CUBLO: A MEASURE FOR CORE UNIVERSAL BUSINESS LEARNING OUTCOMES

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ABSTRACT

Educational program success is increasingly dependent on meeting learning outcomes. Although some outcomes are institution specific, Core Universal Business Learning Outcomes can be used to represent the needs of employers and accreditation agencies. Using accepted marketing scale development processes, nine outcome dimensions were confirmed: leadership skills, communications skills, interpersonal skills, analytical skills, decision-making skills, technological skills, global economy, ethics, and business practices. A learning outcomes index indicated the relationship between skill level and importance of the dimensions as well as the priority for resources. The scale demonstrated nomological validity through usefulness in distinguishing among groups and successfully supporting theoretical tests with another construct.

INTRODUCTION

Consistent with the move from a teaching orientation to a learning orientation is the evolution of learning outcomes and the perception of skill proficiency achieved by students (Marshall, Laask, and Goolsby 1996). This outcome-based concept of education uses assessment of learning to evaluate curriculum effectiveness, as measured by the skills acquired by graduates (Lamont and Friedman 1997). Appropriate, institution-specific learning outcomes are needed to ensure convergence with institutional goals (Lamont and Friedman 1997; Lamb, Shipp, and Moncrief 1995) which leads to accreditation (Geiger and Dangerfield 1997). Outcomes include not only content but also hiring criteria and other appropriate issues (McDaniel and White 1993; Lamb, Shipp, and Moncrief 1995; Lamont and Friedman 1997).

The motivation for developing a core list of learning outcomes for universal use is derived from consistent employer requirements for new hires (McDaniel and White 1993) and from accreditation requirements both for business (AACSB 1993, 2004) and national/regional acceptance (SACS 2001). Some strategic or mission-driven outcomes may be unique to a specific institution (Lamb, Shipp, and Moncrief 1995), yet outcomes related to business graduates in general can be reasonably considered to be universal requirements for all programs. Although most studies related to outcomes have not discussed specific listings, one exploratory study reported dimensions and criteria (Duke 2002). However, that study stopped short of developing a multi-dimensional scale for learning outcomes. Further limitations consisted of the sample size used relative to the number of criteria measured as well as the evaluation techniques used (Duke 2002). A universal multi-dimensional scale (1) would capture the needs of all of the general stakeholder groups and (2) would be capable of demonstrating that learning outcomes consist of the relationships between the importance placed on a given attribute and the skill level attained after instruction.

From a methodological and psychometric perspective, the overall focus of assessing proficiency of education and course content has evolved from assimilation of educational service quality elements operationalized as modified forms of the SERVQUAL instrument. The measurement techniques existing have assessed education tangibility as well as professor empathy, reliability, and responsiveness (Boulding, Kalra, and Staelin et al. 1993). Existing measures of educational or instructional effectiveness focus primarily on the student's perceptions of the service delivered, such as professor ratings (Gremler and McCollough 2002). However, these measures omit any assessment of importance of the concepts rated; they address neither skill acquisition nor the ability to apply concepts in the work force.

This study develops a multi-dimensional scale to measure the core universal student-learning outcomes for business curricula. Learning outcomes are defined by managerial hiring requirements, curriculum review, and student evaluations. The study demonstrates the reliability and validity of the scale. Progressing through the logic of scale development, this background discussion (a) reviews the basis for assessing learning outcomes, (b) discusses performance evaluation approaches including contributions from service quality and the use of importance scores, and (c) presents creativity as a test of

nomological validity. The scale development is then described and discussed.

LEARNING OUTCOMES

Student perceptions are a crucial component to assessment and revision of course content and skill levels attained (Lundstrom and White 1997). The analysis of student perceptions of the importance placed on a given skill set may point to weaknesses that exist in relaying and emphasizing specific curricula material to students (Lamont and Friedman 1997). Further, student perceptions of the achievement of learning outcomes may imply how well the student's knowledge base is developing (Glynn, Rajendram, and Corbin 1993). Given the support for the importance of the student's perception, it is reasonable to assume that students have a legitimate grasp of the quality of their curriculum and program (Glynn, Rajendram, and Corbin 1993; Turley and Shannon 1999). This in turn implies that student perceptions are critical for tactical evaluation of classroom performance as well as general curriculum flow and value (Duke and Reese 1995). AACSB supports this contention as they state that indirect methods of assessment of student perceptions often yield very valuable information (AACSB 2004).

Also of concern is the development of specific criteria/categories for assessment. Prior research has demonstrated the preliminary step of developing initial categories of outcome skills and generating multiple items in each category to delineate the facets of the category (Duke 2002). This development followed the process suggested by Lamb, Shipp, and Moncrief (1995) and concentrated on skill knowledge (Marshall, Laask, and Goolsby 1996). Multiple stakeholders provided input to identify outcomes that are relevant to the students' job performance and lifelong learning (McDaniel and White 1993; Tomkovick, Erffmeyer, and Hietpas 1996).

Additional guidance for developing outcome categories is offered by AACSB; they state that there exist two basic approaches (direct and indirect) to gathering data for assessment. The ***indirect approach***, calls for the utilization of surveys, focus groups and (exit) interviews of students, alumni and/or employers for the purpose of assessing the perceptions of learning that takes place in the school's programs. The indirect approach should aid in the assessment of core learning goals for business programs that are knowledge and skill oriented. These consist of skills that are not managerially specific but rather, relate to abilities that graduates will carry with them into their careers. Such general categories include communication skills, ethical reasoning, language, and problem solving skills (AACSB 2004).

