

## Competency-based assessment and cultural compression in medical education: lessons from educational anthropology

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**OBJECTIVE** This paper explores the thesis that medical education is the cultural transmission to learners of specific values, which are increasingly expressed as graduation competencies. As testing is a powerful way to transmit cultural values to learners in a brief period of time, competency-based assessments can be an instrument of cultural compression in medical education.

**METHODS** The author reviewed medical literature to illustrate the concepts from educational anthropology, led the process one medical school used to develop its list of graduation competencies, and conducted a citation search about competency domains.

**RESULTS** There is support in the literature for viewing medical education as an example of cultural transmission and compression and for the assertion that testing influences student behaviour. The graduation competency statements developed by the school reflect traditional and emergent values. The citation search data confirmed that some competency domains reflected traditional values, while others reflected more emergent values.

**CONCLUSION** Concepts from educational anthropology are relevant to medical education and provide perspectives for understanding contemporary issues such as competency-based assessments.

**KEYWORDS** clinical competence/\*standards; \*educational measurement; \*education, medical, undergraduate; \*anthropology/cultural; social values.

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### INTRODUCTION

The intent of this paper is to describe cultural transmission and compression and to illustrate how these concepts apply to medical education. The paper also discusses how 'testing' can be an instrument of cultural compression, describes competency-based assessments in medical education,<sup>1,2</sup> and outlines how one medical school developed its graduation competencies. Lastly, the paper explores how competencies may reflect traditional and emerging values and generational cycles.

#### Cultural transmission and compression

In an overview of education and anthropology, George and Louise Spindler stated: 'We see education as cultural transmission, and, of course, cultural transmission requires cultural learning, so learning and transmission are never separated, except by convention.'<sup>3</sup> (p 230) The conceptual frame of education as cultural transmission is self-evident in that it is obvious that one goal of education is to inculcate values into learners so they can function effectively in a particular culture. This concept also prompts faculty to consider which aspects of an educational experience best foster cultural transmission.<sup>4,5</sup> This question is particularly relevant to educational programmes where practicum experiences and apprenticeships are common instructional methods.

The Spindlers used the term 'cultural compression' for a particular form of cultural transmission:

'It refers to any period of time in the life cycle of the individual when he encounters a culturally

## Overview

### What is already known on this subject:

- Medical education is a form of cultural compression, where educators transmit values to initiates over a brief period of time that is intellectually, physically, and emotionally demanding
- ‘Testing’ transmits values, and competency-based assessments are new ‘tests’ that serve as instruments of cultural compression

### What this study adds:

- Graduation competencies, which reflect the values of education leaders, can be developed in a systematic process
- Conceptual frameworks of traditional vs. emergent values and generational cycles facilitate understanding of apparent differences in values

### Suggestions for further research:

- Inquiry about how the concepts of educational anthropology help guide implementation of competency-based curricula and assessment

patterned reduction of alternatives for behaviour, usually through restrictive cultural definitions of new roles appropriate to his particular stage of maturation. During these periods, culturally normative restrictions are placed upon him. They are the points in his development as a creature of culture when the norms of his group and society bear in upon him with the greatest intensity and where, as a consequence, he undergoes a change in social identity.<sup>3</sup> (p 89)

The concept of cultural compression is especially relevant to professions where the training is intense and demanding.

### Cultural transmission and compression in medical education

The phrase ‘Teacher as a cultural transmitter’<sup>3</sup> (p 75) accurately characterises a key role of medical

educators. The recent emphasis on teaching ethics and moral development<sup>5–10</sup> and the role of oaths and ceremonies<sup>11–18</sup> underscores the importance of cultural transmission in medical education.

