).

Generally Modularization Provides a Process of paying attention to important properties while ignoring nonessential details (selective ignorance) and makes complex tasks looks simple. It also allows professional developers to write new programs in weeks or months, instead of year (Dhamija, 1993). There are two ways of modular approach: one being the 'creation' model and the other the 'conversion' model. The

creation model denotes the design of a new course while the conversion model is either ‘an internal (course-led) or external (faculty- or institution-led) decision to recast and develop current courses in a modular form’ (Watson, 1989).

According to Watson the creation model which focused on clustering of courses has two variations. In the first variation existing courses are grouped into clusters with separately defined graduate profile. In this method some courses are removed while others are altered, and some new courses may be added. In the second variation the existing courses are grouped by merging the contents of the courses into a new unit. The conversion model is usually is employed while there is a need to open a new program. It begins from professional profiles and ends with modules. The steps begin from description of professional profile, description of graduate profile and translating this into knowledge, skills and attitudes and finally come to description of modules by grouping knowledge, skills and attitude into themes (Watson,1989).

#### **4.1.2 Development of Training Module**

In the early 1970s, an individualized learning package or container for modular teaching was called a module a self-contained, independent unit of a planned series of learning activities designed to help the student accomplish certain well-defined objectives (Petrina, 2007). Modules are freestanding, self-contained and comprehensive instructional packages, meaning that basically everything that the student needs is in the module. Whereas a unit is directed by the teacher and may involve the use of modules, a module provides for self-direction, or self-paced learning of a realm of content. In the late 1980s and through the 1990s, modules became immensely popular in England and Scotland in a context of “flexible learning,” educators’ response to flexible economics (Petrina, 2007).

Russell’s (1974) definition of modules is “an instructional package dealing with a single conceptual unit of subject matter.” A module, as a self-contained unit, offers variety and adaptability to the instructional process. It can be used by an individual or a small group of learners in a variety of situations. It incorporates multimedia learning experiences so the learners can see or hear about the concept they are studying. A module may be several minutes or several hours long. According to Russell, the concept of module is described as follows:-

*The rationale for the module concept of teaching has a sound basis in learning theory. Modules take in to account individual learning styles, are flexible to meet variable learner needs, and place maximum responsibility on the learner. Modules also provide for active participation by the learner and reinforcing the theorem that we learn by doing.*

Goldschmid and Goldschmid (1973) define a module as “a self-contained, independent unit of a planned series of learning activities designed to help the student accomplish certain well defined objectives”.

The development of materials that help both trainers and trainees could be taken as an important strategy in the area of education. At the time of module development focusing on content that can meet the needs of both in-service and pre-service professional development programs is very important (UNESCO, 2003). According to UNESCO the modules should be developed in such a way that they support a blended model of training, which includes face-to-face training and self-study.

The development of modules involves different stages like analysis, design, development, implementation and evaluation phases. As UNESCO identified, this development cycle focuses on: the stage of teacher education to be targeted, such as deciding between pre- and in-service training; identifying the needs of the trainers or learners; selecting content from different sources in the curriculum; the nature and role of the trainee-learner; choosing alternative pedagogies; language and medium; emphasizing cultural content; and establishing the desired level of integration.

In the literature it was believed that modules can be created where critical gaps exist. Here, the use of multimedia formats that ranges from print to video to computers should be taken in to account (UNESCO, 2003). Issues that are related to locality and involvement of stakeholder specifically teachers should be considered from the beginning to the end.

According to Hand et al (2000) observation, it seems that linking of modules to the world of work is crucial in helping students to realize the importance of personal development per se. At the same time, implementation is critical; whatever the design of modules, if they are not backed up by rigorous processes they can fail. More over as Hand et al argued the staffs who teach on the modules need to be enthusiastic about the philosophy, aims, objectives and learning outcomes of the module. Course team ownership appears to be important, including management support by allocating the 'right' staff and support of some staff training and development (Hand et al, 2000). Here best practice seems to develop from a dedicated team of staff, who are willing to pool their skills and ideas.