Direct measures differ from the indirect in that they focus on observing (and assessing) student performance on the school's learning objectives. These measures may be more directly aligned to management-specific learning goals for students; examples may include exit exams in such areas as accounting, management science or marketing. Other examples include case analysis, oral, research and other written assignments, team exercises and business simulations. These activities will most likely take place in the classroom (course-embedded assessment) or be incorporated as part of a program's graduation requirement. They are therefore much more specific to the respective institution's objectives and albeit, more difficult to assess on a holistic basis.

Given the "situation-specific" aspects of developing management-specific assessment measures, this study attempts to take a necessary first step by developing an assessment tool for measuring the core learning outcomes associated with basic knowledge and skills acquired. Duke (2002) proposes nine categories of outcomes and multiple items for each category. These categories appear consistent with those for indirect assessment as forwarded by AACSB (2004) and thus will be applied for further conceptualization and analysis.

PERFORMANCE EVALUATION APPROACHES

A significant evolution has occurred relative to assessment of performance evaluation approaches. Early attempts consisted of measuring attitudes on a multi-attribute basis (Fishbein and Ajzen 1975). The discussions evolved through service quality (Zeithaml, Berry, and Parasuramum 1996) and continued development of performance-importance measures (Kotler 2000). Most of the early studies used multi-attribute techniques to determine specific components of evaluative outcomes. The impetus for this approach involves the respondent's evaluating performance as weighted by the perceived level of importance place on the specific task performed. The overriding significance of the multi-attribute approach lies in the incorporation of both performance and importance measurement. Given the intangible and heterogeneous aspects of university classroom instruction, it may be of value to investigate measurement issues as derived from the services literature, in this case how is service quality measured.

Contributions From Service Quality

The concept of service quality enables an organization to deliver a given service in the manner for which it is intended (Fisk, Grove, and John 2000). This section reviews the issues in difference measures versus single factor measures, the use of importance scores, and then considers a learning outcomes index to represent the relationship between skill level (performance) and importance of outcomes.

The most dominant approaches are the SERVQUAL instrument (Parasuramum, Zeithaml, and Berry 1988) and SERVPERF (Cronin and Taylor 1994). SERVQUAL

identifies five key dimensions including reliability, tangibility, assurance, empathy and responsiveness of the service provider and is designed to capture the consumer's perceptions of both process and outcomes related to each dimension (Fisk, Grove, and John 2000). Whereas SERVQUAL measures expectations compared with the level of perceived importance, SERVPERF uses a single measure that is designed to assimilate the comparisons of evaluations over time (Cronin and Taylor 1994). The implication to this discussion is that both systems use importance weights to indicate priorities and to create composite measures of evaluation.

Discussions have evolved over SERVQUAL's use of expectations as a part of the difference calculations. Separate measures of expectations and performance perceptions provide richer diagnostics because expectations are normative, general evaluation standards and performance perceptions assess a specific organization's service (Parasuraman, Berry, and Zeithaml 1993). Measuring expectations and performance separately gives better illustration of the dynamics of customers' assessments of service quality over time. Increases or declines may be due to changes in expectations or perceptions or both. Suggestions of restricting the use of difference scores using expectations versus performance perceptions are relevant when using some multivariate analyses where the difference is a dependent variable. Since using individual measures as diagnostics does not involve a dependent variable in a multivariate design, then this analytical restriction does not apply (Parasuraman, Berry, and Zeithaml 1993).

More straightforward single measures have been suggested to simplify analysis and to avoid theoretical issues of perceptual measurement (Brown, Churchill, and Peter 1993; Carman 1990; Bolton and Drew 1992; Cronin and Taylor 1994). Some argue that expectation-perception measures have problems of reliability, discriminant validity, and variance restriction (Cronin and Taylor 1992; Peter, Churchill, and Brown 1993). On the other hand, the diagnostic ability of the single perception scale is questionable. This scale cannot indicate whether the expectations being confirmed or disconfirmed were high or low. Meeting or exceeding low customer expectations is qualitatively different from meeting or exceeding high expectations (Parasuraman, Berry, and Zeithaml 1993). Therefore, the single direct perception scale has little diagnostic capability without a basis for comparison.

Using Importance Scores

Individual evaluation of importance scores is the basis for one axis of performance-importance analysis (Martilla and James 1977). Intuitively, higher importance scores indicate attributes or criteria that require more effort or resources to ensure meeting the needs of the consumer. Lower importance criteria indicate attributes or criteria that require less effort or resources since they are not crucial to the consumer's choice process (Kotler 2000; Martilla and James 1977). The performance-importance approach also increases the diagnostic abilities of the perceived performance scores by using importance as a benchmark for comparison.

Opinions vary on using importance scores to weight perceptions. This implies that customers' perceptions are related to the strength of their beliefs of each attribute's importance multiplied by the perception of performance for the attribute. Some researchers suggest that importance weighting helps to estimate the complex attitudes for services (Carman 1990). Refinements in the SERVQUAL system included a move from importance weights for composite dimensions to measuring importance for individual items (Parasuraman, Zeithaml, and Berry 1994). However, the value added with importance weights has been questioned (Cronin and Taylor 1992). In response to this suggestion of an unweighted approach, research has demonstrated that attitude structures developed from weighted scores are different from unweighted structures (Zeithaml, Berry, and Parasuraman 1993). Without attribute importance, there is no indication of the relative importance that customers attach to evaluation criteria or performance.

