Report of
Task Force on
Assessment of Learning

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By
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Executive Summary

This report summarizes the discussions of the Task Force on Assessment of Learning during its meetings of fall 2010. These meetings have culminated in a proposal for a new assurance of learning (AoL) program for the graduate programs offered by Graduate School of Management. While directed at the School’s day and working professional MBA programs – currently one degree offered in three locations – this proposal also scales to new programs, such as the proposed Masters in Professional Accountancy.

Importantly, this proposal in our view meets the current standards of the AACSB for assurance of learning, established as of April 25, 2003 and most recently revised as of January 31, 2010. This report also responds to the issues and topics raised by Dean Steven Currall as part of the Task Force’s charge to create an assessment program for the GSM that complies with AACSB standard 18.

Our proposal builds upon the GSM’s four learning goals and the sub-goals related thereto (GSM 2009a). Conditional on these learning goals, we summarize our proposal as follows. That:

1. The GSM shall establish an AoL program that relies primarily on direct, course-embedded measures of learning. Our proposal includes certain indirect measures of learning as possible supplementary inputs only. It does not include input from student or employer surveys or standardized tests administered by outside groups, as research indicates these methods do not provide strong evidence of learning, although they could be useful in other ways.

2. Each course taught by a GSM instructor shall contain measurable performance inputs (e.g., homework, exams, presentations, case study, group project) that relate to program learning. These shall relate to at least three learning sub-goals from one or more of the four GSM learning goals. Currently, the four GSM learning goals break down into 15 sub-goals. Some courses might relate to just one of the four GSM learning goals, whereas others might relate to several.

3. Each GSM instructor has the responsibility to identify the learning goals in his or her course. We propose a staff function – the GSM Learning Assessment Center – to assist GSM instructors in the identification of learning goals and the relation of learning goals to performance inputs.
4. At the beginning of each quarter, each GSM instructor shall identify a set of performance inputs that relate to learning sub-goals for program evaluation. Regardless of the particular form of performance input, for purposes of program evaluation students will be evaluated on whether they exceed or do not exceed a threshold for each learning sub-goal covered by the performance inputs. Written criteria shall be established to indicate how a student may exceed the threshold. Depending on the type of learning goal, a student's performance may be evaluated by the instructor or an independent evaluator.

5. Each instructor (or evaluator) shall record a learning score for each student for each learning sub-goal and indicate why such score meets or does not meet the threshold for learning on that sub-goal. In courses that include group work, the instructor shall meet the AACSB requirement that each student be assessed based on that student’s own performance and not the group’s performance.

6. Learning scores for each student for each learning sub-goal shall be submitted to the Learning Assessment Center (LAC) by the end of the quarter in which the course is taught. Written comments or explanations relating to such assessments shall be requested by the LAC in consultation with the instructor, where such request is made at the beginning of the quarter. In some courses, to provide independent assurance of learning, the LAC may arrange for an evaluator other than the instructor to help conduct the tests, record the performance, and make the threshold assessment.

7. Faculty oversight of the LAC shall be through a standing committee of the GSM. We recommend a new committee – the GSM Learning Assessment Committee, whose charge it would be to ensure that the GSM maintain an assessment program that provides assurance of learning in compliance with AACSB standard 18 and to ensure that information feeds back into the curriculum on a continuous basis for purposes of curricula monitoring and renewal.

8. The LAC shall archive the AoL data and a faculty committee shall report to GSM faculty at least annually. This report should focus primarily on learning and curricula monitoring and renewal at the program level, as per AACSB guidance. The report should also identify for curricula review purposes appropriate learning issues in particular aspects of the program, such as in area concentrations.
9. This AoI program should be implemented for all courses taught by senate faculty beginning fall 2011, and for all other GSM instructors beginning fall 2012, with earlier implementation encouraged.
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Task force charge and background

Charge

Graduate School of Management Dean Steven Currall requested in June 2010 that a task force address several issues regarding how the school’s MBA program assesses learning. Because we offer the MBA at three locations – Davis (day, full-time), Sacramento (working professional, evening), and San Ramon (working professional, weekend) – the task force intends that the issues covered and recommendations made apply equally to learning at all three locations. The specific issues requested and addressed in this report are:

A. Create an assessment program that complies with AACSB standard 18.
B. Provide a list of specific assurance of learning measures (linked to the program learning goals already identified) and criteria for evaluation.
C. In addition to the assessment data gathered to date, provide a summary of how these data and the results will impact the curriculum.

Dean Currall also requested that the task force report cover four additional topics:

D. Define what is meant by “learning“ and “assessment.”
E. Articulate how our assessment of learning addresses the AACSB’s requirements.
F. Identify sources of data that enable the GSM to measure and track learning, and
G. Conceive of a continuous improvement model whereby information about learning is fed back into faculty decisions about curricular renewal.

Background

A well-established axiom in higher education is that program excellence depends critically on establishing learning goals and assessing whether students learn in accordance with those goals. However, the main impetus for this task force report stems from the conclusions of an AACSB peer review team that visited the school on March 1-2, 2010 to assess the Davis MBA program. Based on that report, Robert Reid, Chair, AACSB Maintenance of Accreditation Committee, concluded in his April 30, 2010 letter to Dean Currall that a maintenance review be continued for one more year (sixth year review) to address two educational quality issues, one, that the school develop a curriculum management process that incorporates multiple
constituent views and inputs (AACSBS standard 15) and, two, that the school establish a process for analysis and assurance of learning outcomes, use this analysis to “inform the curriculum”, and “develop more specific assurance of learning measures along with criteria for evaluation” (AACSBS standards 18 and 20). Reid stated that both issues must be resolved successfully before accreditation can be extended following a sixth year review.

In other words, on these two issues, the GSM failed to demonstrate to the satisfaction of the peer review team that its MBA program meets the AACSBS standards on curriculum management and assurance of learning. Chairperson Robert Reid also placed the GSM on a tight time-line, namely, to respond by January 15, 2011.¹

The principal goals of this report are to inform faculty of the work of this task force on the specific issues stated at the outset and to assist Dean Currall in his response to Chairperson Reid.

Assessment of learning framework

AACSBS standard 18 builds upon the notion of outcome-based education (OBE), which emphasizes what students learn from the faculty (the outcomes) rather than what faculty teach the students (the inputs). Most would agree (including the AACSBS) that an OBE approach can offer substantial benefits stemming factors such as a shift from faculty teaching to student learning and from course requirements to course results, clearer definitions of learning outcomes (such as measureable competencies), and more precise knowledge about how to improve the curriculum and meet the overall mission of the program.

Such benefits cannot be achieved without a strong faculty and staff commitment to planning, implementing, and resourcing a strategy for success. In fact, the AACSBS standards require that the program faculty and staff be fully involved in and responsible for the process. Under the AACSBS standards, faculty who consider themselves excellent teachers must, therefore, also design their courses with learning goals in mind and use measures to assess student learning in accordance with those goals. Further, the school must take steps to encourage faculty to make OBE succeed, not only for faculty themselves but for the benefit of the entire program. Indeed,

¹ Such standards, initially adopted April 25, 2003 (revised July 1, 2009 and January 31, 2010), should have been fully in place by 2007, according to AACSBS guidelines.
developing commitment, involvement, and understanding on the part of the GSM faculty is absolutely critical to make OBE work.²

Our proposed assessment of learning (AoL) framework builds upon the four learning goals of the GSM.³ These have already been established and agreed to by the faculty. They are:

“By completing the MBA program, students should be able to

- Work well in teams and lead them,
- Apply moral and ethical standards to management decisions,
- Use appropriate models for analysis and planning, and
- Understand multiple functional areas.”

Under the current GSM approach, these four goals are broken down into 15 sub-goals, each of which is assigned a threshold expectation for satisfactory performance. We assume that the faculty agrees with these sub-goals and how they relate to a threshold expectation.⁴

The next step is to obtain evidence about the expected competencies and/or outcomes for each goal or sub-goal using valid measures of learning.⁵ The final step evaluates the evidence of learning in terms of the competencies or outcomes relative to a threshold expectation. The approach adopted thus far by the GSM considers what percentages of students in a course exceed (E), meet (M), or do not meet (D), according to the instructor, a threshold expectation for satisfactory performance.

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² A recent survey of 420 deans at AACSB business schools (Kelley et al. 2010) finds that faculty resistance to learning assessment can be a serious hindrance to success. The most serious faculty concerns expressed were (1) lack of knowledge about how to conduct an assessment, (2) amount of additional time, (3) use of assessment results in personnel actions, and (4) increased complexity in grading.

³ This is the suggested minimum number of learning goals according to AACSB (2007).

⁴ These sub-goals are listed in the GSM’s Learning assessment rubric for the MBA program (GSM 2009a).