In the development of learning modules the following operational measures would clearly help both the credibility of such a module and/or the student experience (Hand et al, 2000). From the module organizers side: setting high standards and being demanding of students' performance, informing students of the culture of Higher Education including values and norms; building in some interaction of tutor and student on an individual basis; reassessment of the lecture program and its objectives; development of student understanding of the nature and requirements of work in groups and providing a course-wide view to encourage students to cross boundaries and see that module content overlaps.

From the faculty side: Delivery of the module must be assigned to core staffs that are committed to the developing learning concept. They must also 'own and understand' the norms and values of the specific degree program for which they deliver the module.

### **4.1.3 Model of module development**

Instructional material development and design can follow different models. Some of the identified modules which are underlined in an area of education are: The objective model, the process model and Instructional System Design Model.

#### **4.1.3 .1 Objective model**

The objectives model which focused on the premise on the idea that all learning should be defined in terms of what students should be able to do after studying the program, in terms of learning outcomes or learning objectives. According to McKimm(2007) this model follows four steps: Reach agreement on broad aims and specific objectives for the course ; Construct the course to achieve these objectives

;Define the curriculum in practice by testing capacity to achieve objectives and; Communicate the curriculum to teachers.

#### **4.1.3 .2 Process model**

The Process model assumes that content and learning activities have an intrinsic value and they are not just a means of achieving learning objectives and that translating behavioral objectives is trivializing (McKimm, 2007). Stenhouse (1975) argued that in this model there were four fundamental processes of education: Training (skills acquisition); Instruction (information acquisition); Initiation (socialization and familiarization with social norms and values) and Induction (thinking and problem solving).

#### **4.1.3 .3 Instructional System Design (ISD) Model**

Among many important systematic approaches in module development and training, Instructional System Design (ISD) model is most appropriate and preferable for any program. This model has a broad scope and typically divides the instruction design process into five phases: Analysis, Design, Development, Implementation or Delivery and Evaluation (Van Merriënboer, 1997)

ISD model use formative evaluations in each of the five phases and a summative evaluation at the end of the process. Moreover, it used to guide the entire process of creating the learning platform (Van Merriënboer, 1997). According to van Merriënboer assumption ISD model provides a means for sound decision making in order to determine the who, what, when, where, why, and how of a learning program.

ISD is sometimes referred to as *ADDIE* (Analysis, Design, Development, Implement, and Evaluate) or *SAT* (System Approach to Training). Although there are minor differences among the various ISD models, most systematic learning design models follow an approach similar to the *ADDIE* model.

The ISD model was designed to solve human performance problems related to learning or training (U.S. Department of Defense, 1975). It was first established by Florida State University in conjunction with the Department of Defense, but can now be found in almost any type of organization (Watson, 1981). It grew out of the “systems analysis” concepts that became popular after World War II and is probably the most extensively used instructional design model in use today.

#### **4.1.4 Basic Concept of Need Analysis**

A need - is a discrepancy or a difference (gap) between what there is and the current state regarding the group or situation in question and what there should be, or the desired state. A need reflects the existence of a certain issue that requires an intervention, an issue that must be dealt with (Altschuld & Witkin, 1999). Such discrepancies can be identified, analyzed and addressed at individual level, as well as at a larger, organizational level or, if we wish, at the level of certain components of the education system or even at the level of the education system as a whole.

Needs assessment follows a set of systematic procedures applied with the aim of setting up priorities and making decisions concerning improvement. Kaufman’s Organizational Elements Model (OEM) focuses on three basic levels of needs or discrepancies (Kaufman, Rojas and Mayer, 1993). The first is the external or Mega level—the needs of society and the larger environment. These needs must be assessed

first and concern outcomes delivered within the society in which we all live and in which we make our contributions (self-sufficiency, self-reliance, etc.). Following this, Macro level needs should be addressed—those needs relating to the nature of outputs generated by our institutions and organizations. At the Macro level, we could think of how well organizations are delivering results of benefit to the organization itself and to its partners. Such considerations are critical, for without them Mega level results could never be delivered. The Micro level deals with the results accomplished by individual performers and teams that organizations use to achieve the Macro level and, in turn, the Mega level. At each level, the discrepancy between “what is” and “what should be” must be determined.