This multiplication approach has been criticized on whether the constructs are independent (Cronin and Taylor 1992). As with the expectations and perceptions, other researchers have indicated that the constructs may not need to be independent unless used in multivariate models and that the constructs may be related and not require prove of independence (Parasuraman, Berry, and Zeithaml 1993). Another criticism is that this multiplication approach is not capable of distinguishing between the relative contribution of the importance and perception scores. That is, weights and performance may be substantially different and yet yield the same multiplicative score making interpretation uncertain (Crompton and Love 1995). However, multi-attribute attitude models have long professed that these individual effects can be either eliminated or used without effecting aggregate calculations (Fishbein and Ajzen 1975). Multiplicative models may not resemble either the original performance ratings or original importance ratings because they measure a modified, though related, construct (Duke and Persia 1996).

Learning Outcomes Index

If the limitations and restrictions are recognized, any of these measurement approaches discussed in the services literature might be used for outcomes. Whereas an expectations measure may be important in some situations, the pre-post SERVQUAL-style of measures are not foremost in priority for most programs, except when gaps may exist between expectations of employers and perfor-

mance of students (Kelley and Gaedeke 1990; McDaniel and White 1993; Lundstrom and White 1997). Most crucial for educational programs are the skill level attained and the importance of these skills (Duke 2002). The relationship between these two sub-scales should provide the basis for priorities in allocating resources and filling gaps in the curricular offerings (Lamb, Shimp, and Moncrief 1995). It is proposed that, at the dimension level, the relationship between the importance of the learning task and skill level attained can be captured in an index for learning outcomes index that demonstrates priorities (Duke 2002).

To combat the controversies over poor reliability and misleading discriminant validity of importance-performance difference scores as well as the variance restrictions of one-component scores (Brown, Churchill, and Peter 1993), a learning outcomes index can be used to capture both aspects of the learning outcomes construct without confounding the results from an empirical standpoint (Brown, Churchill, and Peter 1993). The learning outcomes index developed here alleviates statistical problems that are associated with the difference score algorithm, and it also allows use of the scale in theory testing as well as more direct applications in practice. The index is designed to capture the ratio of perceived importance relative to the perceived skill level attained, thus yielding a summary measure of the learning outcome for each dimension. Although a similar index has been proposed at the criteria level (Duke 2002), the index used here standardizes each dimension. In calculating the index, the ratio is represented by the average score for the skills level component divided by the importance component that is then subtracted from a value of 1.0. In its interpretation, scores that are closest to zero represent the closest matches between the importance placed on an attribute and the skill level attained; in simplest terms, the program or curriculum is meeting the needs of the student relative to the given dimension. The learning outcomes index equation is as follows:

$$LO_d = \left[1 - \frac{\frac{\sum SL_d}{n_d}}{\frac{\sum IMP_d}{n_d}} \right] x\,100$$

Where:

LOI_d = *learning outcome for dimension d*

ΣSL_d = *sum score for dimension d of the skills level subscale*

ΣIMP_d = *sum score for dimension d of the importance subscale*

n_d = *number of items representing* dimension *d*

A positive score indicates a need for more attention or resources where importance has grown greater than skill level (Martilla and James 1977). A negative score indicates that much less importance is placed on the attribute skill level obtained from instruction. These negative scores may indicate overkill, where outcomes might be considered for reduction in resources (Martilla and James 1977).

CREATIVITY AS A TEST OF NOMOLOGICAL VALIDITY

For a scale to be theoretically sound, it must be capable of distinguishing relationships with other constructs (DeVellis 1991; Kumar and Dillon 1987). To evaluate the usefulness of the CUBLO scale, its relationship to creativity was explored. Creativity has been recognized as an important characteristic in hiring new employees (McDaniel and White 1993), and teaching creativity has been explored in many streams of literature including marketing education (Ramocki 1994; Gilbert, Prenshaw, and Ivy 1996; Shipp, Lamb and Mokwa 1993). Creativity may be considered to be the ability to find or suggest a new or different relationship, perspective, or combination of concepts (e.g., Shipp, Lamb, and Mokwa 1993). Increased creativity may enable students to solve business problems in ways that produce an advantage in competitive markets (Isenberg 1984).

Although many predictors can be used to measure creativity in problem solving, the Torrance Test (Torrance 1990) has been in the marketing education literature to evaluate the success of teaching creativity (Gilbert, Prenshaw, and Ivy 1996). This proprietary test uses standardized questions of personality variables to develop an index that is compared with national percentile rankings. The test is centered on five skills that indicate creativity levels. The ability to generate larger numbers of problem solving options is called *Fluency*. *Originality* of the options reflects new approaches to a problem. The ability to organize thoughts and synthesize ideas is captured in *Abstraction*. The level of imagination and the ability to express more details indicates *Elaboration*. Willingness to remain open to additional ideas even though a sufficient one may be present indicates *Resistance to Closure*. These individual criteria are then combined into a single measure of creativity for each person. The Torrance tests are attractive due to their objective measures and national standardization. However, the same concepts can be asked in a self-report format where the purpose is to obtain student perceived ratings as a part of curriculum assessment (Lamont and Friedman 1997; Lundstrom and White 1997).

It has been suggested that creativity may need to be included in the set of outcomes for curriculum evaluation (Lamont and Friedman 1997; Gilbert, Prenshaw, and Ivy 1996; Lundstrom and White 1997). Even rational problem solving has elements of creativity (Shipp, Lamb, and Mokwa 1993). However, creativity may not be a distinctive outcomes dimension but rather a separate construct with relationships to some but not all the outcome dimen-

sions. Using the outcomes scale developed from the data collected in these studies, the level of correlation of creativity with the dimensions can be tested to establish whether creativity is a separate dimension. Virtually no research discusses the comparison of these constructs. In addition, the self-reported skill levels and perceived future importance may not conform to other evaluation formats. The following discussion considers the potential relationships of creativity with the dimensions established in this research.