⁵ Valid measures for learning assessment should have the following properties: the measures should be repeatable each year, easily captured, quantifiable, and have predictive ability regarding other measures.
regarding a particular learning goal or sub-goal, where the sum of the E, M, and D percentages equals one.6

Critical to an AoL framework is that we understand the terms "learning" and “assessment”, which are topics requested for discussion by Dean Currall. We discuss these next.

Learning

Many theories abound in the behavioral and psychological literature on what constitutes learning. This literature is vast, and we as task force members are plainly not experts in the field. Hence, at best, we broach this topic from a generalist perspective. We make two initial observations, one, that learning theories tend to be categorized into different paradigms or perspectives and, two, that most MBA programs, including ours, seem to engage – knowingly and unknowingly – in a variety of learning paradigms. Our review of the literature suggests four well-regarded perspectives on learning.7

Behavioral learning

This is based on the notion that people learn in response to external stimuli. Think of Ivan Pavlov and B. F. Skinner as proponents of this view. The extensive use of case studies in MBA programs might illustrate this approach, as students learn from others’ observations of how managers learn by responding to external or environmental factors, such as uncertain economic events and market forces.

Cognitive learning

Here the learning emphasis is on understanding some mental function of the manager, such as how information is or should be processed to make decisions and solve problems. In MBA programs, we typically teach rational decision-making and reasoning skills so that people can understand how to make more consistent decisions, which hopefully lead to better outcomes. We also consider the different biases that might affect cognition and decision. Think of the field of finance, which

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6 Later in this report, we define the threshold learning expectation regarding a goal or sub-goal as one of two states: M = meets or exceeds expectations and D = does not meet expectations regarding the threshold.

7 Rubin and Martell (2009) offer a similar classification of learning paradigms based on: (1) cognitive outcomes (e.g., decision making, problem solving), (2) skill outcomes (e.g., learned behaviors), and (3) attitude and motivation outcomes (e.g., ethics, teamwork).
was initially steeped in models of rational economic decision-making. Finance now covers understanding market behavior in terms of investor irrationality.

**Constructive learning**

This paradigm sees learning as an interactive, constructive process. The emphasis is on students’ construction of knowledge through social interaction and personal experience rather than by acquiring it directly from, say, a professor in a lecture. Many would consider the use of experiential learning, live cases, field trips, and consulting assignments as examples of this approach. Excellence in teaching under this approach would also include understanding and measuring how students gain knowledge as a function of past experience and background.

**Humanistic learning**

Many consider learning as a way of fulfilling one’s potential for satisfying needs. Maslow’s hierarchy is perhaps the best-known example of this perspective, where the ultimate goal is self-actualization, which can only be attained by first meeting needs thresholds at the lower levels of the hierarchy. Under this approach, learning is personalized to the individual student, and the role of faculty is as much to facilitate learning as it is to teach. MBA courses may cater to Maslow’s lower needs by teaching tools to provide employment and income, which Maslow would describe as the more basic needs. On the other hand, some MBA courses are designed to help students build self-esteem and confidence and to render sound ethical judgments. These latter aspects may relate to higher needs in the Maslow hierarchy. Both kinds of courses offer examples of humanistic learning.

**Observations**

Where does this leave us? Below, we make three observations. These do not define learning, however. Rather, they underscore that in designing curricula and teaching courses faculty should be cognizant of what they do in the classroom and the learning theories and perspectives to which such activities might relate.

Our first observation is that MBA students learn through a collection of learning paradigms, some of which are made more explicit than others in the different courses or in the program as a whole. So a hybrid approach is likely the most appropriate direction for the GSM, where some courses emphasize learning through the prism of one paradigm, and other courses engage students in learning through another, or through multiple paradigms.
MBA programs sometimes state their learning styles in prospective student communications and public relations material and emphasize one style over another.\(^8\)

A second observation is that most, and possibly all, GSM faculty are not experts in educational psychology or curriculum and course design. Moreover, in the past, we may have proceeded in ways where some design choices may have reflected individual faculty experiences rather than a more balanced and systematic approach. Such process would seem insufficient under the AACSB standards.

A third observation – and an implication of the first and second – is that in developing an AoL model for the GSM, each course should not only state its specific learning goals (and sub-goals) and how they are achieved and measured but, also, each instructor should also be able to articulate how and why the course materials and the classroom experiences are appropriate to how students might best learn regarding the particular goals.

This may be a challenge for some GSM faculty members, especially those whose most important criterion for success is research. In tackling this issue, the task force proposes that the GSM emphasize the critical importance of faculty commitment to and knowledge of the learning process, so that the school excels in this endeavor. Some schools use advisory groups to assist faculty so that the tools and measures developed are appropriate to the course and consistent with program goals.\(^9\)

### Assessment and learning

The term assessment in an educational setting generally refers to the process collecting and quantifying evidence to judge student learning in relation to course goals, curricula, instructional methods, and program goals. For example, the Higher Learning Commission defines assessment of student learning as follows:

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\(^8\) As examples of different emphases to outsiders, consider the following: MIT: Emphasizes team learning in that students work in small groups during their first year on required course work. Booth Chicago: Emphasizes experiential learning where students learn in real-world settings. Stanford: Indicates that learning occurs in many ways, such as “projects, simulations, prototyping, role-playing scenarios, global immersions, and case studies, as well as from classmates.” U. C. Berkeley: Highlights teaching: “Good teaching is a priority in the program. Over the past several years, about two-thirds of the Haas School faculty has regularly earned the highest status from student surveys.” http://www.ibtimes.com/.

\(^9\) California State University, Chico, for example, uses an advisory board consisting of faculty and industry specialists for each functional discipline to develop tools and measures of learning at the course level for program evaluation (Bizoux 2008).
“Assessment of student learning is a participatory, iterative process that: provides data/information you need on your students’ learning; engages you and others in analyzing and using this data/information to confirm and improve teaching and learning; produces evidence that students are learning the outcomes you intended; guides you in making educational and institutional improvements; evaluates whether changes made improve/impact student learning; and documents the learning and your efforts.”

Assessment is not, therefore, just the act of developing and applying specific measures of learning by students.

In other words, under this definition, is it appropriate to view *assessment* as the entire, iterative process that involves “you” the faculty member and other responsible parties (e.g., program directors, deans, etc.) at every step of the way. Nothing really new here, but simply a strong reminder that faculty are a key element of the AoL cycle.

The AACSB standards echo much the same definition of assessment, but emphasize learning at the program level, particularly, the view that the evidence – the information and the measures – must provide assurance of learning and that the evidence must assist the school and faculty members in improving the program (standards 15, 16, 18, 19, 21).\(^1\)

We note also that the assessment process should provide assurance of learning to all GSM stakeholders and the AACSB as well as assurance of learning in fact to GSM faculty, staff, and students.

We now set forth an assessment program that we believe complies with AACSB standard 18.

**Proposed assessment program**

**Current practices at the GSM**

We outline here a program for assurance of learning that demonstrates “what learning occurs for each of the learning goals.” The AACSB describes three possible approaches

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\(^{11}\) This may not always correlate well, however, with the assessment of students for purposes of a course grade, which is currently the dominant assessment activity at the GSM.
regarding the evidence, which could be based on: (1) selection of students into the program, (2) course-embedded measurement, and (3) demonstration through stand-alone testing or performance (AACSB 2007, p.63). The AACSB also distinguishes between “direct” and “indirect” assessment, although it has a strong preference for the former (AACSB 2007, p.67). Direct assessment is usually accomplished through course-embedded testing, where course-embedded testing refers to specific tasks within a course to measure a particular learning goal or achievement standard, while indirect assessment often takes the form of questionnaires and surveys, rating scales, and retrospective techniques administered outside of the courses.

First, we summarize the AoL process as currently practiced at the GSM. According to a description submitted to the 2010 AACSB review team, the GSM relies on evidence from (a) consulting center projects, (b) an AoL rubric, (c) student and alumni survey results, (d) faculty retreat results, (e) student placement rates, and (f) academic senate program review results.

Why might such plan have not been acceptable to the AACSB review team? Our review and analysis suggests the following. The current GSM plan:

- Relies too heavily on indirect measures, which the AACSB and others state provide at best weak evidence of learning by themselves,
- Does not specify clear criteria for assessing whether performance expectations regarding a learning goal are met or not met,
- Does not track learning at the individual student level, and
- Uses a rubric that relies mainly on how the course instructor assesses learning by students as a group rather than on an individual basis.