Russell (1974) emphasizes, from a sound administrative view point, the importance of a feasibility study as the beginning step in the modular instruction process. He recommends that professionals first investigate whether this mode of instruction is feasible under local condition.

Regarding to specification of any prior learning experience, MOE (2012) has indicated that modular approach needs to clearly specify entry behavior expected of learners before taking the subsequent module/s.

As Ali et al (2010) have noticed, it is not sufficient to merely list pre-requisite skills and it may be necessary to include a test specifically designed to check whether students have the necessary background to understand the module. If they fail in this test they should be advised on how to catch up by means of reading, solving problems or completing specified practical tasks. This is one of the requirements of learner before registering for a specific module.

In competency based training, trainers know what training or learning is to be provided and also Institutions must know the skill levels required of their student. The emphasis in competency based training is on “performing” rather than just “knowing”.

Regarding this idea, Kumar and Ratnalikar (2005) suggested that of all different factors which influence the quality of education and its contribution to national development, the quality competence and character of teacher are undoubtedly the most significant.

The idea of modularization is a new concept for teachers who are novice. For this purpose the need of gap identification and arrangements of training in the area of teaching experience is fundamental.

#### **4.1.5 Learning Outcomes**

Learning outcomes is a description of what the student will know and be able to do after a defined period of study, i.e. by the end of a module. With a learning outcomes focus, one of the first steps in the process of module design is deciding at what level the teacher want his/her students to engage with subject content or skills effectively, what will they be able to do instead of what the content of module will be. Identifying intended learning outcomes at the start of the process is essential no matter the credit value or level of students; this step is undertaken before developing a module (The University of Sheffield, 2014).

According to Betts and Smith( 1998) the move towards using learning outcomes as the key descriptors of learning ‘content’ has, in general, been a development that



has happened in parallel with the development of credit-based and modular systems. However, the learning outcomes approach has not been adopted across institutions and even within institutions the understanding and implementation of the approach has been incomplete and patchy.

As experts for module development, teachers need to know the broader educational context in which they work, as well as their own specific teaching context. In the case of educational objectives, aims, or intended learning outcomes, teachers need to be aware of the sources of those aims and what influences have shaped them. As suggested by The University of Sheffield, such decisions should be based upon an awareness of the requirements outlined in policy documents and the particular institution or community setting in which the curriculum implementation will occur.

#### **4.1.6 Competence Based Training**

A competency is conceptualized in the model as the capability to choose and use (apply) an integrated combination of knowledge, skill and attitudes with the intention to realize a task. In a more elaborated way the definition of competence is defined as follow:

*Competence is the capability of a person or an organization to reach specific achievements. Personal competencies comprise: integrated performance oriented capabilities, which consist of the clusters of knowledge structure and also cognitive, interactive, affective and where necessary psychomotor capabilities, and attitudes and values, which are conditional for carrying out tasks, solving problems and more generally, effectively functioning in a certain profession, organization, position or role. (Mulder, 2001:9)*

Competencies are categorized in two groups. It can be domain specific that is related to clusters of knowledge, skills and attitudes within one specific content domain related to the profession. The other group of competencies is called generic because they are needed in all content domains and can be utilized in new professional situations. The name life skills are sometimes used for such type of competencies because of their transferability within and outside of the profession.

In the development of a competence based curriculum a sequence is followed involving the formulation of a professional profile with key occupational tasks, followed by graduate profile with selected core competencies that relate directly to the professional profile. In the curriculum profile the final attainment levels of the graduate are defined in competence standards for both domain specific and generic competencies.

In developing countries many higher education institutions experience a growing gap between their curricula and the demands from society, business and industry for a more flexible workforce with high skills (competencies) in problem solving, team work and project management. They have mostly kept to the traditional functions and objectives of Western Universities (Maamouri & Wagner, 2001).

### **5. Conceptual Framework**

The Conceptual Framework illustrates how components being considered during need assessment links with the design of quality modules. The six components are encapsulated within two wheels. The larger first wheel contains the 1) Students' entry behavior, 2) Professional profile, 3) Awareness and 4) Learning outcome.

