

Assessing Student Learning Outcomes in the Competitive Market: Toward a Paradigmatic Shift

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Abstract

Driven by market forces, today's higher education institutions can no longer stay within the institutional boundary and use self-defined missions to complete the assessment loop, wishing that the purpose of accountability can be served at the same time. The author proposes a new three-level assessment paradigm that is responsive to the public demand for information. Specifically, institutions need to demonstrate learning outcomes, show return on investment, and ensure social benefits. Assessment activities at each level are conducted according to the needs of the receiving end of information, with each successive assessment level built on information provided by the lower level.

Introduction

Bridging faculty teaching and student learning, assessment activities have existed in higher education for as long as institutions themselves, with mostly faculty-driven, localized approaches ranging from teacher feedback on student work, grading, portfolio assessment, capstone courses, to program reviews. Since the early 1980s, the rapid growth of student body, the increasing competition among institutions for resources and prestige, and the shrinking government funding for higher education, among many other factors, have led to heightened public scrutiny on the quality of processes and products of higher education. Assessment, a procedure used previously only internally for teaching and learning, was now converted into a tool to serve public purposes. Since then, immense research has been done to develop theories, good practices, policy reports, and guidebooks aimed at helping the higher education community to demonstrate its effectiveness in educating students. Just when the higher education community thought that it had reached a certain level of maturity using assessment for accountability, thanks to the hard work of both theorists and practitioners, their success was called into question. In 2006 the Spellings Commission on the Future of Higher Education released a report claiming that there is a "remarkable absence of accountability mechanisms" (Commission on the Future of Higher Education, 2006, p. x) in higher education. According to the Commission, the existing postsecondary system has no comprehensive strategy to "provide either adequate internal accountability systems or effective public information" (p. 14). Criticisms like these have not only put many HEIs back to square one in their assessment programs, but also assigned a failing grade to the entire camp of assessment professionals, whose work has since evolved into a profession.

Falling short of prescribing a solution to fill this gap, the Spellings Commission nonetheless calls for creating a "consumer-friendly database" so that parents and students can compare institutions on "how much students learn in colleges or whether they learn more at one college than another" (p. 14). The Collegiate Learning Assessment (CLA) and the National Survey of Student Engagement (NSSE) are offered as examples of assessment tools that can be used to measure the growth of student learning taking place

in college. But a quick review of assessment practices over the past three decades shows that assessment professionals' problem may be far more complex than that of picking the right instruments or creating good databases. HEIs have some soul-searching questions in front of them: Why did all the hard work in assessment fail to convince the public that HEIs have done their job and done it well? Can any assessment instruments offer universally acceptable measures of student learning? Even if certain instruments are deemed statistically valid and reliable, can they be used to compare the quality of extremely diverse educational programs across different types of HEIs? And finally, is it even possible for HEIs to produce information that is both specific enough about student learning and customer-friendly enough so that laymen can understand?

The failure of HEIs to provide good answers to these questions has led to widespread skepticism among the public, who has every reason to believe that HEIs have something to hide. Such skepticism may contain truth, and malpractice in higher education could be more widespread than we are willing to believe (e.g., Hersh & Merrow, 2005). Of course, for the HEIs that are eager to prove their effectiveness in student learning, many assessment know-hows are now at their disposal. There is, however, a noticeable absence in the assessment literature addressing learning outcomes assessment in the context of higher education as a competitive market. While many useful techniques have been developed over the years to guide assessment activities on campus, it appears that those who write about assessment topics still treat assessment as an institutional self-perpetuating process, as if the sole purpose of assessment activities is to justify HEIs' right to define their own missions and goals so that they can declare mission accomplished later after some assessment exercises.

In fact, driven by the market but still not acting like it, many colleges and universities are scrambling to find new ways of doing business in this increasingly competitive higher education environment. This paper, therefore, represents the author's attempt to go beyond the institutional framework and reexamine assessment in the context of higher education as a competitive market. The author argues that, in the higher education market characterized by imperfect information, assessment can be a powerful means to fill the information gap. But a significant modification of the traditional assessment paradigm has to take place before this powerful tool can be useful to anybody.

Higher Education's New Environment: the Market

Despite some subsisting causes of uneasiness in the academe, the triumph of market forces in higher education over the past three decades is an undeniable fact. Harvard Professor Howard Gardner makes no attempt to ignore the trend of marketization of higher education in the U.S.: "colleges (like most of the rest of the society) have been influenced by the model of the market and now think of themselves primarily in terms of competition, supply and demand, profitability, and other features of classical economics" (Gardner, 2005, p. 97). While lamenting the fact that higher education has drifted from a public good toward private purposes since 1970's, Zemsky, Wegner, and Massy (2005) point out, fact-of-matterly, "There will be no return to a simpler era when a much smaller proportion of the population sought a college education. Nor is there any likelihood that either market forces will play a less dominant role or that universities will become less costly or less complex enterprises" (p. 7).