By addressing each of these points regarding AACSB acceptability, our proposed program should be more concise and responsive to the AACSB standards. As per

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12 The current GSM learning assessment process, the tools and procedures to measure learning, and progress to date are described in GSM, Learning assessment rubric for the MBA program (2009a).
13 GSM Assessment tools and procedures (2009b) describes the process in detail.
14 For example, in a study of direct measures, based on a pretest and post-test, and indirect measures, based on students’ self-assessment, concluded that students “were not able to accurately perceive their knowledge level” (Price and Randall 2008). See, also, Weldy and Turnipseed (2010) for a similar comparison based on a real-world management project. In this study, students’ perceptions over-rated their learning, that is, “they believed they learned more than they actually did.” See, also, e.g., Martell 2007b).
AACSB guidance, our proposal relies primarily on direct measures of learning based on evidence of individual students’ outcomes and competencies in courses.

**New GSM framework based on direct measures**

**General**

Our proposed framework builds upon the GSM approach as currently practiced. We start by making some general observations. First, as a general objective, our plan calls for an assessment of learning by each student in all courses. While this would be a significant undertaking for the school and faculty, the task force sees few other options that would merit a successful outcome regarding accreditation under standard 18. The large majority of AACSB-accredited schools use course-embedded measures for written and oral assignments within a learning rubric as the primary evidence to demonstrate learning (Kelley et al. 2010), although not necessarily for all courses.

Second, our framework calls for embedded assessment measures and tools, which are, primarily, the responsibility of the instructor. An outside evaluator or staff function may assist in this responsibility. Measures designed in conjunction with a third party have the property of higher perceived independence, which increases assurance to outside parties. For example, in evaluating a student’s presentation, an instructor might include a communications expert to help judge and document performance.

Third, we link our framework to faculty practices regarding course grades. Presently, faculty assign a grade to each student based on performance inputs such as homework, exam, presentation, case study, group project, and class participation. Each performance input is then weighted by the instructor, resulting in a ranking of students in a class, which is then used to assign a course grade. However, some performance inputs for a course grade, perhaps with modification, might also be used for assessing learning (assuming evaluation on the basis of a learning goal rather than a course goal). This could be accomplished in different ways. For instance, an instructor could examine a student presentation based on, say, knowledge of the subject matter (a course goal), whereas an outside party could evaluate the presentation in terms of communication competencies (a learning goal). The instructor could do both of course.
Specifics

Specifically, we propose that each course taught by a GSM instructor shall identify measurable performance inputs that relate to at least three learning sub-goals from one or more of the four GSM learning goals. Currently, the four GSM learning goals are partitioned into 15 sub-goals. Some courses might relate to just one of the four GSM learning goals. For example, a communications course might state “communicate effectively in oral form”, “communicate effectively in written form,” and “use modern technologies to learn and communicate” as the three sub-goals, which are all within the first GSM learning goal of “work well in teams and lead them.”

On the other hand, a finance course might relate to several GSM learning goals and, hence, say, have a communications component, a data analysis component, and an ethics component. Such course would, therefore, contain measureable performance inputs in the first GSM learning goal, such as “communicate effectively in written form”, the second GSM learning goal, such as “appreciate how ethical judgment enters into business decisions”, and the third GSM learning goal such as “analyze data and possess proficiency in the use of data.”

While each instructor should have this responsibility, we also recommend that instructors be encouraged to consider the use of an outside or specialist staff group to assist in the identification of learning goals and the relation of learning goals to performance inputs. Some performance inputs might have to change to incorporate better the learning goals.

Next, under the proposed plan, the instructor would articulate for each performance input relating to a learning sub-goal how each student in the class meets the threshold on the particular goal or sub-goal covered by the performance input.

We propose a two-state threshold – that a student’s learning on each of the three sub-goals based on performance inputs shall be judged to either meet or exceed (M) or not meet expectations (D) on that sub-goal. For example, a student’s overall course grade of, say, an “A-“, which would be based on all course performance inputs, might comprise, say, an M (meets or exceeds) on learning sub-goals 1 and 2 and, say, a D (does not meet) on sub-goal 3. In this way, learning assessment and course

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15 This proposal, therefore, relates to all GSM instructors, including participating and supporting instructors. However, we also recommend as a matter of transition that this proposal be required for GSM senate faculty only for the first year of its implementation, with early adoption by all other GSM instructors strongly encouraged.
assessment are “decoupled”, as different evaluative criteria are applied regarding learning and course goals regarding a common performance input. Of course, it may also be possible to develop performance inputs for assessing learning that play no role in assessing a course grade.

We also expect that students’ M or D learning assessments would reflect feedback from the instructor or reviewer to the student regarding the score on the performance input, and that such written feedback would be archived for assurance purposes in accordance with AACSB guidelines.

This approach need not be burdensome for the instructor, who would assess the performance of each student on the three learning goals identified at the outset. We anticipate that this process would be completed as the course progresses. Since the faculty submits its grades to the registrar for courses taught at the end of a quarter, it would be a straightforward task to submit for the same set of students the three learning goal scores or M/D assessments on those learning scores and other information (e.g., examples of work product to illustrate M or D performance) to a responsible staff function within the GSM.16

**Learning assessment center**

We recommend that the GSM establish a staff function – the GSM Learning Assessment Center – to manage this activity. As a staff function, the LAC should have the expertise to assist faculty in developing tools and methods of assessing learning in their courses and to archive and maintain course assessment data for purposes of periodic reporting and program review. We further recommend that faculty oversight of this staff function be through a new standing committee of the GSM, the Learning Assessment Committee, whose charge it would be to ensure that the GSM maintain an assessment program that provides assurance of learning in compliance with AACSB standard 18 and to ensure that information feeds back into the curriculum on a continuous basis for purposes of curricula monitoring and renewal.17

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16 Appendix C illustrates assessment plans for two GSM courses under the proposed model.

17 This would require that the GSM By-Laws be changed. Note that if an existing GSM standing committee, such as the Educational Policy Committee, were assigned to oversee the Learning Assessment Center, this too would require a change in the By-Laws, as the charge of the standing committee would have to accommodate its new responsibilities regarding assurance of learning in compliance with AACSB standards.
Symbolically, our proposed data collection model would be as follows, where student $i$’s learning score or zero-one M/D assessment on a sub-goal relating to learning goal $k$ in course $C$, would be:

$$LS_{C,i,k}$$  \hspace{1cm} (1)

Student $i$’s score or zero-one M/D assessment on learning goal (or sub-goal) $k$ in all courses taken by student $i$ would thus be the mean over the $n$ courses taken by that student, that is:

$$LS_{i,k} = \frac{1}{n} \sum_{C} LS_{C,i,k}.$$  \hspace{1cm} (2)

**Relation of AoL model to curriculum change**

How do equations 1 and 2 above relate to a continuous improvement model whereby information about learning feeds back into faculty decisions about curricular renewal? The key here is to examine levels of and trends in students’ $LS_k$ scores on each of the $k$ learning goals. This could be done at the course level, for groups of courses (e.g., by functional area), or by program (all courses). It could also be done at the student level, across all courses taken by a student in the program or, say, across all courses taken by a student in the first year of the program versus the second year.\(^{18}\)

We propose that a faculty committee analyze the learning scores and the implications of such for curriculum monitoring and renewal and report its recommendations to GSM faculty at least annually. An appropriate forum for discussion of the learning assessment report would the annual faculty and staff retreat, usually held in September just prior to the beginning of fall quarter.

Additionally, the $LS$ scores could be correlated with other direct measures, and/or indirect measures, such as GMAT scores, undergraduate grades, interview metrics, survey scores, and so forth. For example, the GMAT includes a verbal and quantitative score for each student. How do those scores correlate with a student’s $LS$ score on one or more the GSM learning goals? Do students that score highly on the GMAT quantitative score also score highly on, say, the $LS$ score for GSM learning goal 3 (use appropriate models for analysis and planning)? Alternatively, do students who score highly on communications in the interview also score highly on, say, the $LS$ score for learning goal 1 (work well in teams and lead them)?

\(^{18}\) This analysis could also include learning data collected by the GSM under the present plan.

However, as we indicate earlier, these data are not collected at the student level and rely too much on indirect measures and, thus, may be less useful for learning assurance purposes.
While we recognize that the AACSB is most interested in a program-level analysis, such program level data are sometimes best understood by a closer look based on finer partitions or other groupings, such as the following:

1. **Course level.**

Calculate mean and trend in mean $LS_{C,k}$ for each $k$ at the course level. Some courses relating to a particular $LS_{C,k}$ would be taught in the first year, others in the second year.

2. **Area level (groups of courses)**

Calculate mean and trend in mean $LS_{C,k}$ for each $k$ across all courses in an area. This could be done annually, or over longer periods.

3. **Program level**

Calculate mean and trend in mean $LS_{C,k}$ for each $k$ across all courses in program. This could be done annually, or over longer periods.