Leadership training emphasizes project deadlines and completion as well as suggestions for team building. Courses and campus project experiences tend to emphasize more structure that would limit openness and originality along with closure as soon as consensus is obtained. Creativity is likely not to be correlated with the leadership dimension.

Communications and interpersonal skills tend to emphasize characteristics similar to creativity such as openness to others through active listening, information flow in teams, and explaining concepts to others. Increased elaboration of issues to develop more options and resistance to closure appear to be a part of communications. Those more comfortable with expression are likely to find more options through elaboration. Global Economy may generate some creative correlation since cultural and economic differences could involve some creative thought. Openness to comprehend other cultures may indicate resistance to closure as well as the willingness to consider more options. Creativity is likely to be correlated with communications, interpersonal skills, and global economy.

Analytical and Decision-Making skills are described by understanding and correct use of standard procedures. Choice of correct tools and proper application of those tools tends to point toward structured rules rather than creative approaches. Technology and ethics skills refer to specific issues that appear not to involve creative concepts. The ability to use various computer programs is rather objective in measuring competence. The understanding and recognition of ethical situations may involve some creative thought, but not sufficient to involve the creativity measure. Creativity is not likely to be correlated with analytical skills, decision-making skills, technology, or ethics.

Business Practices could also involve creative characteristics. However, the items used in this set of outcomes tend to be more functional and defined with little creative opportunities. These items include conducting a meeting, customer needs, industry analysis, and interdependence of business functions. In this case, creativity is not likely to be correlated with business practices.

SCALE DEVELOPMENT PROCESS

Churchill (1979) proposed a widely accepted general paradigm for developing marketing scale measures. This process includes the following steps: (1) specifying the domain of the construct, (2) generating a sample of items, (3) collecting data, (4) purifying the measure, (5) collecting additional data, (6) assessing reliability, (7) assessing nomological validity, and (8) developing norms. Since its inception, this paradigm has been updated to include the assessment of unidimensionality via confirmatory factor analysis (Gerbing and Anderson 1988). This paradigm, along with incorporation of dimensionality tests, was followed throughout the development of the CUBLO scale.

ITEM POOL DEVELOPMENT

The first task for developing the learning outcomes scale used an exploratory research design to define the appropriate domain and to generate a significant pool of items for each component. This process dealt first with extensive review of AACSB accreditation guidelines, as well as lists of hiring criteria from both academic and business education literature. Other archival data included review of curricula from other institutions, exit interviews, and alumni surveys. From this process, a preliminary list of learning outcomes emerged.

To validate the preliminary categories identified and to generate items to represent each category, a triangulation of qualitative research techniques was used. This process was deemed necessary given the lack of theory-based information from the education literature relative to the development of scale measures. A phenomenological design (Dabholkar, Thorpe, and Rentz 1996) consisting of three interview phases was conducted with the purpose of assigning meaning to the skill levels desired by three distinct groups: hiring managers, students, and faculty/advisors. From this process, each segment's thoughts were assessed first through one-to-one interviews and then through a series of focus groups (one for each segment).

From this exploratory phase, common themes emerged for the grouping of some outcomes and the development of new ones to encompass broader categories of learning outcomes. These techniques identified nine discernable categories representing desired skills: leadership skills, communication skills, interpersonal skills, analytic skills, decision-making skills, technological skills, global economy, ethics, and business practices. From focus groups with each of the three stakeholder segments, multiple items were generated within each of these dimensions, and were subsequently operationalized using verbs and adjectives suggested to fit with Bloom's Taxonomy of Educational Objectives (Bloom 1956). These scale items were then exposed to an additional judging phase where a hiring manager, a faculty member, and an academic advisor served as expert judges. All items were evaluated for both face and content validity with a final scale format consisting of nine dimensions and 65 items.

For the importance measures, each item was rated with an unforced, five-point Likert scale format including an option for "I don't know" since some students might feel unqualified to judge skill importance in their future jobs. The respondent was asked to rate each of the 65 items based on the statement, "In my opinion this skill is important to my future job." To access skill level (performance) perceptions, the respondent was asked to rate each item based on the statement "In my opinion, the courses at this university have provided me with a high level of this skill." Skill level ratings used a similar five-point Likert scale format, but these statements did not include a "don't know" option since all students were deemed competent to have an opinion on their own skill level. Having completed the domain and item pool generation stages of the scale development paradigm, the next step discussed here included two empirical procedures orchestrated for scale purification and the assessment of diagnostic properties.

DATA COLLECTION 1

Sample

To maintain some control over duplication and to increase the probability of response rate, cluster sampling in classes was used. The instrument was distributed and completed during class time. The sample totaled 502 students from all majors of whom 358 were business students including 159 marketing majors.

Exploratory Factor Analysis

Exploratory factor analysis was performed separately on each the importance and the skill level dimensions in order to purify the item pool. This aided in confirming the proposed dimensions as well as evaluating the potential of underlying dimensions not identified in the exploratory phase. Using principal axis factoring and oblique rotation (Gerbing and Anderson 1998) resulted in a rotated factor pattern consisting of nine extracted factors with 45 of the original 65 items being retained. The explained variance for the nine-factor structure was .71 for the importance items and .73 for the skills level items. The items and dimensions retained are shown in Table 1. The cutoff for retention of any item was 50 percent variance explained by the item (Hair et al. 1998). Scree plots of eigenvalues also confirmed the factor structure of the scale. For each dimension, SPSS was used to assess scale internal consistency reliability (coefficient α). Alpha values ranged from .89 to .75, for both importance and skill level components; all within the recommended cutoff range (Peterson 1994). The resulting component matrix is presented in Table 1.