As for cultural compression, the Spindlers observed that:

‘Many societies introduce dramatically compressive restrictions ... in the form of initiation ceremonies. In these societies this period is a time of very intensive training and very severe restriction. Dramatic rituals, isolation from home and familiar surroundings and people, the use of forbidding strangers as instructors heighten the effect of the restrictions and cultural transmissions that occur at this time.’<sup>3</sup> (p 90)

Medical education epitomises this description.<sup>19</sup> Medical students participate in many dramatic initiations – white coat ceremonies, first day in the anatomy laboratory with a cadaver, first blood draw and first birth – and are isolated from family and friends for long hours of study and work. Medical school faculty members are often intimidating, sometimes intentionally so. Other features of medical education, such as testing, also contribute to cultural compression.

### ‘Testing’ as an instrument of cultural compression

Testing is a regular part of education carried out to assess progress, to give feedback, and to certify that requirements are being fulfilled. Testing involves measurement and comparison to a standard to provide an evaluation of the learners. As standards reflect cultural values, testing is an effective mechanism for reinforcing the expectations of teachers. For example, in their study of the ‘process of introducing an integrated practical examination as part of the third year medical undergraduate assessment’,<sup>20</sup> Hudson and Tonkin noted:

‘Students admitted that the previous assessment methods encouraged test-directed studying. For some, it was hard to change the habit of “cramming and dumping”, which had proved successful for them in past examinations based on recall of memorised information. By making the aims of our new assessment explicit to students during pre-examination preparation, we hoped to exploit the fact that assessment drives learning and to signal to students that our values were changing.’<sup>20</sup> (p 841)

and

Further effort is required to maximise the educational impact of the assessment. We have invested considerable effort in developing examination content to drive learning<sup>20</sup> (p 841)

Hudson and Tonkin view assessment methods and examination content as reflecting faculty values and as mechanisms for transmitting those values by driving learning. Testing may promote cultural transmission, but is testing intensive and restrictive enough to be considered an instrument of cultural compression? The work of Radcliffe and Lester<sup>21</sup> indicates that students perceive testing as intense:

Pressure of work, especially in terms of preparing for examinations and acquiring professional knowledge, skills and attitudes were reported as the most stressful aspects of medical training.<sup>21</sup> (p 32)

Considering the time and money students spend on preparing for examinations, it appears that they also consider examinations restrictive. For example, students reported spending an average of 3.3 hours, and up to 19 hours, preparing for an objective structured clinical examination (OSCE)<sup>22</sup> and spent nearly \$250m on commercial test preparation in the USA during 2000.<sup>23</sup> Testing appears to be intense and restrictive enough to be considered an instrument of cultural compression. As such, changes in testing methods, such as the move toward competency-based assessments, can signal to learners that the values of teachers are changing.

### Competency-based assessments in medical education

Medical education is shifting toward an emphasis on outcomes, often stated as competencies, with the structure and content of the curriculum viewed as means to an end.<sup>1,2,24,25</sup> The Accreditation Council for Graduate Medical Education (ACGME), which certifies residency training programmes in the USA, mandates that residencies teach and assess competencies in 6 major domains: patient care; medical knowledge; interpersonal skills and communication; professionalism; practice-based learning and improvement, and systems-based practice.<sup>26</sup> The Liaison Committee on Medical Education, which accredits medical schools in the USA, also requires schools to have educational objectives that guide the curriculum and student instruction.<sup>27</sup> This move towards an emphasis on outcomes and competencies is international, as evidenced by the presentations at the International Ottawa Conference on Medical Education.<sup>28</sup>

The array of competencies expected of medical students and residents is driving the development of new methods of assessment. Medical knowledge is evaluated with standardised written examinations, but other competencies, such as communication and professionalism, require alternative testing methods. One technology, the use of standardised patients (lay people trained to portray patients and to rate performance on objective checklists) is so well established that in the USA, students and doctors must pass a clinical skills examination with standardised patients (SPs) in order to become licensed to practise medicine (US Medical Licensing Examination Step 2 Clinical Skills).<sup>29</sup> In the UK, foreign medical graduates are required to pass an OSCE using SPs as part of the Professional and Linguistic Assessment Board (PLAB) Test to obtain registration by the General Medical Council (GMC) for appointment as a senior house officer.<sup>30</sup> In Canada, candidates must pass the Qualifying Examination II OSCE of the Medical Council of Canada to become licensed to practise medicine.<sup>31</sup> Other technologies, such as simulations, portfolios and computerised patient management problems, are being used as other methods for competency-based assessments.<sup>32</sup>