No discussion of market can bypass the concept of *invisible hand*, a metaphor created by Adam Smith to describe what we nowadays call the market mechanism. As if through an invisible hand, the utility-maximizing consumers and profit-maximizing producers will interact to distribute goods and services in such a way that no one will be better off without making someone else worse off. A market is such a powerful allocation system that produces a Pareto-efficient allocation of goods. However, in reality, “markets do not always produce the optimal outcome from a society’s point of view” (Teixeira, Jongbloed, Amaral, & Dill, 2004, p. 2). When the allocation of goods and services by the market fails to achieve the Pareto efficiency, economists call the situation market failure. While the introduction of market mechanism in higher education is to promote competition among HEIs and thus to increase their responsiveness to the demand of the public, the lack of many ingredients of markets in higher education also leads to market failures. Among many factors that challenge the self-regulating function of market mechanism is information imperfection. In the case of higher education, the general public who pays for and supports higher education does not always know how effectively HEIs are operated and whether they are producing desired outcomes. Sometimes, even HEIs, the producers of educational products, know little about whom their customers are and what they want from HEIs, let alone providing quality products and services competitive enough in the higher education marketplace.

It is in this context that assessment is in the interest of both HEIs and the public. For HEIs, the ones that provide quality education to their students have a strong incentive to somehow distinguish themselves from their low-quality peers. If they fail to do so, the low-quality HEIs tend to grow more rapidly than high-quality ones and soon the market will be replete with “lemons,” a colloquialism for a defective car in the used car market, made famous by economist Akerlof (1970) in his seminal study on markets with asymmetric information. For the public, their information about what actually takes place in classrooms and on campuses will always be imperfect due to the extremely complex and diverse nature of higher education institutions. To prevent “adverse selection,” or the selection of and investment in “bad” products, the public needs to provide incentives for HEIs to reveal good information on student learning outcomes through assessment.

Apparently, the free flow of information is the prerequisite to the normal function of the higher education market. Taking the role of consumers, the public now has to be precise about what they expect from HEIs and how they can effectively assess the design and impact of “education products” supplied by HEIs. To HEIs, the question is not whether but how they can use assessment as a tool to achieve the expected outcomes of the competitive market: (1) increased efficiency; (2) enhanced quality; and (3) differentiation and innovation.

Increased Efficiency. In the Smithian world of free market, competition triggers responsiveness to changes in supply and demand. Well-informed customers know what they want to get out of a college education and how much they are willing to pay for it, forcing “institutions to align their offerings to the needs of the marketplace” (Massy, 2004, p. 23). Such an alignment process provides incentive for institutions to assess what they do and how they do their job, leading to program improvement and clear demonstration of HEIs’ effectiveness to their constituencies. Consequently, less-efficient and/or less-productive programs and services have to improve or face elimination in the

competition, so will less-efficient and/or less-productive institutions. Ultimately, the higher education market achieves a Pareto-efficient allocation of resources.

Enhanced Quality. In a mature market, customers “look for accountability, but they also seek quality” (Kovel-Jarboe, n.d.). The introduction of market mechanism effectively decentralizes decision making by allowing customers to assert their individual preferences when it comes to school choices. Depending upon the level of tuition reliance, institutions have different levels of incentive to enhance the quality of their education programs and services in order to win over prospective students and/or their paying parents. Again, as in any other markets, information about the quality becomes a vital ingredient in the higher education market. The challenge is, however, that higher education is such a knowledge-intensive industry that its consumers do not always have the ability to recognize its quality and value, let alone having sufficient capacity of judgment on academic subjects. That explains why the public as consumers of higher education prefers seeing quality of student learning outcomes through comparative lenses: they expect the quality as well as the evidence of quality communicated to them in an easy-to-understand manner.

Differentiation and Innovation. Finally, driven by market forces, the landscape of higher education has changed dramatically over the past three decades. With the massification of higher education and diversification of the student body, innovation has become the key to survival for many traditional and non-traditional colleges. In order to cater to a wide spectrum of student needs in terms of attendance patterns, course offering modes, pedagogical requirements, and learning styles, HEIs have to constantly innovate the way they do business. Especially given the growth in number and types of organizations offering education programs in the market, be it virtue, for-profit, corporate, franchise, or any other new forms of providers, differentiation becomes the only way through which a HEI can attract students from its well-established market segment and beyond. Through assessment HEIs can learn about their level of differentiation and competitiveness in the market.

The above three challenges faced by HEIs make a good case for higher education to rely on the assessment mechanism to supply feedback information, so that efficiency, quality, and innovation in higher education can be achieved as a result.