Confirmatory Factor Analysis

Continued scale evaluation involves examination of (1) convergent validity and discriminant validity and (2) comparative model assessment. Each of these analyses is discussed in this section.

Convergent and Discriminant Validity: To assess construct validity of the importance and performance subscales, convergent and discriminant validity were assessed. Convergent validity is supported if average variance extracted scores are greater than .50 (Fornell and Larker 1981), and if all variables have significant loadings on the latent variable. A t-value of greater than two supports a case for convergent validity (Segars 1996). Given these criteria, it can be noted that the importance and skill level subscales exhibited sufficient convergent validity (see Table 2) as supported by the .01 level significance of all factor loading/standard error ratios and the average variance extracted scores all being greater than .5.

Discriminant validity is supported if (a) all off-diagonal phi correlations among dimensions are less than one (Bagozzi 1980), (b) no confidence interval estimates around the phi correlations include the value of one (Gerbing and Anderson 1988), and (c) average variance extracted estimates are greater than the square of the correlation between two dimensions (Fornell and Larker 1981). Discriminant validity between dimensions of both subscales was supported based on each of these criteria.

Comparative Model Assessment: Having established initial support for the nine dimensions of each scale, confirmatory factor analysis with LISREL 8.51 was conducted to further empirically support the proposed structure. As suggested by Bollen (1989), a null model (where no factors were considered to underlie the observed variables, variances were not restricted, and correlations between observed indicators were zero) was tested against a series of additional models: (1) a single factor model that assumes a single value dimension and (2) the proposed nine-factor model. The results support the proposed nine-factor structure for both the importance and the performance measures (Table 3). The proposed model had the highest adjusted goodness of fit and the lowest χ^2. The table also reports values for the non-centrality index (RNI). This index is an unbiased estimator of the Bentler-Bonnett CFI and is recommended for the comparative analysis of competing models (McDonald and Marsh 1990; Bagozzi and Heatherton 1994). As noted, the RNI is highest for the proposed nine-factor structure for both the importance and skill level subscales and thus supports improvement over the null and single factor models. The acceptable overall fit of the proposed model also lends support to its proposed dimensionality (Kumar and Dillion 1996).

TABLE 1
CUBLO: EFA – DATA COLLECTION 1 (n = 502)

		Importance		*Skill Level*	
		F.L.	***α***	***F.L.***	***α***
A.	***Leadership Skills***				
A1.	**Ability to Serve as a Team Leader**	**.752**	**.75**	**.812**	**.79**
A2.	**Ability to Use Different Leadership Styles**	**.808**		**.825**	
A3	**Ability to Support Shared Team Values**	**.805**		**.777**	
A4.	**Ability to Facilitate Conflict Resolution**	**.819**		**.816**	
B.	***Communication Skills***				
B1.	**Ability to Write Clearly**	**.753**	**.79**	**.656**	**.78**
B2.	**Ability to Speak Effectively to Groups**	**.779**		**.660**	
B3.	**Ability to Use Active Listening Skills**	**.761**		**.693**	
B4.	**Ability to Explain Technical Concepts to Non-technical People**	**.545**		**.695**	
B5.	**Ability to Communicate at the Correct Level of Detail**	**.503**		**.712**	
B6.	**Ability to Manage Communication Flow in Teams**	**.671**		**.626**	
B7.	**Ability to Write an Executive Summary**	**.570**		**.705**	
C.	***Interpersonal Skills***				
C1.	**Comprehension of Differences among People.**	**.564**	**.79**	**.503**	**.81**
C2.	**Ability to Relate to People with Diverse Backgrounds.**	**.562**		**.517**	
C3.	**Ability to Build Effective Teams.**	**.603**		**.803**	
C4.	**Ability to Solve Conflicts.**	**.656**		**.799**	
D.	***Analytical Skills***				
D1.	**Comprehension of Quantitative Problem Solving Techniques**	**.774**	**.78**	**.819**	**.80**
D2.	**Ability to Apply the Right Tools to Business Problems.**	**.802**		**.813**	
D3.	**Comprehension of the Accuracy and Reliability of Data.**	**.718**		**.786**	
D4.	**Ability to Think Systematically.**	**.721**		**.781**	
D5.	**Ability to Identify Relationships among Problems And/or Issues.**	**.746**		**.826**	
E.	***Decision-Making Skills***				
E1.	**Ability to Use Decision Making Techniques to Solve Problems.**	**.844**	**.83**	**.823**	**.81**
E2.	**Knowledge of Negotiating Skills and Techniques.**	**.856**		**.8088**	
E3.	**Ability to Anticipate and Provide Alternative Solutions.**	**.884**		**.826**	
E4.	**Ability to Identify Central Issues of a Problem.**	**.877**		**.844**	
E5.	**Ability to Incorporate Market and Competitor Information**	**.746**		**.811**	
E6.	**Ability to Evaluate Risk Involved in Decisions.**	**.862**		**.833**	
F.	***Technological Skills***				
F1.	**Ability to Use Word Processing.**	**.872**	**.86**	**.853**	**.87**
F2.	**Ability to Use Spreadsheets.**	**.818**		**.907**	
F3.	**Ability to Use Databases.**	**.872**		**.869**	
F4.	**Ability to Prepare Multimedia Presentations.**	**.882**		**.864**	
F5.	**Ability to Search and Integrate Multiple Data Sources.**	**.844**		**.918**	
F6.	**Ability to Communicate Electronically.**	**.849**		**.937**	
G.	***Global Economy***				
G1.	**Comprehension of Cultural Differences.**	**.826**	**.88**	**.798**	**.82**
G2.	**Comprehension of Economic Differences.**	**.836**		**.816**	
G3.	**Comprehension of the Global Business Environment.**	**.865**		**.706**	
G4.	**Comprehension of the Impact of Other Economic Systems on the U.S. Economy.**	**.828**		**.691**	
H.	***Ethics***				
H1.	**Ability to Recognize Ethical Conflicts in Personal Situations.**	**.856**	**.86**	**.918**	**.89**
H2.	**Ability to Recognize Ethical Conflicts in Business Situations.**	**.856**		**.937**	
H3.	**Ability to Make Ethical Decisions.**	**.870**		**.924**	
I.	***Business Practices***				
I1.	**Ability to Conduct a Business Meeting.**	**.861**	**.81**	**.762**	**.83**
I2.	**Ability to Analyze Industry Trends.**	**.876**		**.866**	
I3.	**Comprehension of Market-based Economies.**	**.851**		**.871**	
I4.	**Knowledge of the Interdependence of Business Functions.**	**.882**		**.874**	
I5.	**Comprehension of Basic Business Practices.**	**.829**		**.867**	
I6.	**Ability to Focus on Customer Needs.**	**.822**		**.801**	

