



REVIEW ARTICLE

HIERARCHY OF OBJECTIVES IN HEALTH PROFESSIONAL CURRICULUM: FROM TRADITIONAL TO COMPETENCY BASED EDUCATION MODEL

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The objectives in health professional curriculum have been expressed in different terms to communicate expectations of the programme. Curriculum designers sometimes encounter difficulties in selecting suitable terms from many identical terms when developing the curriculum. This review helps to clarify the use of different forms of objectives in a traditional or competency-based curriculum in health professional education. In a traditional curriculum, the terms general and specific objectives are used to indicate the purpose of the programme or course; whereas in competency-based education, the terms competencies, outcomes and milestones are often used. Some authors tend to think of objective as an alternative name for outcome and use the words interchangeably. However, the emphasis in the traditional model is on the teaching and learning process whereas the competency-based education model focuses on the outcomes *i.e.* what the learners achieve at the end of the programme. This review suggests that, whilst developing the curriculum, educators in health professions need to have a clear understanding of the distinction between the objectives of a traditional curriculum and the outcomes of a competency-based curriculum to satisfy the requirements of different stakeholders including accrediting bodies.

Key words: Objectives, Competencies, Competency-based education, Curriculum.

INTRODUCTION

The key elements that hold together teaching, learning and assessment in a curriculum process are well-stated objectives. In other words, the entire process of curriculum development, delivery and assessment is guided by learning objectives or goals. Clear expectations of what is required from students are critical for effective learning (Ramsden, 2003). Students are much more likely to succeed if they understand the learning objectives when undertaking a programme. Clearly defined objectives help teachers to select proper instructional strategies and identify valid assessment tools to evaluate the performance of students. Well written

objectives are useful for all methods of teaching and learning including non-traditional methods such as the “Class Room Seminar and Journal Club” model (Dahiya and Dahiya, 2015).

Objectives effectively communicate to a range of primary and secondary stakeholders about what the students will achieve at the end of the programme. However, writing objectives has always been a difficult task for teachers and curriculum planners. It is stated in the literature that “Writing educational objectives is an under-appreciated skill. Despite the importance of objectives, learners, teachers and curriculum planners frequently have difficulty in the formulating and the explaining the objectives of

the curriculum” (Kern *et al* 2009).

The word ‘objective’ has been expressed by using different terms in the process of designing the curriculum to communicate expectations for educational programs. Some of the most commonly used terms of objectives in higher education, specifically in health professions are: programme objective, educational objective, general objective, competency, programme outcome, course learning outcome, course aim, course objective, instructional objective, and learning objective. Curriculum designers may encounter difficulties in selecting suitable terms from seemingly identical terms whilst developing the curriculum. In this regard, it is indicated that “in some cases, the terms are functionally synonymous whereas in others, they are different in both function and structure” (Marken and Morrison, 2013).

Objectives in a traditional curriculum

The traditional objective-based model was widely adopted in the early 20th century (Frank *et al* 2010). The literature has several reports emphasizing on the importance of setting up programme goals and objectives for curriculum development (Tyler, 1949; Mager, 1962). This model has still been part of many programmes in higher education including health professions. It is stated that “Broad educational goals (broad educational objectives) communicate the overall purposes of a curriculum and serve as criteria against which the selection of various curricular components can be judged. The development and prioritization of specific measurable objectives permit further refinement of the curricular content and guide the selection of appropriate educational and evaluation methods” (Kern *et al* 2009).

Programme level objectives – Traditional model

The objectives set at the programme level are known as Programme Objectives or General Objectives of the Programme or Educational Objectives of the Programme; terms that are often used interchangeably. Programme objectives are content-free broad statements and not course specific. These objectives identify the expected learnings but do not specify particular learning conditions or assessment strategies (Oermann and Gaberson, 2014) and are developed in such a way that they can be applied to different courses; for example: “upon the completion of the medical education the

students will have demonstrated knowledge of the normal structure and function of the body (as an intact organism) and of each of its major organ systems” (AAMC Report I, 1998). Further specification of the above example of programme objective is made whilst developing the course level objectives.