The Traditional Assessment Paradigm and Its Critique

The traditional paradigm for outcomes assessment, as commonly known as the assessment loop or feedback loop, offers the promise to supply information for institutional improvement. Incorporating scholarly work and good practices in this area, the Middle States Commission on Higher Education in its accreditation manual summarizes the assessment paradigm in a four-step cycle (Figure 1):

1. Developing clearly articulated written statements, expressed in observable terms, of key learning outcomes: the knowledge, skills, and competencies that students are expected to exhibit upon successful completion of a course, academic program, co-curricular program, general education requirement, or other specific set of experiences, ...;

2. Designing courses, programs, and experiences that provide intentional opportunities for students to achieve those learning outcomes, ...;
3. Assessing student achievement of those key learning outcomes; and
4. Using the results of those assessments to improve teaching and learning. (Middle States Commission on Higher Education, 2006, p. 63)

This is a continuous, self-sufficient cycle, with the underlying assumption of perfect information: Institutions can clearly articulate their mission as well as goals and objectives derived from the mission; goals and objectives can thus be operationalized and made measurable; valid and reliable data can therefore be collected to measure the outcomes of student learning, which are always part of an institution's stated mission; and finally, assessment outcomes backed up by data can be used to improve educational programs and communicated to the public for the accountability purposes. The question is: Can this assessment paradigm live up to its promise in the market of higher education with imperfect information?

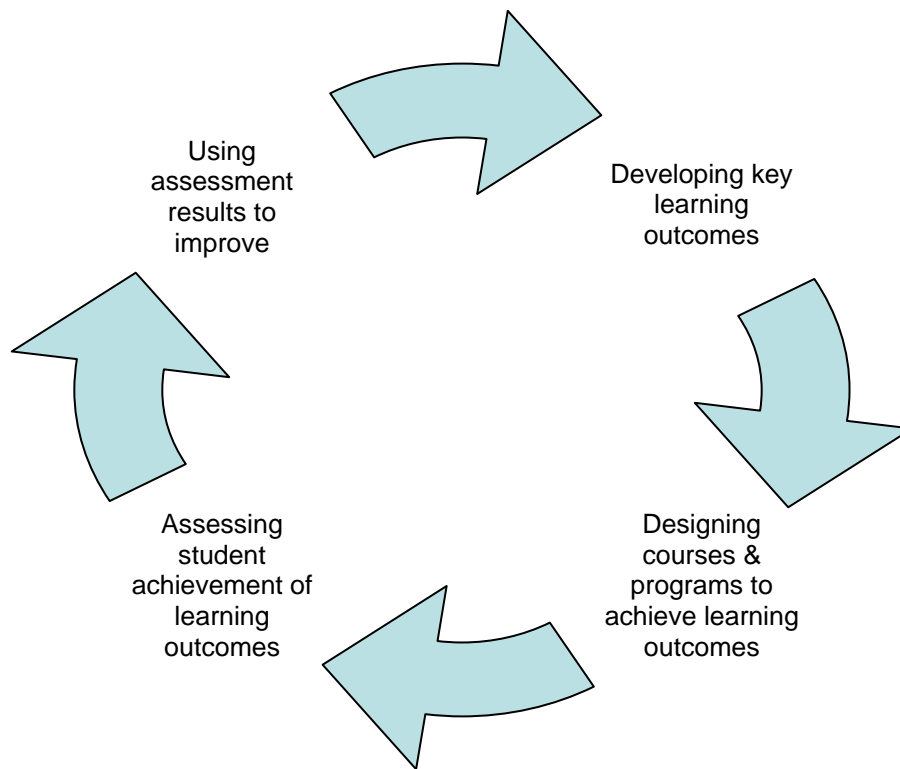


Figure 1. The traditional Paradigm of Assessment

Nobel Laureate Joseph Stiglitz once points out: “While there is a single way in which information is perfect, there are an infinite number of ways in which information can be imperfect” (Stiglitz, 2003, p. 583). In the world of higher education, information is perfect, or near perfect, when the goals and objectives of a specific program are clearly articulated and thus quantitatively or qualitatively measurable. “Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes” (AAHE,

1992, p. 2). This is the necessary condition under which the traditional assessment paradigm was constructed, has worked, and will continue to work, to serve the purpose of program improvement.

However, as soon as this internal, improvement-oriented process is being stretched beyond the program level, the information environment becomes complex and hence imperfect. Once relegated to the elite whose trust for universities to provide quality education was unconditional, HEIs today face the market in which they are constantly judged and measured in terms of expected outcomes. For the sake of accountability, institutions are asked to conduct its inquiries about student learning out in the open, where all who care to can see them (Ewell, 2005, 123). Consequently, the traditional assessment paradigm began to lose its simplicity and elegance.

Parsons's (1996) research on imperfect information in data and knowledge bases has provided a framework for us to examine HEIs' strive to establish a sound assessment model while facing the problem of information imperfection. Without an alternative paradigm to the traditional one, HEIs have "to model the real world using some idealisation by *engineering out* the inherent uncertainty" (Parsons, 1996, p. 353). Here "an infinite number of ways in which information can be imperfect" fall into three categories in Parsons's terminology: *uncertainty*, *incompleteness*, and *imprecision*.

Uncertainty. Recall that one of the market's expected outcomes for higher education is increased efficiency, which is commonly defined as "the ratio of outputs to inputs, both *adjusted for quality*" (Teixeira, Jongbloed, Amaral, & Dill, 2004, p. 21). But to higher education professionals, no question is more embarrassing, sometimes humiliating, than the following: How can we define the quality of education offered by a college or university? Do we know whether or when learning is taking place? What happens between admission and graduation? These questions are deceptively simple, but no one has so far produced answers deemed acceptable to the general public.