TABLE 2
CUBLO: CFA – DATA COLLECTION 1 (n = 502)

	Importance			*Skill Level*		
Dimension/Item	**St. Load.**	**t-value**	**Var. Ext.**	**St. Load.**	**t-value**	**Var. Ext**
A. Leadership Skills						
A1	**.68**	**16.18**	**.76**	**.68**	**16.03**	**.68**
A2	**.76**	**18.49**		**.73**	**17.61**	
A3	**.77**	**19.09**		**.71**	**16.95**	
A4	**.72**	**17.30**		**.72**	**17.15**	
B. Communication Skills						
B1	**.62**	**14.47**	**.74**	**.55**	**12.53**	**.70**
B2	**.74**	**18.43**	**.63**	**14.75**		
B3	**.74**	**18.55**		**.67**	**16.03**	
B4	**.53**	**12.21**		**.59**	**13.72**	
B5	**.70**	**17.12**		**.69**	**16.58**	
B6	**.72**	**17.66**		**.67**	**15.90**	
B7	**.54**	**12.41**		**.52**	**11.81**	
C. Interpersonal Skills						
C1	**.72**	**18.04**	**.69**	**.74**	**18.23**	**.81**
C2	**.77**	**19.75**		**.74**	**18.34**	
C3	**.81**	**21.23**		**.78**	**19.79**	
C4	**.85**	**22.64**		**.77**	**19.49**	
D. Analytical Skills						
D1	**.68**	**16.29**	**.80**	**.71**	**17.52**	**.71**
D2	**.80**	**20.52**		**.73**	**18.17**	
D3	**.81**	**20.98**		**.75**	**18.83**	
D4	**.60**	**13.92**		**.77**	**19.55**	
D5	**.71**	**17.41**		**.79**	**20.43**	
E. Decision-making Skills						
E1	**.84**	**22.82**	**.71**	**.73**	**18.39**	**.78**
E2	**.82**	**22.21**		**.75**	**18.88**	
E3	**.86**	**23.61**		**.80**	**20.92**	
E4	**.86**	**23.61**		**.75**	**19.08**	
E5	**.71**	**19.63**		**.71**	**17.53**	
E6	**.86**	**23.60**		**.75**	**18.98**	
F. Technological Skills						
F1	**.86**	**23.89**	**.67**	**.80**	**20.91**	**.77**
F2	**.85**	**23.25**		**.85**	**23.01**	
F3	**.77**	**20.21**		**.80**	**20.85**	
F4	**.88**	**24.52**		**.81**	**21.41**	
F5	**.82**	**22.27**		**.79**	**20.44**	
F6	**.86**	**23.72**		**.37**	**8.19**	
G. Global Economy						
G1	**.83**	**22.59**	**.52**	**.80**	**20.93**	**.61**
G2	**.88**	**24.73**		**.88**	**24.18**	
G3	**.91**	**26.22**		**.86**	**23.45**	
G4	**.87**	**24.23**		**.82**	**21.60**	
H. Ethics						
H1	**.88**	**24.71**	**.77**	**.91**	**25.83**	**.77**
H2	**.96**	**28.85**		**.94**	**27.31**	
H3	**.88**	**24.64**		**.88**	**24.73**	
I. Business Practices						
I1	**.42**	**7.16**	**.68**	**.67**	**16.53**	**.80**
I2	**.86**	**23.72**		**.80**	**21.17**	
I3	**.86**	**25.34**		**.83**	**22.13**	
I4	**.84**	**22.93**		**.83**	**22.45**	
I5	**.88**	**24.90**		**.83**	**22.21**	
I6	**.82**	**22.26**		**.76**	**19.59**	

The results of the first data collection supported the proposed nine-dimensional model for the importance and skill level subscales. Although these results provide evidence of reliability, convergent validity, and discriminant validity, further assessment is required. Additional data collection and subsequent tests were undertaken for the purpose of evaluating scale diagnostics using an independent sample (Churchill 1979), as well as for outlining the utilization of the scale in applied and theoretical endeavors.