4. **Student level**

Calculate mean and trend in mean $LS_{C,i,k}$ across $C$ and $k$ for student $i$ while in the program. Different entering classes could be tracked over time. Different groups of students could be aggregated based on indirect measures (e.g., high and low GMAT).

**Who would measure the learning scores?**

How independent of the faculty instructor should the assessment of learning at the course and student level be? One approach would be to have the faculty do both, assuming appropriate knowledge on AoL. However, this approach has been criticized because it may not disentangle learning goals from teaching or course goals. Another approach is that student performance be evaluated with the assistance of someone other than the course instructor (e.g., evaluator). We propose that the instructor makes the choice in this regard. Because such person (or persons) would focus exclusively on program learning goals, this separates course assessment from learning assessment, which can be a key to success and assurance of learning to outsiders. According to Martell (2007a), the AACSB favors a more independent approach, though not necessarily for all courses. In a related paper, Rubin and Martell (2009) note the example of a performance input such as a case study being assessed by the instructor for grading purposes and a second copy being assessed by someone else in

19 See, also, note 9, which describes an approach wherein each functional area uses a panel of faculty and industry reviewers to define and measure performance in accordance with a learning goal.
terms of learning goals. At one school, students submit the second copy electronically to an appropriate reviewer panel (see note 9).

What would be archived?

In addition to the LS scores as outlined above, the AACSB standards require that examples of learning be archived as evidence of learning. For courses for which learning goals are assigned and assessed, we propose that both the learning scores and/or the performance inputs be archived for purposes of the analysis outlined above. Written evaluative comments by the instructor or other evaluator that justify a student’s score on learning goals should also be archived. For analysis purposes, evaluative comments might best be organized around a common template or questionnaire.

However, because it would be unduly burdensome to archive performance inputs and comments for all courses, we recommend that archiving be limited. One approach would be to select student work product and instructor comments on that work to be archived on a random basis, where the random identification is indicated to the instructor at the beginning of the quarter, following initial enrollment.

Another approach would be to identify a limited number of performance inputs in a small number of courses that would be 100 percent archived for AoL purposes. Students would be informed ahead of time that their performance input would be archived, evaluated by an expert other than the instructor, and used for AoL purposes. For instance, courses that emphasize team building, strategy, and communications might be best served by an archive of written reports and the evaluative comments to support the learning scores on those reports.

Timing

While we prefer implementation for all courses at the earliest opportunity, we note two further considerations. First, available resources and faculty expertise could limit immediate application to all courses and, hence, it may be appropriate and more efficient to select a subset of courses to which our proposed learning model would apply. Such subset could be the set of required core courses (the approach taken at Irvine’s Merage School) and/or a capstone course in strategy and planning.

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20 “Schools should maintain copies of instruments, course-embedded assignments, scoring grids or rubrics, summary of data and analyses, samples of student products used, documentation that the data was used, and documentation of the curricula actions that were taken based on assessment results.” (AACSB 2007).
We also recommend a phase-in for learning purposes, which might extend to one or two quarters. For example, certain courses could adopt the proposed AoL program early and/or certain faculty could voluntarily migrate to the approach, which would then be evaluated before required adoption for all program faculty, after, say one or two quarters.

Beyond the phase-in stage, we propose that our AoL model shall be used for all courses taught by senate faculty beginning fall 2011, and for all other GSM instructors beginning fall 2012, with earlier implementation encouraged.

**Indirect measures of learning**

We also considered the use of indirect measures to assess learning, based on (a) measures used to select students to the program (AACSB learning approach 1) and (b) demonstration of learning through stand-alone testing (AACSB learning approach 3) (AACSB 2007, p. 63). Our proposed program does not, however, include specific recommendations of the use of such indirect measures, as research indicates that they do not provide strong evidence of learning. Such indirect measures could, nevertheless, be useful as secondary measures of learning or in other ways (e.g., benchmarking the GSM to other schools).

For example, regarding, student selection, certain data are already being collected and their use may help in establishing student competencies at the beginning of the program, which could then be compared with similar competencies from course-embedded measures. Student or employer surveys or standardized tests may also be helpful as perceived measures of learning by key groups.

**Student selection evidence**

**Student interviews**

Because the GSM interviews each prospective student and, therefore, all students entering the program, this information could be systematically captured as evidence of the competencies assessed for admission purposes. Thus, in addition to grades, GMAT scores, and other information collected for admission (e.g., work experience), the school could track and archive selection evidence on communication skills, leadership potential, and similar competencies. This should be a relatively straightforward task as the pre-admission interview already makes these assessments.
At a later point, this information could be related to broadly equivalent direct measures of learning in particular courses. For example, did those students judged to have initially high communication skills or leadership potential continue to score highly on these dimensions in certain later courses?

**Student application essays**

A second area would be to evaluate the application essay to assess writing competency on key dimensions. While this is being done already, such evidence could be collected and organized more systematically so that it might be related to similar examples of writing obtained later in the program as part of course-embedded learning.

**Leveling courses**

Evidence could also be collected regarding those courses designed to fill gaps in students’ knowledge early in the program. Because students often enter an MBA program with varying communication and quantitative skills, much leveling occurs in the first few quarters. As part of a curriculum review, the GSM recently proposed a quantitative leveling test for all students prior to orientation and a quantitative leveling course for those students who fail the test.21 Direct assessment measures might, therefore, be developed to show that this two-step process does indeed reduce quality variation that might not have occurred but for this testing process.

**Stand-alone testing or performance indicators**

The task force also discussed the pros and cons of using outside tests and surveys as a further way to assess learning. On the pro side, the GSM could obtain stand-alone measures of learning, which have been validated elsewhere. These might be especially useful to assess competencies learned in courses that cover leadership, ethics, innovation, strategic thinking, and teamwork. Such stand-alone measures should also be correlated with course-embedded measures, which could help establish the credibility of the latter.

The task force requested a proposal from a professional outside company, as an example of the likely approach and the cost thereof. This proposal is attached as appendix B.

The task force also discussed the use of a common test, which all students would take at one point during their studies. Such test could involve knowledge over broad

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21 Curricular Renewal Task Force, ibid.
range of subjects at the end of the first year or upon completion of the degree requirements. Many schools use a common test, for example, the ETS Major Field Test for MBA, and use the test results to rank themselves within the population of those schools taking the test. However, such results tend to be disclosed selectively, and do not always signal particular areas of program improvement.

Alternatively, a common (non-course embedded) test might focus on before and after knowledge in subset of courses, for example, a required capstone course, or an integrated multidiscipline course as recently proposed.\textsuperscript{22}

On balance, the task force concluded that, despite their popularity, such measures are still indirect assessments of learning and, thus, cannot substitute for a plan based on course-embedded measures, such as that which we propose.

**Learning assessment at other UC business schools**

What are the other UC business schools doing regarding learning assessment? We contacted San Diego, Irvine, Riverside, UCLA, and Berkeley. All the schools use course embedded measures to some degree. Appendix A summarizes the responses.

Irvine’s approach is perhaps most like our proposal but with two differences: it relates to core MBA courses only and does not require non-instructor (independent) assessment of learning. At Irvine, each core instructor identifies two learning goals, the assessment tools and methods, and the criteria for success. This is done in conjunction with a school assessment committee. The instructor then provides the course assessment data to the assessment committee following completion of the course. These data are then aggregated by course, learning goal, and program and tracked over time by the school assessment committee. See appendix D for more detail.

\textsuperscript{22} Curricular Renewal Task Force: Summary of Deliberations and Preliminary Recommendations, Graduate School of Management, September 13, 2010.
Committee Deliberations

The task force met on four occasions to discuss the issues requested to be addressed by the dean. The first meeting discussed the committee charge, the AACSB accreditation report, the current assessment process at the GSM, the four learning goals of the GSM, and the relevant AACSB standards on assessment and assurance of learning. At the second meeting, the task force discussed criteria for deciding on a valid measure of learning, developed a tentative list of measures of learning that meet the criteria for validity, considered the merits of using an outside organization or a GSM specialist group to aid in measuring learning and/or to assess learning through stand-alone testing or performance, and examined examples of a dual course assessment and learning assessment process, wherein student performance would be evaluated jointly based on course and learning criteria. At the third meeting, the task force discussed a draft version of the report regarding issues discussed to that point. During this meeting, the task force agreed that all GSM instructors in one or more of the GSM programs should identify at least three learning sub-goals for their course, how those sub-goals would be assessed, and how to determine a threshold for meeting learning expectations on each measure. Previously, the report had proposed a more comprehensive model, wherein each course performance input (homework, exam, case study, etc.) was allocated to one or more learning goals. The fourth meeting discussed a revised draft report and made further suggestions. Following further review, the task force finalized its report as of December 24, 2010.
Materials considered


Graduate School of Management. 2009a. *Learning assessment rubric for the MBA program*. Davis: Graduate School of Management.