Furthermore, such quests for defining quality in higher education beg bigger, more fundamental questions: Is it even reasonable to assume that the quality of education offered by a college or university can be defined? Or, is student learning observable, just like an automobile whose production process can be closely monitored and whose quality can be tested?

Frustrated by lack of good answers to these questions, HEIs have since developed a surrogate for the definitive quality of college education, arguing that each college or university is "one of a kind" and thus needs to develop its own mission statement and decide "whom the institution serves and what it intends to accomplish" (Middle States Commission on Higher Education, 2006, p. 1). But one empirical study of 114 mission statements shows that most of these statements are "amazingly vague, vapid, evasive, or rhetorical, lacking specificity or clear purpose" (Newsom & Hayes, 1991, p. 29). A more recent study of 300 mission statements shows that "institutions include in their mission what their benefactors value" (Morphew & Hartley, 2006, p. 467), which has nothing to do with standards or expectations for student learning. As a result, these mission statements "provide no direction for strategic planning nor do they help an institution focus its mission or decide which programs to add or terminate" (Morphew & Hartley, 2006, p. 469).

According to Parsons (1996, p. 3), "uncertainty [arises] from the fact that an agent has constructed a subjective opinion about the truth of a fact which it does not know for

certain.” Here the lack of definition on quality, along with subjectively constructed mission statements not necessarily connected to student learning, foreshadows many difficulties encountered by HEIs in their drive to complete the institutional assessment cycle. In other words, an assessment model that fails to take into account the uncertainty of institutional purpose is bound to lose its elegance as well as usefulness.

Incompleteness. Even if we can somehow overcome the problem of uncertainty and succeed in defining student learning outcomes, we still have to face the next challenge of incomplete information. Incompleteness is simply a lack of relevant information, and its presence makes the completion of an assessment cycle very difficult.

Since early 1990’s, the concept of value-added assessment has gained increasing popularity (Astin, 1993; Baird, 1988). “By value added we mean what is improved about students’ capabilities or knowledge as a consequence of their education at a particular college or university” (Bennett, 2001, p. 40). Here is how it works: Assuming HEIs can come to some kind of agreement on what constitutes student learning, they will use a valid and reliable instrument to measure students’ development as they begin college, and use the same instrument to measure the same students again after their completion of education at the same college. The difference between a student’s matriculation and graduation is what a HEI contributes to student learning.

Whether such a valid and reliable instrument exists or will be available in future is a different story. What matters most here is the assumption of causality between what a HEI intends to teach and what a student actually learns, as well as how that causality can be established. When examining the Collegiate Learning Assessment (CLA), a widely touted value-added instrument, Pike (2006, p. 6) points out the fact that “there is not a statistical basis for assuming that differences in institutions’ deviation scores on the CLA reflect differences in the quality of the institutions’ educational programs.” Moreover, a HEI cannot, and may never be able to, account for all the factors that contribute to student learning while attending an institution. Attendance patterns, motivation to take the test, academic preparation before entering college, among other things, all play a role in the learning outcomes (Pike, 2006). Therefore, information incompleteness makes any value-added claim of student learning inconclusive.

Imprecision. Assuming that we are able to pinpoint the causal relationship between an academic program and its desired outcomes regarding student learning, the daunting task we have to face next is to construct instruments that measure precisely what we intend to measure. Driven by the public demand for HEIs to reveal quality standards of college education and allow institutional comparisons, HEIs have drawn heavily on ideas and practices developed in secondary education, including such standard-driven tests as National Assessment of Educational Progress (NAEP). Internationally, prompted by the dearth of available data on student learning, the Paris-based Organisation for Economic Cooperation and Development (OECD) recently launched an effort to develop comparable assessment standards for measuring how much students are learning at higher education institutions throughout the world (Labi, 2007). This coincided with the call for common learning measures and across-the-board comparisons among institutions by the Spellings Commission in the U.S.

This most recent wave of calls for comparable assessment standards and tools regarding student learning has once again raised the question of whether standardized testing is the answer to the problem of quality in higher education. Analyzing

standardized tests from the vantage point of state priorities, academic concerns, and market forces, Erwin (2005) points out that, while standardized testing fits state priorities best and works well to meet information needs of the market, the real challenge comes from faculty who view these tests “as valid only for evaluating lower-level skills and not for higher-level skills and discipline-based knowledge” (p. 129). Although faculty is widely known for their resistance to standardized testing in the name of academic freedom and/or for fear of losing their prerogative in curriculum decisions, a much deeper concern actually has to do with the trust among faculty on standardized tests in delivering valid and precise measures of student learning. “Imprecision is considered as arising from the granularity of the language used to make the imprecise statements” (Parsons, 1996, p.4).