DATA COLLECTION 2

Sample

As suggested by Churchill (1979) a second independent sample of student perceptual responses was collected. Along with further assessment of scale reliability and validity, a goal of the second data collection was to demonstrate the nomological validity of the scale. The same procedures for cluster sampling were used as in Data Collection 1. The instrument contained the 45 retained items from the original questionnaire along with the addition of the Torrance-based creativity scale previously discussed. The sample totaled 639 students from all majors, 369 of whom were business students including 257 marketing majors.

Exploratory Factor Analysis

As in the first data collection, exploratory and confirmatory factor analyses were undertaken. Exploratory factor analysis with principal axis factoring and oblique rotation (Gerbing and Anderson 1998) resulted in a rotated factor pattern confirming the same nine extracted factors and 45 total items retained for each of the importance and skill level subscales (Table 4). The cutoff for retention of any item was again set at 50 percent variance explained by the item (Hair et al. 1998). Eigenvalue scree plots also confirmed the 9-factor structure. Coefficient alpha values for each dimension ranged from .78 to .94 for the importance dimensions and from .77 to .93 for the skills level dimensions (Table 4).

Confirmatory Factor Analysis

Confirmatory factor analysis with LISREL 8.51 was conducted to further empirically support the proposed structure of each component from the second data collection.

Convergent and Discriminant Validity: The same set of tests orchestrated in data collection one for the assessment of convergent and discriminant validity were used in the second data collection as well. The ratio of factor loadings to standards errors for items within each dimension were all significant, ($p < .01$, $t > 2.0$). The average variance extracted scores all exceeded the cutoff of .50 (Fornell and Larker 1981), thus supporting convergent validity (Table 5). Discriminant validity was also demonstrated by confidence intervals surrounding the correlations between constructs that did not contain the value of one. The off-diagonal phi correlations among dimensions were also all less than one. Employing Fornell and Larker's (1981) test, the average variance extracted scores ranged from .58 to .79 while the maximum squared correlation path between dimensions was .60. Having

TABLE 3
CUBLO: COMPARATIVE ANALYSIS OF MODELS
DATA COLLECTION 1 (n=502)

Importance *Model*	χ^2	*DF*	*AGFI*[a]	*RNI*[b]
Null	69751.25	990	.10	n.a.
One Factor	12029.33	945	.43	.83
Nine factor	2007.67	909	.89	.98
Skill Level *Model*	χ^2	*DF*	*AGFI*[a]	*RNI*[b]
Null	83228.41	990	.079	n.a.
One Factor	9710.00	945	.49	.89
Nine factor	2187.37	909	.87	.98

[a] Adjusted Goodness of fit index is denoted by AGFI and the relative non-centrality index by RNI.
[b] $RNI = [(\chi^2_n - df_n) - (\chi^2 - df)]/ (\chi^2_n - df_n)$ where n is the null model.

TABLE 4
CUBLO EFA – DATA COLLECTION 2 (n = 639)

	Importance		*Skill Level*	
	F.L.	*α*	*F.L.*	*α*
A. Leadership Skills				
A1. Ability to Serve as a Team Leader	.744	.80	.779	.81
A2. Ability to Use Different Leadership Styles	.779		.792	
A3 Ability to Support Shared Team Values	.787		.710	
A4. Ability to Facilitate Conflict Resolution	.732		.781	
B. Communication Skills				
B1. Ability to Write Clearly	.705	.78	.760	.77
B2. Ability to Speak Effectively to Groups	.673		.724	
B3. Ability to Use Active Listening Skills	.609		.626	
B4. Ability to Explain Technical Concepts to Non-technical People	.610		.560	
B5. Ability to Communicate at the Correct Level of Detail	.501		.585	
B6. Ability to Manage Communication Flow in Teams	.632		.569	
B7. Ability to Write an Executive Summary	.569		.629	
C. Interpersonal Skills				
C1. Comprehension of Differences among People.	.750	.88	.788	.85
C2. Ability to Relate to People with Diverse Backgrounds.	.782		.804	
C3. Ability to Build Effective Teams.	.558		.637	
C4. Ability to Solve Conflicts.	.624		.632	
D. Analytical Skills				
D1. Comprehension of Quantitative Problem Solving Techniques	.749	.75	.721	.75
D2. Ability to Apply the Right Tools to Business Problems.	.692		.772	
D3. Comprehension of the Accuracy and Reliability of Data.	.735		.788	
D4. Ability to Think Systematically.	.750		.775	
D5. Ability to Identify Relationships among Problems And/or Issues.	.641		.737	
E. Decision-Making Skills				
E1. Ability to Use Decision Making Techniques to Solve Problems.	.682	.82	.671	.85
E2. Knowledge of Negotiating Skills and Techniques.	.729		.684	
E3. Ability to Anticipate and Provide Alternative Solutions.	.735		.687	
E4. Ability to Identify Central Issues of a Problem.	.744		.690	
E5. Ability to Incorporate Market and Competitor Information	.523		.748	
E6. Ability to Evaluate Risk Involved in Decisions.	.685		.751	
F. Technological Skills				
F1. Ability to Use Word Processing.	.796	.80	.721	.80
F2. Ability to Use Spreadsheets.	.806		.816	
F3. Ability to Use Databases.	.769		.776	
F4. Ability to Prepare Multimedia Presentations.	.770		.778	
F5. Ability to Search and Integrate Multiple Data Sources.	.672		.767	
F6. Ability to Communicate Electronically.	.747		.705	
G. Global Economy				
G1. Comprehension of Cultural Differences.	.735	.88	.758	.90
G2. Comprehension of Economic Differences.	.824		.832	
G3. Comprehension of the Global Business Environment.	.837		.859	
G4. Comprehension of the Impact of Other Economic Systems on the U.S. Economy.	.833		.856	
H. Ethics				
H1. Ability to Recognize Ethical Conflicts in Personal Situations.	.833	.90	.922	.93
H2. Ability to Recognize Ethical Conflicts in Business Situations.	.869		.928	
H3. Ability to Make Ethical Decisions.	.847		.901	
I. Business Practices				
I1. Ability to Conduct a Business Meeting.	.641	.77	.626	.76
I2. Ability to Analyze Industry Trends.	.836		.772	
I3. Comprehension of Market-based Economies.	.764		.777	
I4. Knowledge of the Interdependence of Business Functions.	.756		.776	
I5. Comprehension of Basic Business Practices.	.792		.673	
I6. Ability to Focus on Customer Needs.	.690		.575	