These components surround the Need assessment, which is the hub of the wheel. The second wheel contains Quality module. The two wheels are linked together by the quality aspects. The larger wheel represents the basis on which gap analysis is built and the second wheel provides the basis for quality enhancement. The quality aspects provide the evidence as to how other quality components are interwoven with module design.

## **6. Research Design and Methods**

### **6.1 Research Method**

The methodological approach, which I used in this research, is a mixed method which focused on survey and case study which is a systematic approach used to describe life experiences and give them meaning. In this study I want to look at both breadth and depth, or at both causality and meaning.

The type of mixed method that I employed is concurrent. Such approach allows conducting a survey at one level to gather quantitative results about a sample and at the same time collect qualitative interviews to explore the phenomenon with specific individuals.

### **6.2 Design of the Study**

The method, which was preferred in this study, was both survey and case study. Thus, this design was preferred to investigate issues that are related to Practices of need assessment in designing modules within the HEIs.

Examining the link between the theoretical and practical aspect of need assessment requires a wide range of techniques. For this reason, a quantitative survey study and qualitative case study methods were taken as the appropriate approach in collecting and analyzing the required information.

Relationship among theory and practice in need assessment has been scanned through the use of survey method. On the other hand, a qualitative approach was taken as an important method in collecting the appropriate information. Here, an in-depth investigation and empirical inquiry of events have been employed to explore causation in order to identify the underlying impacts within its real-life context.

### **6.3 Selection of Respondents**

In Ethiopia, there are thirty three public universities. Out of these figures by the use of purposive and stratified sampling techniques three colleges of education from the three universities within the Amhara Region has been selected. The main criterion for the strata was year of establishment.

Therefore, among the seven public universities within the region (Gonder, Bahir Dar, Debre markos, wollo, Debrebirhan, Woldia and Debre Tabor university), Woldia university from the new universities (third generation), and Wollo university from the young universities (second generation) and Bahir Dar university from old university (first generation) were selected and included the study.

After selecting Universities and issues that are related with need assessment, data were gathered from the College of education instructors. Since the number of departments within each college is small, all departments were considered in the study. As a result five instructors were selected from each department using simple random simple techniques. Therefore, the total of instructors that participated in survey

study was 15.

For qualitative data, selection has been made purposefully. Here, in order to get the right information, I contacted and discussed with different instructors who have a good knowledge about the issue. Thus, selection of respondents in this study has been a process of actively seeking those information- rich persons.

Hence, for the purpose of interview, purposive sampling technique was used for three instructors from each college who involved in modular training. Moreover, instructors were selected on their long time experience of consultancy and teaching in the Ethiopian higher education. Finally for the purpose of focus group discussion, three instructors from each department were selected using purposive sampling technique.

#### **6.4 Data collection Instruments**

Information that is relevant to the given program has been collected by the use of questionnaires, interviews and focus group discussion

##### **6.4.1 Questionnaire**

For the formulation and disposition of the different questions in the first draft, I have followed a series of recommendations carried out by many scholars with respect to: order of difficulty, inserting easy questions at the beginning; formulating concrete questions, avoiding ambiguity; using simple and clear language and suitable vocabulary and; asking different types of questions.

The questionnaire has been divided in according to the following sections:

- **Back ground information** : Age, Sex, academic status, teaching experience and place of work
- **Practices of need assessment in designing modules**

##### **6.4.2 Interviews**

In qualitative study, interviewing is a major sources of data needed for understanding the phenomenon under the study. Cohen et al (2002) stated that the live form of data collection involves recording data as the interviews takes place or shortly after words.

In this study semi structured interview has been conducted with three teachers from each HEI in the conventional style of everyday interaction. Interview guide has been constructed to tap the perceptions of all respondents. All the interviews have been conducted in Amharic to make communication easier. All the transcribed materials were carefully translated from Amharic in to English.