As medical schools adopt more competency-based evaluation methods, students will perceive the competencies that are tested as being of greater importance than those that are not tested. The faculty's decisions about which competencies to emphasise will send strong messages about what the school values. A critical step preceding the use of competency-based assessments is the specification of competencies. Faculty members must determine which competencies they expect of their graduates. These are the values that will be transmitted by the assessment methods. The following describes how one medical school developed graduation competencies to reflect the views of the education leaders. The resultant competency goals embody the values of these educators. By making their values explicit, faculty staff at Baylor College of Medicine can now communicate them to students and reinforce them through competency-based assessment methods.

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## METHODS

### Competency development process

Baylor College of Medicine completed a year-long process to define its graduation competency goals. The initial step consisted of the selection of an organising framework. At a December 2003

planning session, faculty leaders considered potential frameworks, including the Association of American Medical Colleges (AAMC) Medical Schools Objectives Project (MSOP),<sup>33</sup> the Accreditation Council for Graduate Medical Education (ACGME) Outcomes Project,<sup>26</sup> and the Brown Medical School MD2000 Competency-based Curriculum.<sup>34</sup> The group selected the ACGME framework, with the primary rationale being the desire to integrate competencies across both undergraduate and graduate medical education continua for the benefit of faculty and learners. The advantage of this to faculty members lies in its application to both faculty and learners: many faculty members teach both medical students and residents, so having different organising frameworks for the two sets of learners could be confusing and unnecessarily complex. The advantage to learners is that use of the ACGME framework implies that the school will be preparing its students for the transition into residency programmes, which may enhance its students' competitiveness for desired residency positions.

Next, the Competency Subcommittee sought information on the current status of competencies in the school. Phase 1 (Self-study of Current Competency Statements or Learning Objectives) involved the review of curriculum materials and interviews. Three medical student members of the Task Force reviewed the objectives stated in pre-clerkship course syllabi and lectures and categorised them by subject topics from the US Medical Licensing Examination (USMLE) Step 1 Content Outline,<sup>35</sup> ACGME Outcomes Project competency domain,<sup>26</sup> learning domain (cognitive, affective, psychomotor), and level of proficiency within the cognitive domain (knowledge/comprehension, application or analysis/synthesis/evaluation). The students recorded the objectives and their corresponding categories in a comprehensive database. The students also reviewed the questions in all the pre-clinical course examinations and categorised each question by USMLE Step 1 topic and level of proficiency within the cognitive domain. The students also reviewed core clinical rotation syllabi and categorised the objectives by ACGME domain. The students and faculty members of the subcommittee conducted personal and e-mail interviews of pre-clerkship course directors, core clerkship directors, and primary care residency programme directors regarding which competencies they desired/expected in Baylor graduates. The subcommittee summarised the results of Phase 1 and presented them to the school's education community at a Curriculum Committee retreat and at a pre-clerkship course directors retreat.