Course objectives – Traditional model

Course objectives are used interchangeably with the terms specific objectives, specific learning objectives or course level objectives. They are specific, observable and measurable in nature and thus help in determining clear learning and assessment strategies. Course objectives focus on what the students should know and be able to do at the end of the course (Weimer, 1996). Whilst framing objectives of the course, the faculty should know how each of them is connected to the programme objectives.

It is essential to set a balanced number of objectives for each course in line with the overall programme objectives. A reasonable number of objectives helps students to focus on what is expected from them in a course. There is some confusion about what constitutes a reasonable number of objectives, although it is suggested 8 to 12 objectives for a course (Linn and Gronlund, 2000), whereas a greater number of objectives may provide clearer expectations to students, unduly long lists of learning objectives end up discouraging students from paying attention to the objectives (Harden, 2002).

Course objectives are developed using action verbs from the cognitive, affective and psychomotor domains to describe knowledge, skills, attitudes and values that the students need to achieve at the end of the course. Hand books available in the literature are widely used in preparing the measurable objectives (Bloom *et al* 1956; Krathwohl *et al* 1956). An example of a course objective would be: “upon completion of the course, the student will be able to explain the process involved in cell division”. The checklist for setting programme objectives and course objectives in traditional model is compiled in **Table 1**.

Competency-based education (CBE) model

During the last few decades, the focus in health professional education has shifted from the traditional-based curriculum to competency-based education (CBE) curriculum (Frank *et al* 2010). CBE, also known as outcome-based education (OBE), focuses on what the graduate

can actually do on completion of the health training. CBE is “an outcome-based approach to the design, implementation, assessment and

evaluation of medical education programmes, using an organizing framework of competencies” (Frank *et al* 2010).

Table 1. Checklist for traditional model

Programme objectives	Are the programme objectives broadly stated?
	Are the programme objectives content free?
	Do the programme objectives provide a framework for determining the more specific course level objectives?
	Are appropriate action verbs used whilst developing the programme objectives?
Course objectives	Are the course objectives specific and measurable?
	Are the course objectives consistent with the programme objectives?
	Do the course objectives set the basis for assessment?
	Are the course objectives developed using appropriate action verbs from the cognitive, conative and affective domains?

It is stated in the literature that “a significant change has taken place in medical education with the move from an emphasis on process, where what matters are the teaching and learning methods, to a product model where the emphasis switches to the learning outcomes of the education experience” (Harden, 2007). The traditional curriculum focuses mainly on ‘what to teach’, ‘when to teach’ and ‘how to teach’ within a given time frame, whereas the CBE curriculum focuses on the competencies needed at the end of the programme. CBE is a visionary new approach to medical education because it emphasised the type of doctor produced rather than the process of education (Harden *et al* 1999).

Competencies

The literature has reports explaining that “Competencies are bundles of the essential knowledge, skills, and attitudes (KSAs) required to achieve an acceptable level of performance in the world of practice” (Hooper *et al* 2014). Students, upon the completion of the health education programme, must have the abilities, knowledge, skills and attitude to become competent in their specific area. However, determining the areas/domains of competency and writing the competencies are a major challenge in health professional curriculum. Competency descriptions are written at multiple levels of detail which start from broad competency domains and move towards general and specific competencies (Gruppen *et al* 2012). The Accreditation Council for Graduate Medical Education (ACGME) has referred to these levels as competency domains and constituent

components. ACGME has identified six broad domains of competency for the residency programme: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism and systems-based practice (Swing, 2007). Each domain has certain competencies to be achieved by the learner. These general competencies articulate the knowledge, skills, and attitudes that a student is expected to demonstrate at the end of the programme to become a competent person in his or her area of specialty. Examples of general competencies for one of the domains (medical knowledge) are:

- ◆ Obtain biomedical, clinical, social-behavioural and epidemiological knowledge
- ◆ Demonstrate investigatory and the analytic thinking

The competencies are set for different programmes based on the priority of the institution, region and country. To make competencies relevant to education, they are translated into much more specific sub-competencies which are popularly known as specific learning outcomes. **Figure 1** summarizes the comparative hierarchy of terms used in the traditional and CBE models.