The problem of imprecision in assessment measures becomes even more salient when it comes to general education. “Although advocates of higher education have long lauded the value of a liberal education, it means different things to different people” (Erwin, 2005, p. 132). When examining the claims by the Collegiate Learning Assessment (CLA) that the test is designed to assess skills related to critical thinking, analytical reasoning, problem solving, and written communications, Pike (2006, p. 7) questions whether what he means by these skills is the same as what the test developers have in mind. Here the assessment loop goes back to its starting point: “The appeal of these generic outcomes obscures the fact that we have not agreed on a definition of the outcomes” (Pike, 2006, p. 7).

Building a New Assessment Paradigm: Where Do We Begin?

In the mid-1980s, two highly publicized reports, *Involvement in Learning* (National Institute of Education, 1984) and *A Time for Results* (Alexander, Clinton, & Kean, 1986), argued that “colleges and universities should be held accountable for establishing clear standards for performance with respect to student learning and that results of student assessments should be publicly reported and coupled with consequential actions” (Ewell, 2005, p. 107). These reports were among the first calls for institutions to use assessment for the purpose of accountability, and they provided justifications for the state assessment mandates in late 1980s and early 1990s. This trend of government mandates for expanded institutional assessment programs to serve accountability on behalf of the public has continued, as evidenced by the recent Spellings Commission call for more accountability.

People in the academe knew from the very beginning how difficult it would be for them to follow the traditional assessment paradigm in such a public manner, but they have argued against these government mandates on the ground of institutional autonomy and academic freedom. The latter are higher education’s most cherished core academic values, but mostly unknown to the world outside of the academe, especially to today’s market-savvy audience. As a result, these arguments are interpreted as HEIs’ resistance to accountability mandates and have therefore backfired. Spreading widely among the public over the past twenty years has been a “crisis of confidence,” an eerie feeling that nobody really knows how bad things may be on campus. Just as in the financial market where fluctuations are not always backed up by evidence regarding company performance, in the higher education market the public’s feeling may not have anything

to do with the actual performance of HEIs either. “[T]he point is not so much that outcomes are visibly deficient as the fact that no one seems to know *what* they are” (Ewell, 2005, p. 122).

What we observe here is a classic case of market failure due to information imperfection, whose most common remedy is government intervention. Given its long tradition of self-regulation and self-policing, HEIs’ reaction to government mandated assessment is not difficult to understand. Unfortunately, HEIs have employed a wrong strategy to respond to the totally reasonable demand of the market for information on student learning. Instead of exploring new quality assurance models or developing a new assessment paradigm to address imperfect information in the higher education market, HEIs have simply expanded the traditional paradigm of assessment and tried to apply it for the purpose of accountability at the same time, with a secret hope that all the talks about accountability will someday go away like other management fads. Of course, it has not yet happened, and is not likely to happen in the foreseeable future. The market of higher education is here to stay, so is “an infinite number of ways in which information can be imperfect” when it comes to assessment of student learning.

To a large extent, HEIs themselves are also the victim of imperfect information and lack of a sound assessment model in addressing higher education’s many problems in the marketplace. Arthur Levine, former President of Teachers College, Columbia University and a prominent scholar of higher education, told a story about his visit to a state whose legislature was considering a bill tying faculty salaries entirely to time spent in the classroom. He asked the faculty in a research university of that state what they thought of the bill. Their response was “intellectual McCarthyism.” (Levine, 2001, p. 41). This response made Levine wonder how such bright people could be so out of touch with reality. But a closer examination of campus culture has uncovered the fact that faculty themselves may also lack sufficient information to judge the quality of academic programs (Dill & Soo, 2004, p. 62), and they do a worse job communicating effectively to the public what they have done regarding student learning. If an assessment approach cannot even meet the information needs of its own faculty, how can it be used to answer the call for accountability from the general public?

A shift of assessment paradigm is therefore in order, with the change of assumptions as the prerequisite. Any revision of the traditional assessment paradigm or creation of a new paradigm has to meet at least two requirements: (1) The new approach has to factor imperfect information into its design of assessment process; and (2) The new approach has to produce assessment results responsive to specific needs for information by different types and/or sectors of the external audience.

Up to this point, we have used the term “public” to include all possible constituencies and stakeholders of higher education. While this is done for the convenience of narrative, it can be problematic if we are to make an attempt to build a new assessment paradigm that is responsive to the needs of today’s extremely diverse constituencies of higher education. Ewell (2005) conceptualizes various stakeholders of accountability and summarizes them in one sentence: “*Who is accountable to whom for what?*” And we propose to go one step further by offering a three-way classification of the “to whom” question in a hierarchical order, which is to a large extent dictated by the “for what” question: (1) to the learning community, for the purpose of demonstrating student learning outcomes; (2) to the paying community, for the purpose of showing

return of private investment on higher education; and (3) to the governing community, for the purpose of ensuring the social benefits of higher education (Figure 2). In this three-level paradigm, assessment activities are conducted according to the needs of the receiving end of information, with each successive assessment level built on information provided by the lower level.