The Phase 2 (Competency Development) process used as a basis 161 competency statements obtained from the Phase 1 interviews. The subcommittee conducted 3 evening work sessions with course, clerkship and residency programme directors. At the initial 'first pass' session, the directors reviewed the 161 statements, which had been separated into the ACGME domains, and used an audience response system (ARS) that electronically tallied the 'votes' on each competency, where: Keep statement as is = In; Definitely delete = Out; Keep but needs revision = Revise, and Concept has potential = ?. In voting, the directors considered the following criteria for each of the individual competency statements: legitimate (appropriate for graduating medical student); unique (not overlapping with other statements); co-ordinate (of similar scope); clear (unambiguous language, 'stand alone'), and measurable (can determine level of proficiency). The directors considered these criteria for the full set of competency statements: efficacious (facilitate curriculum planning, governance, evaluation); comprehensive (includes everything of real importance), and reflective of Baylor priorities/goals. The ARS displayed the vote results to the entire group. This balloting eliminated a number of statements in preparation for the second revision and benchmarking session. For this step, each of 3 work groups revised and organised the statements in 2 ACGME domains by comparing them with competencies from another medical school and a national curriculum resource. At the final go/no-go and wordsmithing session, the statements were placed on the walls of the meeting room, grouped by the ACGME domains. Participants placed green, yellow or red dots on each statement (green = ready, yellow = needs fine-tuning, red = needs major changes). The entire group reviewed the dots and made final revisions to those with any red or several yellow dots.

For the vetting process, the Competency Subcommittee presented the competency statements to the Curriculum Committee as the Baylor College of Medicine Core Competency Graduation Goals. The Committee conducted a formal review of the competency goals, applying the criteria for the individual statements and full set listed above. The Competency Subcommittee is currently beginning Phase 3 (Dissemination, Implementation and Evaluation).

Throughout Phase 1 (Self-study) and Phase 2 (Competency Development), it became apparent that faculty thought students held some values that differed from those of the faculty, especially those dealing with aspects of professionalism, such as

respectful behaviour and work ethic. The faculty also noted that they were challenged by the expectation to include new areas in the curriculum to address ACGME domains such as practice-based learning and improvement and systems-based practice. Faculty members were acutely aware that the competency statements they were developing reflected values they held dearly, but did not think students held as strongly, and values that seemed to have been forced upon the faculty and were not fully embraced. It seemed that faculty members had expectations that were not shared with the younger generation and that outside forces had expectations that the faculty did not share. Are these apparent value conflicts idiosyncratic, or are they predictable?

### Changing values

Spindler and Spindler described a concept that may help us understand these value conflicts, namely the transition from 'traditional values' to 'emergent values' in American culture. The Spindlers described contrasting traditional and emergent values<sup>3</sup> (p 100–101) (Table 1) and noted: 'It is probable that both value systems have been present and operating in American culture for some time.'<sup>3</sup> (p 102) This view is consistent with the generational perspective of Strauss and Howe, who described 4 types of American generations, with particular characteristics, that repeat cyclically.<sup>36</sup> The current generations are the Silent (born 1925–42), the Boom (born 1943–60),

Generation X (born 1960–81), and the Millennial (Generation Y) (born 1982–2001).<sup>37</sup> At any point in time, members of each generation are alive but at different educational and career stages. The characteristics of each generation differ,<sup>38</sup> which leads to contrasting values. For example:

'The rising millennial generation is bringing with it a backlash to tradition. In comparison to Generation X, which older generations looked upon as disillusioned, rebellious and pessimistic, Generation Y-ers seem to embody the optimism and idealism that baby boomers themselves held dear.'<sup>36</sup>

These concepts of value changes and generational differences can help medical organisations develop insights and strategies for adapting to the needs and concerns of individuals from different cohorts.<sup>39–42</sup> In the very near future, medical educators will need to consider the characteristics of the Millennials (born 1982–2001), described as 'special, sheltered, confident, conventional, team-oriented, pressured and high achievers',<sup>43</sup> and consider how to adapt teaching strategies to this group of learners.<sup>44</sup>

To investigate whether graduation goals may include traditional values as well as more contemporary, emergent values, the author conducted a PubMed search using the ACGME domain titles as search terms for 3 time periods: no time limit, 1999–2004

Table 1 Traditional and emergent values in American culture described by Spindler and Spindler<sup>3</sup> (p 101)

#### Traditional values

Puritan morality	(Respectability, thrift, self-denial, sexual constraint)
Work-success ethic	(Successful people worked hard to become so. Anyone can get to the top if he tries hard enough)
Individualism	(The individual is sacred, and always more important than the group)
Achievement orientation	(Success is a constant goal. There is no resting on past glories)
Future-time orientation	(The future, not the past, or even the present, is most important. Time is valuable, and cannot be wasted. Present needs must be denied for satisfactions to be gained in the future)

