

# Outcome-Based Medical Education: Implications, Opportunities, and Challenges

Larry D. Gruppen

*Department of Medical Education, University of Michigan Medical School, Ann Arbor, USA*

Outcome-based education (OBE) is a major reframing of how medical educators think about teaching, learning, and assessment. There are many alternative versions of OBE and the implications of this framework are not always well-understood. A review of the literature on OBE and an analysis of the educational implications suggest seven areas of contrast with traditional educational frameworks. Key contrasts center around how educational outcomes are defined, the emphasis of learning over teaching, the centrality of rigorous assessment, the need for flexibility and individualization in the curriculum, and shifting roles and responsibilities of teachers and learners. OBE has the potential for dramatic and even revolutionary changes in medical education. However, it carries with it significant challenges that include the expenses of additional assessment, uncertainty among students and faculty about their responsibilities, and complexities in planning and organizing the educational process. Instead, of whole-hearted adoption of the OBE model, most medical schools and residency programs are exploring OBE in small-scale “experiments” that will inform the field about the best ways to incorporate the critical features of OBE into medical education. Such experiments are invaluable for helping us better understand the promise and possibilities of OBE.

**Key Words:** Competence, Educational outcomes, Curriculum, Educational reform

## INTRODUCTION

Outcomes-based education (OBE) is a model of education that has been adopted by many institutions in many countries. This commentary describes the common features of the outcomes-based model and some of the significant implications it holds for how educators organize, implement, and assess educational programs. These implications include the opportunity to individualize education, change the role of “time” in the curriculum, highlight the importance of assessment in

measuring outcomes, make explicit the standards that define who is and is not competent, shift the focus from teaching to learning, and define a very different role for teachers.

An analysis of the medical education literature and the principles of OBE [1,2,3,4,5] suggests seven implications that are summarized in the Table 1 as contrasts between traditional and outcomes-based educational frameworks and are described in more detail below.

### 1. Define teaching goals or outcomes

The contrast between traditional and OBE education in

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Corresponding Author: Larry D. Gruppen

Department of Medical Education, University of Michigan Medical School, G1113 Towsley Center, 1500 E. Medical Center Drive SPC 5201, Ann Arbor, MI 48109-5201, USA  
Tel: +1.734.936.1662 Fax: +1.734.936.1641. email: lgruppen@umich.edu

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Table 1. Descriptive Statistics and Reliability of Factors

Traditional education	Outcomes-based education
1. Define teaching objectives	Define learning outcomes
2. Time is fixed, outcomes variable	Time is variable, outcomes fixed
3. Assessment is secondary	Assessment is central
4. Focus on teaching	Focus on learning
5. Standardized curriculum	Individualized curriculum
6. Teacher as guardian of curriculum	Teacher as guide and advisor

Fig. 1. Traditional Education: When Curriculum Drives Competencies

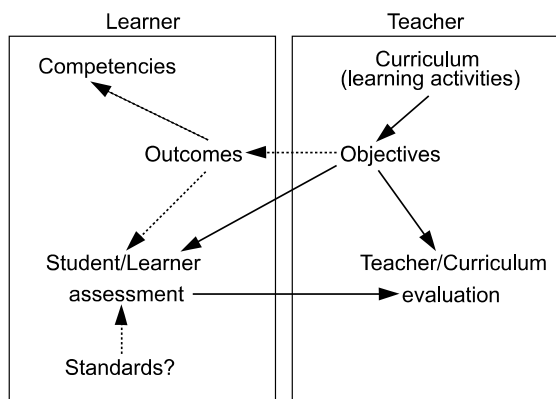
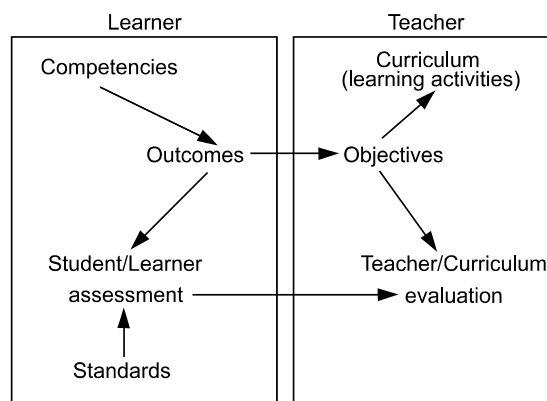


Fig. 2. Outcomes-Based Education: When Competencies Drive Curriculum



terms of the ‘direction’ of educational influence is represented in Figs. 1 and 2.

Traditional education tends to focus on the curriculum, which is used to define the teaching objectives. These objectives are frequently stated as knowledge and facts that the faculty will “cover” in their teaching. The curriculum, through these objectives, also drives the assessment of the learner. The links to competencies as a product of the curriculum is rather difficult to determine directly, and these competencies are often defined after the curriculum is designed and implemented—as an afterthought.

In contrast, OBE starts with the competencies that learners are supposed to acquire through learning. These competencies then define the outcomes that need to be observed in order to judge that a learner is competent. These outcomes are most often expressed as performance and skills rather than simply as knowledge and facts. Faculty focus on what learners can ‘do’ as a result of

learning, not just on what they ‘know.’ The outcomes directly guide the assessment of learners and explicitly require standards for these assessments. Only then can the objectives of the curriculum be defined, and finally, the learning activities in the curriculum can be planned so that the learners can reach the competencies most efficiently.