##### **6.4.3 Focus group discussion**

A focus group is a qualitative data collection method in which one or two researchers and several participants meet as a group to discuss a given research topic. According to wellington (1996) focus group discussion is a complementary technique to collect data in qualitative studies. Based on this assumption, focus group discussions have been conducted in the HEIs which comprise of six instructors. In this focus group discussion, a note has been taken from the discussion. The purpose was to get in-depth perceptions of respondents as a group. After data collection, all hand written notes have been expanded in to narratives that are more complete.

## 6.5 Method of data analysis and interpretation

In this study, in order to reach on the reliable information on Practices of need assessment in designing modules for college of education in enhancing quality education, both quantitative and qualitative analysis of the data have been employed. For the data collected by the use of questionnaire, information has been grouped in to different categories based on the respondent sex, qualification, experiences and number of years stayed in the institution. To assess the relationship between the respondent opinions on Practices of need assessment, chi-square test was employed. Furthermore t-test and F test have been employed to examine the mean difference and level of significance among the respondents. This has been supported by the statistical package for social sciences (SPSS) computer program.

In analyzing qualitative data, there are different approaches, which are more relevant to the qualitative research. Following each in-depth interview, I expanded my notes into rich descriptions of what I have observed. Therefore, in this study, the interpretational and reflective analysis were selected as the most important approach in order to create the necessary categories and to reflect my personal views on the bases of the information I collected.

### 6.5.1 Descriptive and Inferential Statistical Analysis

Learner characteristics and learner needs are important elements to consider in the design process because the learner's characteristics and needs will influence the design, structure, and operation of the learning systems as any action in one part of the system can influence the other parts of the system (Zheng and Smaldino, 2003). However, results of this study indicate that attention that is given to such important phase of module development practice is found too low. In all of our sampled universities, gaps are not exhaustively examined either for the purpose of checking student entry behavior or teachers readiness. All teachers and students are expected to go through in the modular practice at random which does not go with the suggestion of Kumar and Ratnalikar (2005) that of all different factors which influence the quality of education and its contribution to national development, the quality competence and character of teacher are undoubtedly the most significant.

In this study as far as need assessment is concerned, staff members were asked whether critical gaps were identified or not before module developments. Here, as it has been indicated in Table1 great majority (77.8%) of respondents have said that there was no such assessment either for the purpose of filling the gap or establish priorities for future actions. Similar responses were also obtained from an interview and focused group discussion.

Although all interviewees were well aware of the importance of needs assessment before any form of modular practice, in practice nothing has been done on the identification of gaps either in mega, macro or micro levels. Some of the interviewees' opinions on this issue are as follows:

*I know that the use of gap analysis in identifying the major issues and priorities both at national and institutional level especially for module development; however in our case noting has been done on the identification of priorities except limited number of consultative workshop (a teacher interviewee). Identifying gaps and*

*setting priorities is more important in considering issues that are seen in any field of studies while we are developing a new module. Contents that have not been addressed could be easily inculcated if we rely on research results. But here in our module development practice, need assessment was not done as expected either here in the university or at ministry level (a teacher interviewee).*

Regarding to entry behavior check up, as in Table 1 has been clearly indicated, though 17% of the respondent have shown that as there were some sort of check up mechanisms, almost 83 % of them have assured that as there is no any form of pre-tests for such checking entry behavior.

Within the interview it was also clearly seen that student were not seating for any form of entry test before they registered for one module. In all of the above stated universities criteria on entry behavior were not organizes so as to check learners readiness.

On such issue, the participants who involved in the interview stated that:

*In the very beginning I was not as such aware of the need of checking learner readiness for taking my module. What I did was simply introducing the rational and objective of the module with its contents and tells them how evaluation could be done both in the middle and at the end of the lesson (a teacher interviewee).*

*Though, the need of checking learner's entry behavior is clearly seen in the harmonized modular guide, in practice, nothing has been done in all our universities. No one teacher has gone through this experience. Therefore, in modular practice, students were registered without fulfilling the stated requirements (a teacher interviewee).*

As to needs assessment made on teachers, as it has been seen in Table 1 almost 72% of teachers' respondent have agreed that there was not any form of need assessment made on teachers either by the institute or ministry of education. But few of them (27.8%) have replied that there was. Similarly teachers' knowledge and skills required to deliver the module was not looked as needed. Of the three sampled universities, though 16.7 % respondents were in a position of agreement, 83.3% of them have shown their disagreement on the implementation of teachers' knowledge and skills assessment before module development practice.