Graduate School of Management. 2009b. *Assessment tools and procedures*. Davis: Graduate School of Management.


Appendix A: Summary of responses from other UC business schools

Rady School
From: Lofftus, Maria [mailto:mlofftus@ucsd.edu]
Sent: Friday, October 22, 2010 4:06 PM
To: Mary McNally
Cc: Lafebre, Leonard
Subject: FW: learning assessment question re: AACSB standards
Hi Mary,
Allow me to introduce myself. My name is Maria Lofftus and I work with Len. As I am responsible for coordinating our accreditation efforts (we are in the initial accreditation stage with our peer review team visit scheduled for spring 2011), he has passed your email along to me.
We are almost exclusively using direct, course-embedded measures to assess student achievement of learning goals and goals. These have taken the form of exam questions, oral, written and project presentations. In the case of “teamwork”, students assess each other. We understand this is an acceptable means for assessing teamwork, but we’re still working out a few bugs. There is only one learning goal (“ethics”) where we are using an indirect measure to assess student learning, and that’s simply because we haven’t quite determined how we’re going to assess it directly.
Best of luck, and please let me know if I can provide you with additional information.
Maria
Maria A. Lofftus
Assistant Dean for Academic Affairs & Special Initiatives
Rady School of Management
(858) 534-2777

Merage School
From: Matijak, Francine [mailto:FMatijak@uci.edu]
Sent: Monday, October 25, 2010 3:39 PM
To: Mary McNally
Cc: Pavelko, Jim
Subject: FW: learning assessment question re: AACSB standards
Dear Assistant Dean McNally,
I serve as the primary analyst for the Merage School Dean’s office and am the lead project manager for AACSB accreditation. Jim Pavelko has forwarded your request for information below.
In 2007 a faculty committee was formed and the school established a plan for assurance of learning of our MBA and PhD programs (see attached). At the time we identified learning goals appropriate for the programs. MBA programs assessment is done by requiring each faculty member teaching a core course to identify at least two specific learning goals for that course. They must also specify the type of assessment tool(s) or method(s) to be used to assess each specific course learning goal and the criteria for determining success or failure. Course embedded measures are used at this time. The course goal and
assessment method information are entered into an online database at the beginning of each quarter. Subsequently, student pass/fail determinations are entered into the same system at the end of each quarter. Assurance of learning results have been collected from all MBA students (four programs) in all core courses since fall 2007. Our online system allows for assurance of learning results to be easily viewed across courses/areas, goals, programs, etc. Beginning in June 2007, the PhD Committee incorporated assurance of learning into the annual review process of all doctoral students. This assessment is done on a special form created for this purpose. Learning goals have been identified for the new (first enrollment fall 2008) BA in Business Administration and BS in Business Information Management programs, with data collection to begin in fall 2010. A faculty committee has the responsibility to analyze assurance of learning data and make recommendations for continuous improvement to teaching, the curriculum, and the assessment procedures.

Please let me know if you have any additional questions.

Francine Matijak
Manager
Data, Research and Analysis
UC Irvine, The Paul Merage School of Business
Irvine, California 92697
224 MPAA
949.824.6437
fmatijak@uci.edu
Appendix B: Indirect approach to learning assessment – PAN proposal

UC Davis MBA Program

Program Evaluation Assessment Approach Document

October 21, 2010

The information contained in this document is proprietary to TALX Corporation. It is provided to the recipient on the condition that limited copies are made for members of the team responsible for evaluating this information. This document and the information contained within are not to be distributed outside of the recipient, nor is it to be distributed to persons not in the direct employment of the recipient company. Any details of this document may not be shared with anyone outside of the intended recipient.
Introduction
The UC Davis MBA Program (hereafter UC Davis) is seeking to implement assessments as part of an initiative to demonstrate achievement in meeting the standards of the Association to Advance Collegiate Schools of Business (AACSB). Among many others, these standards include student demonstration of:

- Working well in teams and leading them
- Applying moral and ethical standards in business decisions
- Using appropriate models for analysis and planning
- Understanding multi-functional areas (e.g., finance, accounting) and how they work together

As part of this initiative, UC Davis has sought the services of pan to develop an assessment solution for accurately measuring the attainment of these goals as it relates to the courses in the MBA program. The ultimate goal is to identify strengths and developmental needs within the program and track progress of improvement over time to accurately gauge the success of the program. The document herein describes the approach pan will take to identify and map an assessment that measures attainment of the AACSB standards at aggregate and individual levels, how data will be tracked, and an investment summary.

Recommended Approach
pan’s approach for UC Davis will entail providing assessments and reporting to measure individual and aggregate level achievement of AACSB standards. Based upon initial conversations with UC Davis, pan has identified an assessment that will potentially measure the goals UC Davis seeks to assess. Before finalizing an assessment decision however, pan recommends first conducting an analysis of the five to six core courses within the MBA program to determine how they facilitate achievement of the AACSB standards. Once completed an assessment decision will be finalized and the assessment scales mapped to standards within each course. pan will leverage its catalog of 250 assessments from 50 content partners to provide UC Davis with flexibility regarding the best assessment tools for use measuring achievement of the standards. While UC Davis’ primary goal is to assess performance at an aggregate level, pan recommends developing assessment reports at the individual level as well to encourage student participation and facilitate individual developmental growth.
Project Initiation
The project will commence with discussions between pan and UC Davis to clarify expectations, roles, and timelines. In addition, pan and UC Davis will partner to create a Project Advisory Committee (PAC). The PAC will consist of UC Davis stakeholders with valuable input and responsibilities relevant to the project. Regular PAC meetings will be conducted to ensure the proper steering of the project.

The project will be broken into three phases:
1. Course Analysis and Assessment Identification
2. Establishment of Assessment Interpretation Guidelines
3. Development of Assessment Reporting

Phase 1: Course Analysis and Assessment Identification
pan proposes to conduct analyses of the five to six core courses in the UC Davis MBA program in order which standards can be applied from each course. Additionally, pan will make a final assessment recommendation based upon the results of this analysis.

Course Analysis
The course analysis will involve a disciplined approach. The ultimate success of this course analysis process will rest on the partnership and coordination between key pan and UC Davis personnel. The results of the course analysis will be the identification of AACSB standards that are applied within each core course that will serve as the foundation for all subsequent project activities. Some components of the course analysis will require the participation of UC Davis subject matter experts. A subject matter expert is anyone who has a strong understanding of the course content as well as familiarity with AACSB standards. Each subject matter expert involved in the project could expect to spend a total of 30 to 60 minutes assisting pan. pan will make every effort to interact with subject matter experts in a manner that does not cause significant disruptions to daily work. Ideally, pan would like to engage two to four experts per course across all of the core courses during the course analysis phase of the project.

The standard course analysis activities include:

Archival Review
Pan consultants will review existing course data in order to gain a thorough understanding of the goals taught. This course data could include course descriptions, sample tests, sample work assignments, or any other information that addresses the goals of the course.

**Focus Groups**
Pan consultants will conduct focus groups with subject matter experts across the core courses to obtain further information regarding the goals of each course and how they relate to the AACSB standards. During the focus group, information from the archival review will be presented to facilitate discussion from the subject matter experts. The goal will be to finalize the relevant standards and provide importance ratings for each course. The subject matter experts could expect to spend 30-60 minutes for each focus group.

**Standard Finalization**
Pan will present final results of the course analysis by providing documentation of the standards applied to each course and their respective importance. PAC members will have the opportunity to review and revise the final model.

**Assessment Identification**
Based on the goals identified during the course analysis, pan will collaborate with UC Davis to make an assessment recommendation for measuring achievement of AACSB standards. Based on initial discussions with UC Davis, pan has made a preliminary assessment recommendation that may meet the needs of the current initiative. However, this recommendation is subject to change upon completion of the course analysis phase of the project. A brief description of the assessment is provided below.

*Personal Competencies Inventory*
The PCI from Hogrefe provides information on an individual's abilities in several key areas ranging from strategizing to handling stress. Based on an emergent competency model, the PCI helps people to understand their strengths and weaknesses as well as to identify where they need to focus their career development efforts. The instrument is comprised of 39 clusters of four competencies which subjects rank in terms of how effectively they perform each task; it can be completed in 20 minutes or less. The PCI assesses the following competencies that are based on
analyses of competency frameworks and research findings on leadership and emotional intelligence:

- Strategy
- Relationships
- Innovation
- Finance
- Knowledge
- Projects
- Customers

- Ethics
- Motivation
- Learning
- Stress
- Empathy
- Communication

Phase 2: Establishment of Assessment Interpretation Guidelines

Pan and UC Davis will collaborate to determine guidelines for interpreting the results of the selected assessment for this initiative. These guidelines will outline aggregate level decision rules for identifying areas of strength and developmental need within the program based on AACSB standards. A content validation study will be conducted to develop these guidelines. This study will require the input of subject matter experts (preferably two to four per course) who can link course content to the assessment content. The study will involve the following steps:

**Review of Course Analysis Information**

Subject matter experts will review the course analysis documentation (i.e., on the whole or for a given course) to become familiar with the relevant standards associated with each course.