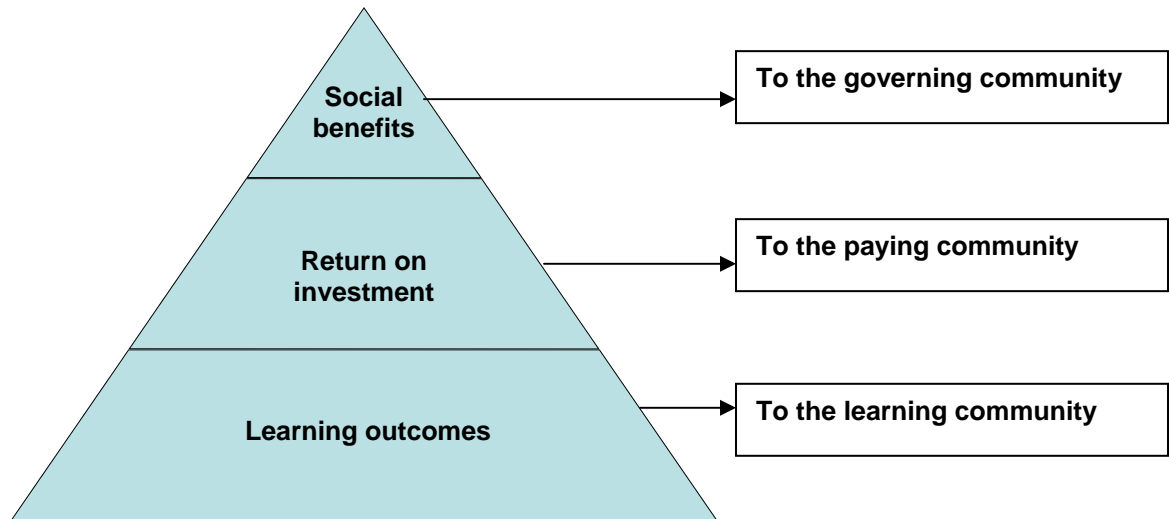


Figure 2. The New Paradigm of Assessment

Three Levels of a New Assessment Paradigm

Level 1: Demonstrating Learning Outcomes

As discussed before, the traditional assessment model works the best when the information environment is perfect or near perfect, i.e., the goals and objectives of a learning program are clearly defined; the factors leading to desired learning outcomes are accounted for and measurable; and assessment instruments are proven valid and reliable. These are the conditions for completing the traditional assessment loop. For the purpose of understanding student learning and improving programs, this model is quite robust if we know what the limit is and how much we can make out of the assessment results. The trouble of the traditional assessment paradigm started in the mid-1980s when higher education began its adventure with assessment under an accountability aegis (Ewell, 2005, p. 124). The latter emphasizes measurable learning outcomes for the sake of public consumption, rather than using assessment to retrieve true learning outcomes which in many cases resists measurement. As a result, the traditional assessment program, when used for accountability, drives away its most important beneficiaries: faculty and students, or the learning community.

Therefore, the very first step toward constructing a new assessment paradigm is to bring back its most important users of information: students and faculty. Since students

and faculty are the producers as well as primary consumers of information derived from assessment processes, the assessment design has to yield outcomes information that is usable by students to learn about where they stand in a learning process and by faculty to learn about how effective their teaching is.

While each subject area is different in terms of learning processes and outcomes, well-designed learning programs should share a common feature of “foster[ing] understandings of subject matter, skillful practices, the formation of efficacy beliefs and metacognition” (Knight, 2006, p. 439). Here the difficulties of measuring human understanding should be acknowledged in advance given information uncertainty, incompleteness, and imprecision. Consequently, any venture into the development of valid and reliable judgments of understandings has to reflect the context in which learning goals and outcomes are defined for the program and by the faculty. Besides developing tests to measure student learning in the subject areas where the recall of information is necessary, the most common method that gives rise to valid and reliable judgments on more complex achievements is to include tasks as part of the curriculum plan. “Tasks, particularly interactive tasks, create performances that can be and are judged or assessed, formally or otherwise. Good teaching therefore involves good task planning and good tasks afford plenty of opportunities for judgment and conversations about judgment” (Knight, 2006, p. 441). In so doing, assessment is no longer an after-thought; it is designed into the curriculum or learning program from scratch.

Level 2: Showing Return on Investment

The paying community consists mainly of four parties: parents, students, philanthropists, and governments on behalf of taxpayers and any other stakeholders. The underlying costs of higher education are borne by some combination of these four cost-sharing parties (Johnstone, 2004, p. 38). Because the traditional assessment paradigm completely ignores the issue of college costs and worthwhileness, it should not come as a surprise that the paying community is now a driving force behind the accountability movement.

The idea of measuring total number of dollars spent per student has been around for a long time, but it was until recently with the rise of accountability movement that HEIs were asked to produce evidence of connections between costs and outcomes, or a record of the cost of student learning outcomes. In the business world Kirkpatrick (1998) was among the first to try to translate learning and training into business results. Building on Kirkpatrick’s (1998) four-level model of assessing training effectiveness (i.e., reaction, learning, transfer, and results), Phillips (2003) moved the evaluation of a training program to the next level – Level 5. He maintains that Kirkpatrick’s Level 4 data, training results, should be converted to monetary values and then compared to the cost of the program to represent the return on training investment.