In order to make learning more practical and manageable, creating awareness on modular instruction is mandatory. If someone wants to implement a new program which has not been yet exercised, the existence of challenges is unquestionable. For this reason creating awareness on stakeholders is fundamental. However, in this study as great majority (83.3%) of the respondents have replied more attention was not given and as a result the practice of modularization was began in higher education with a less emphasis for the key stockholders.

At the time of interview, teachers were not only asked whether need assessment is made or not before the practice of modularization, but also about what other type of training they received. Almost all interviewees have assured that both of them were not done as expected either in the form of training or workshop.

Teachers expressed their wish to receive more training and professional readiness on how they develop and implement the idea of modularization. Participants both in

an in depth interview and focused group discussion have said the following:

*Before any form training, identification of needs and filling of trainer's gap were the most important steps that should be considered in any field of studies. But here in our case this was not taken as an important corner stone for our modular practice. As a result we teachers are practicing modularization intuitively (from the focused group discussion)*

*Awareness on any form of changes is an important instrument to break resistance among the implementers within our dynamic world. It is always true that when one thinks of a noble idea, others could stand on the opposite side. To minimize such type of confrontation within the sphere of education, the use of awareness creation forum is vital. However, in most cases our policy makers were not seen while they are practicing implementation of modularization in higher education. Stakeholders like teachers who are the main actors, students who are the main recipients, student family and other concerned bodies were not seen while they are giving their voice on such matters (a teacher interviewee)*

Response obtained from all teachers within the sampled HEIs is almost similar. There is no significant mean difference among the three Universities in all replies ( $p > 0.05$ ).

**Table 1. Critical gaps analysis, entry behavior check up and Training Needs for Teachers and Stakeholders\_\_\_**

Questions	Response in%						mean				p-value
	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure	WOLLO	WOLDIA	BAHIR DAR	Total		
Before the development of modules critical gaps were identified	5.6	5.6	38.9	38.9	11	3.00	3.17	4.17	3.44	0.076	
Pre-test have been provided in identifying students entry behavior	6	11	33	50		3.67	3.00	3.17	3.28	0.431	
Any training needs for teachers have been identified	5.6	22.2	55.6	16.7		4.00	3.67	3.67	3.78	0.785	
Teachers' knowledge and skills have been assessed	11.1	5.6	44.4	38.9		3.17	3.17	3.00	3.11	0.948	
Awareness was created		5.6	22.2	61.1	11.1	4.00	3.67	3.67	3.78	0.687	

Credits expressed in terms of learning outcomes are powerful way to recognize and quantify learning achievement from different contexts .They also provide an effective structure for relating qualifications to each other. The addition of the learning outcomes dimension has the potential to dramatically improve the effectiveness of ECTS (Adam, 2008).

When writing learning outcomes we need to decide what type of student learning will be demonstrating by each learning outcome. Domains of learning are commonly used as a guide to write learning outcomes as they encompass the various levels of learning; the Cognitive domain involving thought processes, the Affective domain involving attitudes and values, and the Psychomotor domain involving physical skills (Bloom et al, 1956). These domains are commonly referred to as knowledge, skills and attitudes. Therefore, in writing the learning outcome the balance of

all domains should be kept and expressed so as to fit the learner experience before any form of modular practice.

Here in this study, as been shown in Table 2, though outcomes were formulated as a starting point for modular practice, the relation between the stated out comes and graduate profiles was not done as needed. Great efforts were not made in exploring all domains vis-à-vis our graduate profiles on the bases of Bloom taxonomy.

In such aspects, most respondents (55.6%) do not agree with the formulation of learning outcomes that are appropriate to the graduate profiles. But 27.8% of respondents are positive regarding the formulation of learning outcomes.