## 2. Time and outcomes

Traditional education treats time as fixed but the learner outcomes are variable. In the USA, the majority of schools have a 4-year medical student curriculum and this time is assumed to be sufficient for the students to achieve “competence” (receive the M.D. degree). However, the outcome of this fixed amount of time is very variable. Some students are exceptional whereas others are marginal and there may be some who really

are 'not' competent. In OBE, time is flexible and the outcomes are fixed. Clearly defined outcomes and specific standards for rigorous assessments of performance give the evidence needed to judge 'competence' of learners. The amount of time it may take a given learner to reach these standards of competence may differ significantly from another learner, but regardless of how much time it takes, OBE focuses on a fixed definition of competence.

### 3. Assessment

The importance of being able to measure and document competence, regardless of how long or short of a time it takes a learner to reach it, emphasizes the central importance of assessment in OBE. Although traditional medical education devotes considerable attention to assessing learners, this activity becomes even more important in OBE. OBE requires assessments for formative purposes, to guide student learning towards areas of weakness, as well as for summative purposes, to make final decisions on competence. OBE requires more frequent assessment, more rigorous assessment, but also assessment of many things that are largely ignored in traditional medical education. If competencies include such things as "professionalism," "communication," "critical thinking," or "diagnostic reasoning," there must be methods for assessing these outcomes. Otherwise, no trustworthy judgments can be made that learners are or are not competent.

### 4. Focus on teaching or learning

Traditional education is largely controlled by the faculty who schedule learning activities to fit their own convenience, define the assessments at intervals that fit the time-fixed curriculum, and schedule courses in the same sequence for all learners. In OBE, there is a much greater recognition that learners come into a program with many existing skills and competencies. It also

recognizes learners as the key factor in their own learning. It logically follows that there should be greater learner control and flexibility in an OBE program. This enables them to build on their strengths, remedy their weaknesses and pursue learning in flexible ways that are not readily supported in traditional programs.

### 5. Standardization or individualization

The importance of flexibility in OBE programs leads to the logical conclusion that OBE also requires individualized learning programs rather than the standardized, "one-size-fits-all" curricula of traditional programs. This individualization may be in the sequence of learning activities but also in the content and focus of learning. For example, learners who come with prior experience as an emergency health care provider should not need the same level of education on basic life support procedures as a learner without this experience.

### 6. Role of the teacher

In traditional programs, the faculty members control the curriculum and set policies, ensuring consistency and continuity. They are typically the experts who serve as the primary source of knowledge for the learners and authority over the curriculum. Because OBE requires learners to take responsible for their own learning and have flexible, individualized learning options, faculty roles shift to being advisors, mentors, and guides. They still serve as experts, but in a less directive and authoritative way. One very important new role for faculty in OBE programs is that of being an assessor, in keeping with the heightened priority of comprehensive and in-depth assessment of learning outcomes.

## DISCUSSION: THE OBSTACLES AND ADVANTAGES OF OBE

It should be apparent that OBE has some definite strengths but also significant challenges when it comes to planning and implementation. One advantage of OBE is that it could shorten the time needed for training if learners enter with considerable prior experience or attain competence rapidly. However, it is also likely that OBE will increase the time needed for weaker and less experienced learners—perhaps even beyond the current time defined in traditional educational programs.

Another strength of OBE is that the necessity of rigorous assessment can create greater confidence in judgments of competence. Traditional programs tend to rely on assumptions and hopes that spending enough time in the classroom or the clinic will produce competent graduates (even though this is not well documented by performance data). OBE verifies the quality of ALL of its graduates—they must all demonstrate competence or they do not graduate or advance.

The individualization that is implied by OBE can produce greater student motivation and initiative and enable them to pursue their unique interests. On the other hand, such individualization and flexibility is enormously difficult for a medical school to manage. At the extreme, OBE could mean that each learner pursues their own learning plan on their own schedule, asking for assessments to demonstrate their competence in a given domain at various points in their training and some graduating early while other graduate late. Such flexibility is not really feasible, so the potential of OBE must be tempered by the reality of limited faculty and financial resources.

This flexibility is a challenge for students as well as faculty members and administrators. Most medical

learners are accustomed to being told what to study, when to study it, and how to prepare for the test. OBE requires learners to take responsibility for their own learning, which will be intimidating and challenging for many learners. Students will frequently object to the uncertainty that this creates, demanding to be told “what is important.”

Faculty also will object to the lessened control and authority they may feel they have in an OBE program. Although they are still the decision-makers for defining the competencies, the means of assessing them, and the standards to which learners are held, some faculty members will feel threatened by giving over more control of learning to the students.

The centrality of assessment in OBE is an advantage in that it produces more evidence on which to base decisions about competence, but it also demands more resources and a higher standard of assessment practice. OBE also very clearly requires that explicit standards be set for these assessments—a process that demands faculty time and judgment.

The potential benefits of OBE have made it one of the more influential frameworks for medical education in the world today. It has generated a great deal of scholarly discussion and many schools are evaluating if and how OBE might fit within their own educational mission. However, the significant challenges involved in implementing such a revolutionary change in educational perspective means that few, if any, schools are adopting the OBE framework in its entirety. Instead, most are making small-scale pilot studies of its feasibility in selected portions of the curriculum or in specialized outcomes, such as laparoscopic surgery. Much like other innovations in medical education, e.g., problem-based learning, it is likely that outcomes-based education will gradually pervade further and further into more and more schools until it becomes a major component of how

we teach future physicians. Until then, there are many opportunities for individual faculty members, schools, and residency programs to experiment with these ideas and contribute to our understanding of the benefits and challenges of this framework.

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