Neither Kirkpatrick nor Phillips claimed applicability of their models to the higher education industry, but this line of thinking in terms of return on investment, or ROI, is ubiquitous in today’s increasing scrutiny on student learning outcomes. Especially given the escalating college tuition over the past decade, HEIs are called upon to provide evidence to the paying community on the return of their investment, a task that most HEIs are unprepared for and/or incompetent of carrying out.

Recall that the key to normal function of higher education market is to have well-informed consumers who know what they want to get out of a college education and how much they are willing to pay for it. Unfortunately this is the area where information has become very asymmetric between HEIs and its paying community. While the paying community's knowledge about financing higher education is mostly based on the business model, the reality is that the prices HEIs charge to users of their services have little to do with production costs. According to Winston (1999, p. 29), "The most fundamental anomaly in the economics of higher education is the fact that virtually all U.S. colleges and universities sell their primary product – education – at a price that is less than the average cost of its production." As a result, most people assume that HEIs operate in the same way as typical business forms using the formula of "Price = Cost + Profit," while in fact HEIs rely heavily on subsidies to cover the cost of their operations: "Price + Subsidy = Cost" (Winston, 1999, p. 39).

Because HEIs' reliance on subsidies, the massification of higher education, among other factors, has affected financial well-being of many institutions. With increased enrollment and rising tuition over the past few decades, parents and taxpayers were led to believe that their contribution to HEIs had increased; the reality was just the opposite. Winston (1999, p. 41) estimates that "if a student is induced by these subsidies to go to the average public college, for every one dollar she or he brings in new tuition revenues, there will be nine dollars in additional costs." In addition, because financial accountability has never been included in the traditional assessment model, besides documenting the costs of capital services (e.g., buildings, computer labs, libraries, etc.), HEIs simply do not know how much academic or social activities actually cost and what students can get out of these activities. Apparently a good explanation of subsidy in HEIs' cost structure could answer, at least partially, the question of why tuition rises so fast; this may win HEIs some sympathetic ears. The failure of HEIs to make connections between activities, their costs, and student learning using the traditional assessment model has given rise to a "crisis of confidence" in higher education, especially in the mind of the paying community.

Thus, in developing a new assessment paradigm, HEIs, like it or not, have to take into consideration of the widespread market model of ROI. The ROI component is based on student learning outcomes obtained through Level 1 assessment and connects these outcomes with costs. This requires that assessment professionals be very meticulous in documenting important cost elements on campus as related to student learning activities, with cooperation from accountants and facilities managers (Winston, 1999, p. 43). Although the inclusion of an ROI module in the new assessment paradigm allows HEIs to demonstrate to the paying community their effectiveness and value, it can also serve as an educational tool for the public to better understand the financial structure of higher education.

Level 3: Ensuring Social Benefits

In terms of funding for higher education, federal and state governments are part of the paying community, but the term of "governing community" is used here in a broader sense to include federal, state, and local government agencies as well as legislatures and governing boards of higher education that exert direct and indirect influence over higher

education policymaking. It is estimated that the federal government provides \$69 billion in student grants and loans through Higher Education Act in 2002 (Hartle, Simmons, and Timmons, 2003) and state governments spend \$70 billion annually in support of institution, research, public service and student aid (Eaton, 2006, p. 77). This spending is on top of increasing investment from private contributions in the form of tuition payments, alumni gifts, and other donations. While HEIs have enjoyed significant independence and autonomy through a peer-review based system of accreditation in the past, the governing community's willingness to let HEIs judge and assure their own quality is diminishing; too much political and financial interest is at stake.

The governing community's involvement in higher education takes two major forms. First, given that higher education provides non-priced social benefits, such as offering disciplines in low market demand areas of arts and humanities, providing access of education to low income families, and even enhancing public health (Woolf, Johnson, Phillips, & Philipsne, 2007), the governing community has a strong interest in ensuring that higher education remains a public good and continues to produce social benefits. Second, in order to justify its continued subsidies to higher education, the governing community has to act on behalf of the public to ensure that their share of HEIs' costs results in predicted student learning and social benefits.

But the governing community is in no better position than anybody else when it comes to assessing the quality of a college education and the effectiveness of HEIs' way of delivering it. What the governing community does have are two very powerful tools: financial incentives and regulations; or, carrots and sticks. As Massy (2004, 14) points out, "The idea that governments should set the boundary conditions for markets is widely accepted." With popular support, the government can act in the interests of any constituencies of higher education, rewarding behaviors deemed meeting public expectations or shaping policies in ways against HEIs' will. Therefore, HEIs should be highly motivated to cooperate with the governing community and develop a new assessment paradigm that takes full considerations of interests represented by the governing community.