In an interview made with instructors the following responses were recorded:-

*It is already known that a well stated learning outcome is fundamental and mandatory for the purpose of knowing what our learners achieve. And as the same time such type of learning outcome helps us to show the type of graduates that we seek at the end of the day. However, when we come to our modular practice here in our university, all have not been done as we needed (a teacher interviewee).*

*Though some attempts have been made on stating the outcome, great efforts were not excreted in exploring all domains vis-à-vis our graduate profiles (a teacher interviewee).*

As to the selection of competencies in implementing modular curriculum, focusing on domain specific and generic competency is basic. In such identification, issues like professional and graduate profile and core competencies that are directly related with the prescribed profession have to get more emphasis and discussed with the stake holders. However, results from this study have shown us the necessary competencies were not looked and shared with the role players. An integrated competency which is useful for occupational task were not considered and identified.

As indicated in Table 2, 94.4 % of the respondents have assured that the formulation of appropriate competencies in a developmental stage is almost none. Similar response was also obtained from the focus group discussion and in-depth interview. Almost all interviewees and focus group participants agreed on the lack of well structured professional and graduate profiles that are linked with competencies in either of the core or generic courses. In relation to the formulation of graduate profile and the required competencies, the following opinions were forwarded by two interviewees.

*If we do have an interest of working closely with our learners, the first and the most important way is looking the practice of graduates in the world of work. This could give us the necessary information where and what our learners needs. Based on such type of information as an educational expert, one can easily formulate the required competencies for the prospective graduates. But in practice this has not been done yet in our context (a teacher interviewee).*

*The concept of competence is new for both of us. Most teachers and students are not as such aware of the intent of competence. Therefore, the need of awareness creation more than the formulation of competence based education is unquestionable. I am sure nothing has been done here in our university as expected on such new concepts (a teacher interviewee.)*

**Table 2: Learning outcome and Competencies**

Questions	Response in%					Mean				p-value
	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure	WOLLO	WOLDIA	BAHIRDAR	Total	
Learning outcome were formulated as core (key) competencies	5.6	27.8	55.6	5.6	5.6	2.50	3.00	2.83	2.78	0.632
Competencies were formulated in terms of development stages with their indicators		5.6	50.0	44.4		3.50	3.33	3.33	3.39	0.835

In module development the most important step is the first one, that is general needs assessment. According to Farid et al (2014) the goal of step 1 is to focus on the module, by defining the deficits in knowledge, attitude, or skills that currently exist in practitioners and the ideal approach to teaching and learning these objectives. A well-researched step 1 impacts steps beyond the learner objectives by identifying educational methodologies, faculty development resources, potential funding resources, and opportunities for dissemination of the curriculum. Identification and critical analysis of the problem that will be addressed by the curriculum requires substantial research to analyze what is currently being done by practitioners and educators, i.e., the current approach, and ideally what should be done by practitioners and educators to address problem. The general needs assessment is usually stated as the knowledge, attitude, and performance deficits that the curriculum will address (Farid et al, 2014). However, in this study research results have shown that weakness that has been underlined at the time of curriculum implementation was not adequately assessed by the concerned bodies based on research findings. The limitation of none modular approach was not properly seen vis-à-vis the modular scheme.

As it has been indicated in Table 3, though 16.7% of the respondents confirmed that problems that are related with the existing curriculum were clearly identified and considered for our modular practice, great majority of them (83.3%) did not agree with the prescribed response.

Moreover, the existing graduate profiles were not properly revisited and articulated in accordance to the prospected transformational changes. In this regard, almost 68% of the respondents disagreed while 16% of them were reserved. This has been well supported by both focused group discussion and an interview. Participants from the focused group discussion and interview have said the following.

*In curriculum development the role of teachers, students, parents, government organizations, none government organizations, and other important stakeholders is vital. Without the involvement of these groups, curriculum improvement is unthinkable and the consequence of such approach is always a failure. The same is true for modular practice. As a lecturer here in the University, I have never seen the involvement of the above groups discussing such important matters. Therefore, though, the idea of modularization seems to be better as we compared with the traditional*



approach, the need assessment with an objective research result is binding (focused group participant).