**Review Assessment Information**

Pan will provide documentation to the subject matter experts, which details the assessment to be utilized. A description will be provided detailing what the assessment measures overall and at the scale level, time for completion, validity, reliability, and other relevant information.

**Linkage of Assessment Scales to Course Standards**

Subject matter experts will be provided with a workbook in which they will rate the degree (i.e., not at all measured to entirely measured) to which each assessment scale measures each standard across the courses. Pan will analyze the data to check for consensus on the degree to which subject matter experts believe the scales measure each standard. Weights will be determined for each scale as it relates to an associated standard for
scoring purposes. The results of this study will be utilized in the development of aggregate and individual level reporting.

Phase 3: Development of Assessment Reporting
In order to optimize interpretation and program developmental initiatives, UC Davis has expressed a desire to have assessment results displayed in a format based on the standards achieved within each core course. _pan_ can collaborate with UC Davis to design web-enabled custom aggregate and individual level reports to suit UC Davis’ needs. The reports will be designed based on the results of the content validation study as well as UC Davis’ preferences.

**Aggregate Reports**
The aggregate report will be designed to meet UC Davis’ various needs. This will include flexibility in the report parameters (e.g., date inclusion, courses to include, students to include) and will provide current results (i.e., proficient or not proficient) as well as show results over time (i.e., longitudinally). The results can be displayed according to off-the-shelf assessment scales and/or UC Davis specific standards.

**Individual Reports**
In order to encourage student participation in the evaluation process as well as facilitate individual growth, _pan_ recommends developing custom individual reports for each student. The reports will contain results according to the UC Davis standards as well as provide potential developmental activities for students to engage in.

Online Testing Platform
_pan’s_ Online Testing Platform will provide UC Davis with a system for computerized and Internet-based administration, scoring, and results reporting of assessments. This technology supports the efficient administration of assessments, management of the testing process, and scoring and review of test results, and facilitates the availability of custom results reports. Multiple test administrator user workbenches can be generated via this portal. Individual and aggregate assessment results are available in PDF format. This platform will be “skinned” with UC Davis’ branding and color scheme.

Pricing
The pricing for the implementation of an assessment solution for UC Davis is listed below.

<table>
<thead>
<tr>
<th>Development of UC Davis Assessment Solution</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component</strong></td>
<td><strong>Fee</strong></td>
<td><strong>Basis</strong></td>
</tr>
<tr>
<td><strong>Phase 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Course Analysis (for 5-6 core courses)</td>
<td>$2,400</td>
<td>One-time</td>
</tr>
<tr>
<td><strong>Phase 2</strong></td>
<td></td>
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<tr>
<td>• Content Validation research for assessment implementation</td>
<td>$3,200</td>
<td>One-time</td>
</tr>
<tr>
<td><strong>Phase 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Web-enablement of Aggregate Report</td>
<td>$3,000</td>
<td>One-time, per report</td>
</tr>
<tr>
<td>• Web-enablement of Individual Report</td>
<td>$3,000</td>
<td>One-time, per report</td>
</tr>
<tr>
<td><strong>PROJECTED TOTAL PROJECT COST</strong></td>
<td>$5,600 - $11,600</td>
<td>One-time</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Ongoing Yearly Costs</th>
<th></th>
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<tbody>
<tr>
<td><strong>Service</strong></td>
<td><strong>Description</strong></td>
<td><strong>Fee</strong></td>
</tr>
<tr>
<td>Assessment Platform</td>
<td>UC Davis Branded</td>
<td>$400/Year</td>
</tr>
<tr>
<td>Assessment Costs</td>
<td>Dependent upon which assessment is shown to have the most utility and that UC Davis chooses.</td>
<td>~$35 per Assessment</td>
</tr>
</tbody>
</table>

Travel, shipping, and materials expenses will be billed at cost to UC Davis. For additional work that is above and beyond that which is described in this proposal, both parties must come to a mutual agreement around project details and timelines before work will be conducted. Any additional work performed will be billed at a rate of $200 per hour.

**Recommended Next Steps**
1. Review and reach consensus on the overall approach.
2. Create a final Statement of Work including investment summary for implementation of agreed upon solution and services.

**Service Level Agreement**
pan is committed to providing you, our valued partner, with superior service and support. Our Service Level Agreement (SLA) provides security, service, support, uptime and performance standards to our customers and partners alike.

Security

pan will never make identifying data about you or your firm available to any third party unless you request it in writing. pan ensures the privacy of your data by utilizing industry best practices for security such as password protection, data encryption, and secure networks.

pan ensures the safety of your data by making regular nightly backups for disaster recovery purposes. Components of the system, where technically feasible, are redundant and fault tolerant.

Service and Support

pan’s normal support hours are Monday through Friday, 7 AM to 6 PM, Eastern Time (excluding major US holidays). Support is available via telephone and e-mail to assist in resolving problems, and for reporting of suspected defects or errors in our services. Additionally, pan provides telephone-only support, via on-call agents, for issues reported outside our normal support hours.

pan will diligently work for the prompt resolution of defects and errors in our services. pan will provide you with a contact telephone number and dedicated e-mail address for reporting issues to us. pan will notify your designated Point of Contact (POC) within three business hours of any known and verified unscheduled downtime of our services, and update the status to your POC periodically until the service is restored. In the case of a system outage attributable to pan, pan may utilize other means of communication for both reporting of errors and conditions.

pan will respond to and complete correction of errors, defects, and malfunctions in accordance with the following severity definitions:

- **Severity 1:** System outage or impairment preventing you from making effective use of our services or that causes data corruption;
- **Severity 2:** Feature does not work as documented, no reasonable work around exists and you have a critical need of the feature;
- **Severity 3:** Feature doesn’t work as documented but a reasonable work around exists or you can wait for the next release for a fix;
- **Severity 4:** Enhancement request.
**pan** will make an initial response to a Severity 1 support call within two business hours after receipt. Severity 1 issues will be handled on an 8-hour x 5 day a week basis. **pan** will use reasonable efforts to provide a fix, work around, or to patch Severity 1 bugs within twenty-four (24) business hours after issue is replicated and confirmed by **pan**.

Provided that support calls are received within **pan**’s normal support hours, **pan** will make an initial response to Severity 2 support calls within five business hours after receipt. **pan** will make reasonable efforts to provide a fix or work around for Severity 2 issues within three business days.

Provided that support calls are received within **pan**’s support hours, **pan** will make an initial response to Severity 3 support calls within twenty-four (24) business hours after receipt. **pan** will make reasonable efforts to identify a resolution to Severity 3 bugs within thirty (30) days and to incorporate Severity 3 fixes in the next upcoming release of the product.

Provided that support calls are received within **pan**’s support hours, **pan** will make an initial response to Severity 4 support calls within twenty-four (24) business hours after receipt. Severity 4 issues will be dealt with on a case-by-case basis.

**Uptime Standard**

The portions of our software application services which are operated by **Pan** will have at least 99% uptime, as measured monthly, excluding planned downtime. In addition, the portion of our software application services operated by **pan** will not experience more than two outages (unscheduled downtime) lasting longer than two hours in any month. Scheduled downtime will be no greater than four hours bi-weekly and will happen at a regularly scheduled time during off-peak periods.

**About pan**

**pan** – A TALX Company is based in Carmel, IN. Founded in 2000, **pan** is dedicated to providing state-of-the-art, secure Internet-based testing systems for the administration and delivery of professional assessment instruments used in corporate and government markets. All **pan** activities are conducted with respect to the highest levels of business integrity and scientific veracity. Customer loyalty is our guiding business principle. **pan**’s core competencies are Tests and Assessments, Technology, and Consulting.

**pan** is proud to deliver its services to a wide range of client organizations and program sizes. We serve large government agencies and global corporations as
well as clients who may require very limited numbers of assessments during a year. We serve all clients with a strong commitment to excellence in customer service.

Pan enjoys a reputation within the test and measurement industry as the leading provider of secure, Internet-based assessment systems and is a member of the Association of Test Publishers, Society for Industrial/Organizational Psychology, Society for Human Resource Management, American Society of Training and Development, and the American Psychological Association.