A new assessment paradigm with government involvement carries three important features. First, it necessitates the inclusion of incentive devices that motivate HEIs to reveal student learning information using the language understandable by the public. For HEIs, any exaggeration of disciplinary specialties or faculty prerogatives in setting quality standards will not bode well and may lead to future punitive regulations from the governing community. Second, it has to address national and international standards for academic quality, be it performance indicators, minimum standards, across-the-board comparisons, or anything else. Finally, it has to contain evidence of how the society benefits from effective student learning, as a result of HEIs' intentional and purposeful efforts.

Summary and Discussion

Unlike most existing research on assessment, this paper is less about what to do but more about what not to do when it comes to assessing student learning. This approach is appropriate because what the author proposes here is a paradigm shift, not an amendment. "Paradigms are mental models that constrain our thinking and are often

based on assumptions so strong we don't notice them" (Tapscott & Williams, 2006, p. 274). The traditional assessment paradigm, as we know it, has been in use for at least three decades now, with many research papers and work reports still emerging and accumulating on the daily basis in refereed publications and on HEIs' Websites. But why has all the hard work devoted to this field has not earned HEIs and their assessment professionals much respectability from the public and the governments? If the traditional assessment paradigm can deliver what it promises, why is there still increasing, instead of decreasing, public outcry for accountability? "Hardly a day goes by without an attack on academic institutions for inefficiency, irresponsibility, and ungovernability" (Altbach, Gumport, and Johnstone, 2001, p.1).

Therefore, it is time for a paradigmatic change. "New paradigms cause disruption and uncertainty, even calamity, and are nearly always received with coolness, hostility, or worse" (Tapscott & Williams, 2006, p. 274). What is outlined as a new paradigm for assessing student learning in this paper may face the same challenges due to the roughness of the framework being proposed and the lack of details in guiding daily practices. Also, the idea of assessment for the sake of information rather than improvement may lead to concerns of who will be using the information and how the information will be interpreted. Without ready solutions to these problems, the author offers a summary along with many unanswered questions.

The functioning of traditional assessment paradigm depends on that (1) an HEI has clearly defined mission and stated goals and (2) the goals can be operationalized and measured to determine their success or failure. Because the assumption of perfect information fails to acknowledge information imperfection in the academic production process, the usefulness of the four-step assessment loop is limited in assessing certain academic programs with clearly articulated goals and student learning expectations. When stretched beyond the program level and used for the purpose of accountability, the traditional assessment paradigm can lead to delivery of wrong information about institutional effectiveness and/or right information to a wrong audience.

Table 1 lists some of the key features of the new assessment paradigm as compared to the traditional one.

Table 1. Comparison of traditional and new assessment paradigms

	Traditional	New
Purpose	Improvement	Information
Assumption	Perfect information	Imperfect information
Model	Self-sufficient, 4-step loop	Open, 3 interdependent levels
Appropriate Audience	Inside HEIs	Inside and outside HEIs

Driven by market forces, today's HEIs can no longer stay within the institutional boundary and use self-defined institutional missions and goals to complete the assessment loop, wishing that the purpose of accountability can be served at the same time. More than ever, HEIs' constituencies and stakeholders are reluctant to take HEIs' word for it – they demand information about student learning outcomes, about return on private investment, and about the evidence of HEIs' contribution to social welfare so that they can make their own judgment on the higher education industry. It just so happened that assessment was identified by the public as a tool that can be used to monitor HEIs'

performance, though what the public has in mind about how assessment should be conducted is not quite the same as what HEIs have used it for. Therefore, instead of asking the public to change their vocabulary or mindset, which may not be a wise thing to do in today's market-driven society, it is time for assessment professionals in higher education to engage themselves in active research and development. This paper represents the author's attempt to set a conceptual framework, from which the work of designing new, feasible assessment models can be launched.

Apparently many blanks need to be filled in this new assessment paradigm. While the first level of understanding student learning outcomes may be somewhat easier, thanks to years of theoretical and field work in assessment, moving to the second level may pose a big challenge to assessment professionals. Not only has there never been such a tradition of documenting cost elements on campus as related to student learning outcomes, most assessment professionals themselves do not even have sufficient finance or accounting background to handle cost and benefit analysis. Consequently, forging an alliance between the offices of assessment, accounting, and facilities management on campus becomes the key.

As to the third level of demonstrating HEIs' contribution to social welfare in the area of student learning outcomes, the higher education community has to work cooperatively with governments and other governing bodies to articulate what it means and how HEIs can better meet the information needs of the public. From an economic point of view, governments support higher education by providing direct funding to public institutions and "buying" education products from private institutions on behalf of society (Teixeira, Jongbloed, Amaral, & Dill, 2004, p. 3). In either case, the governing community represents the interests of its constituencies and hence develops its needs for outcomes information based upon what the public wants. Since the political environment changes constantly and the need for assessment information may also change accordingly, assessment at the third level requires political sensibility from assessment professionals as well as willingness to be responsive to the public demand from institutional leadership. After all, being responsive to the public demand is the most basic requirement for any HEI to stay competitive in the higher education market.

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