Laterally we know that as the traditional approach is not as such appropriate in producing a competent graduate at all level specially in tertiary education. This could be true if and only if the idea is supported by research. However, in our case as to my knowledge, in modular practice nothing has been done either in the form of research or brain storming to identify the critical issues (focus group participant).

Brainstorming problems are important prior to the development of any educational material including module development practice at tertiary level. It gives us an insight where we lack .In most cases our universities were not in a position of looking this side (a teacher interviewee).

**Table 3: Problems and Professional Profile were brainstormed**

Questions	Response in%					mean				p-value
	Strongly Agree	Agree	Disagree	Disagree	Not Sure	WOLL	WOLD	BAHI	Total	
Major problems of The existing curriculum Were brainstormed	5.6	11.1	44.4	38.9		3.17	3.33	3.00	3.17	0.817
Professional profile of the existing programs was revisited	11.1	5.6	38.9	27.8	16.7	3.17	3.17	3.67	3.33	0.727

In all of the above response significant mean differences were not again observed among the three groups of respondents ( $p > 0.05$ ).

Generally, as results have indicated in all areas of need assessment components, most critical gaps that must be addressed during the first phase of module development were not assessed and examined so as to make modular instruction more manageable and practical. Most significant issue that requires an intervention before the beginning of modular instruction like professional competencies, stakeholder readiness and learning outcomes were overlooked. This is totally against to the Mega, Micro and Macro level of Kaufman, Rojas and Mayer's (1993) theoretical assumption.

## 7. Conclusions

In Ethiopia higher education institutes, curriculum is considering a change from traditional lecture and demonstration to self-paced modular instruction. As a result numerous public institutes have made this change in the past few years. Similarly, the three selected higher education institutes in Amhara region were contemplating this transition as well. Therefore, research was conducted to determine whether the change to modular instruction specifically the Practices of need assessment in designing modules could be qualitatively and quantitatively proven superior to traditional instruction. Historically, research on this topic has been inconclusive.

Since available research could not substantiate Practices of need assessment in designing modules in higher education institutes, a mixed type of research was conducted on three colleges of education from the selected Ethiopian HEIs. Data were gathered by the use of questionnaire, interview and focused group discussion to reach on the following conclusion.

As has been indicated in the analysis and interpretation section, during the practice of module development critical gaps were not clearly identified and seen thoroughly both on the teachers and learners characteristics. Any training needs for teachers on modularization were not identified to fill their knowledge and skills gaps.

The link between graduate profiles and learning outcomes was not adequately assessed before the practice of modular instruction so as to address the core competences. Moreover, integrated competencies which are useful for occupational tasks were not ahead satisfactorily formulated in terms of developmental stages with their indicators.

Generally deficits in knowledge, attitude, or skills that currently exist in practitioners and the ideal approach to teaching and learning with the existing graduate profiles were not properly revisited and articulated in accordance to the prospected transformational changes.

## **8. Recommendations**

Overall, this study has tried to examine both internal and external enabling conditions for Practices of need assessment in designing modules in HEIs within the selected samples. From the result it was clearly seen that significant limitation were found in all Practices of need assessment.

This calls for a closer attention of the practice of modularization across all HEIs. Therefore, in accordance with the finding, the following suggestions were forwarded for the purpose of improvement.

- Prior to the practice of modularization both the government and institutions have to go through the three basic levels of needs assessment:
- The external or Mega level—the needs of society and the larger environment. The expected outcomes within the society in which we all live and in which we make our contributions should be thoroughly assessed.
- Micro level needs- those needs related to the nature of outputs generated by Universities that is how well Universities are delivering results of benefit to itself and to its partners has to be seen critically.
- Macro level -Results that have been accomplished by the existing individual performers and teams that Universities use like learner characteristics and entry behavior, the nature of administration and teachers readiness, learning outcome and, competences with graduate profiles should be examined before the beginning of modular instruction. In general, the two main questions “what is” and “what should be” has to be clearly examined.
- Competency which is useful for occupational task should be identified and checked at the time of need assessment.

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