In 2006, Performance Assessment Network (Pan) became a wholly-owned subsidiary of the TALX Corporation of St. Louis, Missouri, and began doing business as Pan – A TALX Company. TALX is a leading provider of HR and payroll services. In 2007, TALX Corporation became a business unit of Equifax, Inc. (NYSE:EFX), a 107-year-old S&P 500 company, which enables and secures global commerce through its information management, marketing services, direct to consumer, commercial and authentication businesses. Equifax employs 4,600 in 13 countries and has $2 billion in revenue.
Appendix C: Two examples of proposed GSM learning assessment plans

1. *Organizational Structure and Strategy MGT/P/B 201B*

**Statement of course objectives (on syllabus)**

Why do some firms succeed and others fail? What can managers do about this? In this course, we address these questions, focusing on the role that managers play in determining the performance of the organizations they lead. An organization’s strategy is its plan to win, i.e. how it will create and appropriate value. Formulating and implementing strategy is the primary responsibility of top management, so for much of the course, we will take the perspective of top managers as they make decisions about what businesses they are in, how to compete, and how to structure your organization to support your strategy.

The objective of this course is to help you develop skills to analyze and address issues of firm performance and how managers affect it through strategy. As part of your skill development, you will learn strategic analysis tools, including models and frameworks to help you diagnose organizational issues and make recommendations to improve or sustain performance. Some of the work required for this course is independent and some will be performed in groups. Because top managers must typically coordinate and integrate their activities and strategies as part of a top management team, the ability to work in teams is a critical part of their work. Therefore, it is also a part of your learning in this course.

By the end of the course, I expect that you will be more knowledgeable about the sources of superior firm performance, and will be more conscious of strategic choices and their consequences.

**Learning Goal 1: Work well in teams and lead them**

45% of the course grade is for a team project composed of an interim analysis, a final paper, and a final presentation. The assignment for the team project is a strategic analysis of a firm. Students receive group scores for the interim analysis and the final paper. At the end of the quarter, students are also required to complete a peer evaluation questionnaire that evaluates the group experience and individual contribution in multiple ways.

**Sub-goal: Understand group dynamics and become a contributing team member (i.e. productively works well in groups to accomplish defined goals).**

**Assessment tool:** Peer evaluation. One item on the peer evaluation asks respondents to rate each individual team member’s contribution to the team output on a scale of 1-7, with higher scores associated with a more positive assessment, and another item asks about willingness to work in a team with each member again on the same scale.
Success criteria: An average score of 4 or higher across the two items will meet expectations for learning on this subgoal.

Reporting to school: 1) # of students who met and did not meet expectations. 2) Copy of the peer evaluation instrument.

Sub-goal: Communicate effectively in written form (i.e., creates documents that convey a strong message without distracting errors).

Assessment tool: An item on the peer evaluation that asks respondents to identify the team members who performed the writing, then assess how much this person’s writing contributed to or detracted from the quality of the final paper on a scale of 1-7, with higher scores associated with a more positive contribution. This score will be weighted by the group paper grade (from instructor, scale of 1-100), such that members of groups that produced an effective document will have relatively higher scores than members of groups that do not communicate effectively in written form.

Success criteria: Weighted scores of 4 or higher will meet expectations for learning on this sub-goal. Note that individual students will not have scores for this sub-goal if they did not participate in the writing of the final paper.

Reporting to school: 1) # of students who met and did not meet expectations. 2) Copy of the peer evaluation instrument. 3) Copy of the team project assignment. 4) Samples of final papers and peer evaluation instruments that did and did not meet expectations.

Learning Goal 3: Use appropriate models for analysis and planning.

There are two in-class quizzes in this course. Each quiz is composed of short answer questions and mini-case analyses.

Sub-goal: Recognize problems and opportunities (i.e. recognizes strengths and limitations of planning models including financial, statistical, and social).

Assessment tool: Quiz questions. Each quiz contains 1-2 short answer questions about strengths and limitations of the analytical models covered in class.

Success criteria: Average scores of 70% or higher across all questions of this type will meet expectations for learning on this sub-goal.

Reporting to school: 1) # of students who met and did not meet expectations. 2) Copy of the quiz questions. 3) Samples of answers that did and did not meet expectations (note that individual students may fail to meet expectations for a specific quiz question, but meet expectations when all included quiz questions are averaged).

Sub-goal: Be able to critically analyze alternatives (i.e., define goals objectives, alternatives, evaluation methods and makes justifiable recommendations)

Assessment tool: Quiz questions. Each quiz contains a mini-case analysis. The student must analyze the situation, choose and apply an appropriate analytical model and make a recommendation.
Success criteria: Average scores of 70% or higher across all questions of this type will meet expectations for learning on this sub-goal.

Reporting to school: 1) # of students who met and did not meet expectations. 2) Copy of the quiz questions. 3) Samples of answers that did and did not meet expectations (note that individual students may fail to meet expectations for a specific quiz question, but meet expectations when all included quiz questions are averaged).

2. Marketing Research: MGT/P/B 249

This statement is intended to illustrate development of AoL measures that can be used to contribute to program evaluation.

The following represents my approach to solving the assessment problem. It involves identifying a course-related objective that can be mapped into a program goal and sub-goal. The course-related objective will have some type of course-embedded activity that provides an opportunity for assessment.

1. Course learning objective: Be able to rigorously define a business problem from a decision-making perspective so it can be used in support of identifying information requirements to be met by a future marketing research effort.

   Assessment measurement method: Written project proposal document.
   Related Program Goal: Use appropriate models for analysis and planning.
   Program sub-goal: Recognize problems and opportunities.

2. Course learning objective: Be able to successfully analyze a data set from a decision-making perspective via the following process: select appropriate variable, identify appropriate statistical method, and correctly apply it within a hypothesis-testing framework.

   Assessment measurement method: Homework problem(s)
   Related program goal: Use appropriate models for analysis and planning.
   Program sub-goal: Analyze data and possess proficiency in the use of data.

Remarks: Both of these measures are related to the same program goal (use appropriate models for analysis and planning), which is perhaps to be expected in this type of class. Now, it would be possible to use the written project proposal mentioned above to also measure something under “communicate effectively in written form,” which is currently located under “work well in teams and lead them.” Having said this, it would generally require some extra effort on my part to come up with assessment measures under any of the other three program goals. For example, it would require extra effort for me to come up with something to do that would address ethics, or international issues.
Appendix D: Irvine assessment plan: Detail
Memo

To: The Paul Merage School of Business Ladder Faculty
From: MPC AACSB Subcommittee (Connie Pechmann Chair, Sanjeev Dewan, Francine Matijak, Gary Lindblad, Noel Negrete ex oficio)
Date: June 11, 2007
Subject: Approved Plan to Meet AACSB Learning Assessment Requirements

Background
AACSB has a new accreditation requirement involving learning assessment. By this fall, Fall 2007, we are required to measure 4-10 learning goals for each of our accredited degree programs, and provide the results to the students and the school. By degree program, we mean FTMBA, FEMBA, HCEMBA, EMBA, and PHD.¹ Our MPC subcommittee has developed a plan for meeting this requirement. We request approval of our plan by the MPC, FAC and the ladder faculty. We believe our plan will satisfy the requirements, provide excellent feedback to students, faculty and staff, and impose a minimal burden on faculty and staff. We hope it will be approved.

AACSB Requirements
AACSB requires that 4-10 learning goals be established and measured for each degree program and that the results be provided to the students and the school. More specifically, AACSB requires that each individual student in each degree program be assessed on each learning goal for that program.² The student must be assessed based on his or her own performance, not on a group’s performance, although the student’s performance within a group might sometimes be assessed. Course-based or “embedded” assessment tools and methods can be used, but these must be linked explicitly to the degree program’s broad based learning goals. Course grades cannot be used but course assignments, exams, quizzes or presentations or parts of the above can be used. Within a course, a single exam, case write-up, presentation or other tool can be used to assess multiple learning goals, but separate goal-specific criteria must be used to measure attainment of each goal (e.g., exam question 1 measures goal 1, etc.). AACSB also requires that students be given feedback on the school’s success at attaining the learning goals, which can be in an aggregate or summary report. Additionally, AACSB requires that course-level assessment data be reviewed by a school committee such as the MPC, and that the results be used to make teaching and curricular improvements. Finally, AACSB expects some differentiation among the various programs’ learning goals. Thus we will want some differentiation in learning goals among our FTMBA/FEMBA programs, our executive degree programs, and our PhD program.