#### Emergent values

Sociability	(One should like people and get along well with them)
Relativistic moral attitude	(Absolutes in right and wrong are questionable. Morality is what the group thinks is right)
Consideration for others	(Everything one does should be done with regard for others and their feelings)
Hedonistic, present-time orientation	(No one can tell what the future will hold, therefore one should enjoy the present, but within the limits of the well-rounded, balanced personality and group)
Conformity to the group	(Everything is relative to the group. Group harmony is the ultimate goal)

and 1995–2004. The number and percentage of citations in each time period were considered as indications of whether a domain area represented traditional or emergent values.

## RESULTS

The Phase 1 and 2 processes produced 43 competency statements that comprise the Baylor College of Medicine Core Competency Graduation Goals (available from the author). These represent the collective view of the multiple stakeholders described in the Methods section. These graduation goal statements make explicit the values of these educational leaders. During Phase 3 (Dissemination), the Competency Subcommittee plans to survey the school's students and faculty to solicit their perspectives on the goals and to engage in a discussion of the emerging competency-based curriculum.

The results of the PubMed searches are displayed in Table 2. The large number of citations for medical knowledge and patient care document that they are traditional values. The small number of citations for practice-based learning and improvement and systems-based practice indicate that they are emergent values, especially as virtually all of the papers have been published in the past 10 years. Interpersonal and communication skills and professionalism are not clearly traditional or emergent values, for while they appear in only modest numbers, they have rates of number of citations that are comparable to those of medical knowledge and patient care. Professionalism may be gaining attention and becoming more emergent, however, given its accelerating rate of publication (70% of the papers published in the past 10 years were published in the past 5 years). Considering the traditional and emergent values described in Table 1, the competency statements about

interpersonal and communication skills reflect 2 features of emergent values (sociability and consideration for others), while the professionalism statements reflect 2 features of traditional values (puritan morality and work/success ethic) and 1 of emergent values (consideration for others).

These data provide support for the application of Spindler and Spindler's concept of traditional and emergent values to the value conflicts that may arise among faculty and students during the development of competency statements and the application of competency-based assessments. Reflecting on traditional versus emergent values and generational cycles may help faculty staff respond constructively to value conflicts.

## CONCLUSION

The intent of this paper was to explore the application of concepts from educational anthropology to an emerging trend in medical education. The paper defined cultural transmission and compression and demonstrated how these concepts apply to medical education as a critical life transition. The paper explored how 'testing' can be an instrument of cultural compression and described competency-based assessments in medical education. The paper explained the process of developing graduation competencies at one school and asserted that these graduation goals reflect the values of the education leaders who developed them. The paper also noted how the conceptual frameworks of traditional versus emergent values and generational cycles are relevant to understanding apparent differences in values. The paper illustrated how applying the concepts of educational anthropology may provide new insights to those involved in the emerging area of competency-based curricula and assessment.

*Table 2 Citations obtained in PubMed search of (ACGME Accreditation Council for Graduate Medical Education) domain titles; number of all citations for domain titles and number (percentage) of citations in last decade and last 5 years showing sustained work on traditional themes and amount of new work on new emergent themes*

ACGME domain	All years prior to 2004	1995–2004 (last 10 years)	2000–04 (last 5 years)
Medical knowledge	39 466 (100%)	27 235 (69%)	15 852 (40%)
Patient care	392 547 (100%)	164 698 (42%)	82 205 (21%)
Interpersonal and communication skills	945 (100%)	488 (52%)	260 (28%)
Professionalism	1792 (100%)	1013 (57%)	706 (39%)
Practice-based learning and improvement	51 (100%)	48 (94%)	46 (90%)
Systems-based practice	75 (100%)	68 (91%)	57 (76%)

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