Specific learning outcomes

Programme level competencies or outcomes are too broad in nature and cannot be assessed as a whole. Thus further specifications of competencies/outcomes are described at the course level. Each competency is supported by

multiple learning outcomes which are measurable and observable. A learning outcome is a statement of “what the learner is expected to know, understand and/or be able to do at the end of a period of learning” (O’Neill *et al* 2005).

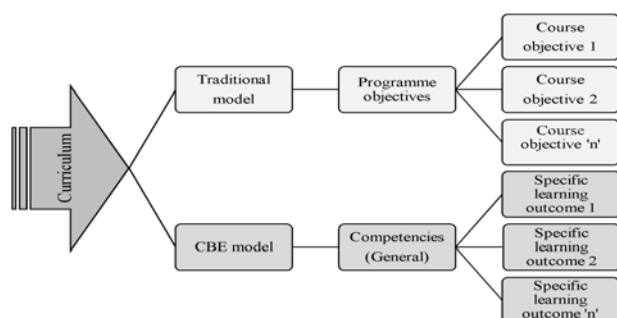


Fig. 1. Objectives for traditional and competency based education models

Learning outcomes can be used to express learning at the level of the unit or module and “In so doing they clarify for the learner what is expected of him or her as well as the skills/competences, understanding and abilities that they will acquire on successful completion of their study” (Froment *et al* 2006a).

Learning outcomes at course level help in determining the learning methods and assessment strategies. Proper alignment of learning outcomes, learning experiences and assessment mutually reinforce each other (Biggs

and Tang, 2011). It is also essential that the learning outcomes and learning activities are aligned with the competencies set for the programme. In developing the measurable learning outcomes, Bloom’s lists of action verbs (or the extended and revised action verbs by various authors) may be used to measure the knowledge, skills and attitudes of the students (Froment *et al* 2006b). The terms used in course objectives (in the traditional model) and learning outcomes (in CBE model) are often similar (Harmon *et al* 2016). This arises because the process of writing objectives or outcomes both use extensively the taxonomy of educational objectives (Bloom *et al* 1956; Krathwohl *et al* 1956). Examples of specific learning outcomes in the basic health sciences and clinical curricula are:

- ◆ Describe the functional organization of the nervous system (Knowledge)
- ◆ Use effective and empathic verbal and non-verbal communication skills in all clinical encounters with the patient, their families and carers (Skill)
- ◆ Respect patient confidentiality, privacy and autonomy (Attitude)

The checklist for setting general competencies/specific learning outcomes in CBE model is listed in the **Table 2**.

Table 2. Checklist for CBE model

General competencies	Are the competencies clear and unambiguous?
	Are they set in the medical curriculum to produce a competent physician?
	Do the competencies assist in identifying the specific learning outcomes?
Specific learning outcomes	Are the learning outcomes specific, clear and unambiguous?
	Are the learning outcomes demonstrable, measurable and achievable?
	Do the learning outcomes set the basis for learning methods and assessment?
	Do the outcomes describe the competencies set for the programme?
	Are the learning outcomes specifying an action that is done by students rather than a teacher?

CONCLUSION

Traditional curriculum focuses on the instructional process and not the end-results of the programme. CBE is outcome-based and emphasizes what the graduate is able to do at end of the programme without detailing the process to achieve that endpoint. Recently, the regulatory bodies are also directing medical

and other health professional schools toward CBE model. Therefore, it is imperative for the health professional schools to have the clearer understanding of distinction between the objectives of a traditional curriculum and the outcomes of a CBE curriculum in order to ensure compliance with the expectations of the accrediting bodies.

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