Overview of Proposed Plan
Here is an overview of our plan for meeting AACSB’s new learning assessment requirement within our MBA programs. Examples will be provided in subsequent sections.
1. Broad Based Goals. As a school, we must identify 4-10 broad based learning goals for each of our degree programs, based in part on our strategic plan and AACSB standards. For FTMBA/FEMBA, we propose the 8 broad based learning goals listed below.
   a. Analytical decision making
   b. Impact of information technology
   c. Strategic innovation

¹ If our undergraduate major is approved, it will have to meet this requirement too.
² Assessment of a randomly selected subset of students is also permitted but we recommend assessment of each student to maximize the benefits and ensure fairness.
d. Knowledge integration within and/or across disciplines

e. Oral and written communication skills

f. An ability to work collaboratively

g. A global business perspective

h. Knowledge of ethical and socially responsible business principles

We propose the following 8 broad based learning goals for EMBA/HCEMBA.

a. Analytical decision making

b. Impact of information technology

c. Enabling strategic innovation

d. Knowledge integration within and/or across disciplines

e. Communicating inside and outside the enterprise

f. Executive leadership and working collaboratively

g. Managing and responding to change in a global economy

h. Ethical management

The PhD learning goals and assessment plan are discussed in a separate document (attached).

2. Specific Goals for Each Core Course. Each faculty member who teaches a core course in one or more of our MBA programs shall identify at least two specific learning goals for that course. At least one of the two course goals must come from a-c in the list above. Each course goal shall be explicitly related to that program’s broad based learning goals. A staff member of the MPC (Lindblad) shall coordinate this effort. Ultimately (after a few years) the goal is to ensure that each of the broad based goals is covered at least once in a program’s courses. In this first year, the above tasks must be completed by September 1, 2007.

3. Assessment Tool(s) or Method(s) and Success Criteria. The faculty member identified above shall also specify the type of assessment tool(s) or method(s) to be used to assess each specific course learning goal and the criteria for determining success or failure. The faculty members shall comply with the AACSB requirement that each student be assessed based on that student’s own performance, not on a group’s performance. The following AACSB approved assessment measures shall be used: assignments, exams, quizzes, presentations or parts of the above. Course grades shall not be used. Pass/fail criteria shall also be specified. In this first year, the above tasks must be completed by September 1, 2007.

4. Student Assessment and Feedback. Starting in Fall 2007, each faculty member who teaches a core course in an MBA program shall assess each student in the course on a pass/fail basis based on the course’s specific learning goals.

5. Course-level Data Aggregation and Analysis. Starting in Fall 2007, each faculty member who teaches a core course in an MBA program shall provide course-level assessment data to the MPC indicating the number of students who passed and failed each learning goal, a copy of each assessment tool used, and the grading criteria used, each time the course is offered. No student names or identifiers shall be used. A staff member of the MPC (Lindblad) shall aggregate the course-level data and prepare summary reports that shall be reviewed by the MPC. The data shall be aggregated by course and by broad based learning goal. Results of the assessment shall be used to improve teaching and the curriculum. It is anticipated that an

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3 Subject area knowledge is not included in the learning goal lists because this type of knowledge is already reflected in the course grade.

4 If two or more faculty teach the same course core in the same MBA program, they shall coordinate and submit a single set of learning goals, assessment tools and success criteria.

5 Faculty who teach core will complete a brief initial survey asking them the following questions about their core class(es): which 2 goals do you prefer to assess, which added goals are you willing to assess if any (most likely instead of the first 2 goals listed, and in any event on a purely voluntary basis), which goals do you already assess using individual student assessments, and what is the total number of goals you wish to assess (required number is 2).
electronic data collection module will be added to Catalyst to assist with data collection and analysis. Catalyst grade postings will not be viewable by students. However, students will be given access to summary reports on our learning goal assessment.

**Hypothetical Example Using the Information Systems Core Course**

1. **Assessment Tool:** Each student must submit written answers to an individual case study assignment.
2. **Learning Goal 1 Analytical Decision Making:** The analysis of the case will require critical reasoning skills and application of analytical frameworks discussed in class.
3. **Learning Goal 2 IT Proficiency:** Satisfactory answers to the case questions will require a sophisticated understanding of how IT-enabled processes create value in business organizations.
4. **Success Criteria:** Grade of B- or higher will be a passing grade.
5. **Reporting to School:**
   - Learning Goal 1, Analytical Decision Making, # students passed, # failed
   - Learning Goal 2, IT Proficiency, # passed, # failed
   - Assessment Tool: Copy of the case study assignment

**Learning Assessment Requirements – The PhD Program**

**Aim of the PhD program**
The aim of the PhD program is to educate students and prepare them for an academic career in their respective areas of specialization.

**Areas of Specialization**

Although the students follow their specializations (e.g. Finance, Marketing, Information Systems etc.), all successful graduate candidates are awarded one single degree, "PhD in Management."

**Employment Upon Graduation**
After graduation, the students are expected to take teaching/research positions in AACSB approved Business Schools where the emphasis is on research and teaching. Occasionally, we find students entering the world of practice - business consulting or as researchers in top business oriented research organizations. But this is an exception.

**PhD Program and the Educational Goals of the University of California**
In the University of California system, graduate studies in Business have two tracks, the MBA track and the PhD track. An important distinction between the two is that the MBA track is a professional degree and the PhD is an academic research oriented degree. For example, in order for a candidate to apply for the PhD program in business, the MBA degree is not a requirement. A Bachelor’s Degree in from any recognized university is the only or minimum requirement.

Since the PhD is a research degree, the qualification for the PhD degree is very similar to a PhD degree in the Arts and Sciences. Thus the student has to pass a comprehensive written exam in his/her specialty, submit and successfully defend a dissertation proposal before a faculty exam committee, and finally defend a written thesis based on their proposal. The dissertation is evaluated on the basis of its originality, creativity and the use of appropriate methodology. The
PhD Education in Business Discipline
While the requirements at the University level are stated as above, the Business school has its own requirements which are clearly spelled out in the PhD Handbook.
Similar to the MBA program, the PhD has its own broad learning goals. They are different from the MBA program because the goals of the programs are different (Academic Education as opposed to Professional Education)

8 Learning Goals
1. Acquisition and mastery of research tools (E.g. methodologies, research techniques, analytical reasoning).
2. Foundational knowledge in business education (what it means to be a Business Educator/Researcher in the 21st century).
3. Expertise in the area of specialization (research competence to tackle original problems in the area of specialization –O&M, Marketing etc. - and publish in top journals in the field).
4. Original research that leads to an analysis of a research problem that in turn leads to problem solving in important business areas and contributes to the betterment of the society and the global order.
5. Understanding of issues in ethical research (integrity as a researcher, high moral standing, courage to express views without fear or favor).
6. Work and collaborate with faculty mentor(s).
7. Preparation for a research/teaching career.
8. Teaching capability.

Evaluation of PhD Students and Learning Objectives
The PhD program is structured in a way to facilitate required course work in acquiring research tools and expert knowledge in the area of specialization. The course work includes attending classes at the Business School and other departments on campus based on student interests. The preliminary course work takes the first two years at the end of which the student takes a written qualifying exam. During this period, the students acquire foundational knowledge (items 1 to 3 of the broad based goals), and write a research paper of publishable quality. The written exam covers a variety of sub-topics within the field pf specialization. A comprehensive list of readings is provided to each student that includes both classics in the field and contemporary cutting-edge developments.

Once the student passes the written comprehensive exam, they prepare for an oral exam in their field of specialization. This is also known as Advance to Candidacy exam. It usually takes place 12-18 months after the written exam. The oral exam includes testing of subject matter in their filed and defense of their thesis proposal. Once the student passes the oral exam, the student has technically “advanced to candidacy” and they enter the dissertation stage. At the conclusion of the dissertation stage, the student is required to formally defend their dissertation before committee a faculty. The awarding of the PhD degree takes place after successful thesis defense and filing of the thesis with the Office of the Graduate Studies.

Learning Goal Measurement and Review
The PhD Program will measure a student’s competency toward attaining the stated learning goals via the Advisor’s Progress Report. It is standard practice and procedure to review each student’s
progress every 6 months (December and June) and this report tool will now be used to assess a student’s overall progress on the learning goals. The Advisor of each student will evaluate the student on the learning goals in written format via the Progress Report in the month of June of each year. In addition to the standard questions, we will add a “Learning Goals” section asking the advisor if his/her student satisfactory met the learning goals (1-7) identified above on a “Pass” or “Fail” scale. The Advisor will have two weeks to evaluate the student and submit the reports to the PhD Program Office. The PhD Program Office will type the grade (“Pass” or “Fail for each student) for each learning goal into Catalyst. The program coordinator will then print out the results of every assessment in an aggregate report and forward to the PhD Committee members. A meeting will be scheduled yearly to review, discuss and evaluate the results. Catalyst grade postings will not be viewable by students. However, students will be given access to summary reports on our learning goal assessment.

Teacher Education
The PhD students are given several opportunities to educate themselves in class room teaching. A common assignment for all the students is to be teaching assistants under the supervision of a regular faculty member. In addition, those students who have advanced to candidacy may teach undergraduate classes. Finally, the students are required to attend teaching workshops and teacher education seminars that are offered by the University.