supported the nine-factor structure of the learning outcomes subscale, attention then turned to a comparative assessment of the nine-dimension model.

Comparative Model Assessment: Consistent with procedures prescribed in the initial data collection phase, the Bollen (1989) competing models test was again employed whereby the proposed models were evaluated against a null model and a single factor model. The nine-factor model for each subscale was further supported as demonstrated in Table 6. The proposed model had the highest adjusted goodness of fit RNI, as well as the lowest χ^2. The overall goodness of fit of the nine-factor model was further evidence of the scales proposed dimensionality (Kumar and Dillon 1996).

NOMOLOGICAL VALIDITY ASSESSMENT

An important aspect of construct validity and subsequent scale development procedures is the assessment of nomological validity (Kumar and Dillon 1994; DeVellis 1991). Nomological validation refers to the fact that hypothesized constructs such as the importance and skills levels elements of the learning outcomes measure should be related to other constructs according to hypothesized ways derived from theory (Churchill 1979; DeVellis 1991). Nomological validity is evaluated here by testing the theoretical relationships of the learning outcomes indexes for each dimension compared with another construct (creativity). The Learning Outcomes Index was calculated for each of the dimensions. The relationship between skill level and importance across the criteria for each dimension provides an insight into the priorities for attention and resource allocation for the program.

In order to assess the nomological properties of the scale dimensions, an additional confirmatory model containing the importance and skill level components of creativity was analyzed. The model supported the dimensionality of the two components of creativity (skill level and importance) with a GFI equal to .94, AGFI equaling .96, and IFI and CFI indices equaling .98. The average variance extracted scores for each component equaled .77 and .84, with a squared correlation of 46, thus lending discriminant validity support. The scales coefficient alpha values were .93 and .89. All factor loading for each item on their respective component were significant with t-values greater and 2.00. The average variance extracted scores were greater than .50, thus supporting convergent validity.

Each dimension of the learning outcomes scales is posited to have differing associations with the creativity construct. In order to test nomological properties, a method utilized by Newell and Goldsmith (2001) was incorporated. The learning index scores for each dimension as well as for the creativity scale were calculated. A correlation matrix was then analyzed to assess the association of each dimension with the creativity index. Table 7 presents the findings for this test. Confirming the scale properties, each of the scale's dimensions were highly correlated with all of the others. As predicted, the learning outcome dimensions of communication skills, interpersonal skills, and global economy, were significant and positively associated with creativity. Further, leadership skills, analytical skills, decision-making skills technological skills, ethics and business practices were not significantly related to creativity. Thus the scale's nomological validity is sound as demonstrated by the use of the scale dimensions to predict and test the relationships among theoretical constructs.

DISCUSSION

In this study, curriculum learning outcomes knowledge is extended by developing and testing a parsimonious and practical nine dimensional scale for the measurement of student learning outcomes. Unlike other learning outcomes measures, this construct includes both the skill level and the importance of a given attribute. This study continued the development of learning outcomes within the marketing education literature. Multiple groups of stakeholders were used to develop a core of universal learning outcomes (Tomkovick, Erffmeyer, and Hietpas 1996). Accepted scale development processes were employed (i.e., Churchill 1979; Gerbing and Anderson 1988) to develop the nine dimensions consisting of 45 criteria. External validity tests indicated that the dimensions can be used to test theory as demonstrated by its ability as a predictive tool with relationships to the creativity construct (Ramocki 1994; Shipp, Lamb, and Mokwa 1993) and its ability to distinguish association with certain dimensions but not with others.

IMPLICATIONS

The CUBLO scale provides a core of universal criteria and dimensions as guidelines for business program evaluation. Appropriate uses for this scale include assessment for programs both internally (Ruhland 1991) and externally (Tomkovick, Erffmeyer, and Hietpas 1996). Internal assessments could expand to benchmarking with other institutions (Owlia and Aspenwall 1998). External assessments, from either advisory/oversight groups or accreditation agencies, provide opportunities to acknowledge areas of strength and weakness to providing the basis for tactical and strategic program development (Duke and Reese 1995). Assessment using student responses provides a vehicle for improving perceived service levels not only in the classroom but also from entire program curriculum (Koch 1997). The use of these criteria offers the opportunity to bridge potential gaps in expectations between employers and academics (Lundstrom and White 1997).

The individual criteria provide clear ties for indi-

TABLE 5
CUBLO:CFA – DATA COLLECTION 2 (n = 639)

	Importance			*Skill Level*		
Dimension/Item	**St. Load.**	**t-value**	**Var. Ext.**	**St. Load.**	**t-value**	**Var. Ext**
A. Leadership Skills						
A1	.61	15.31	.76	.69	18.10	.70
A2	.69	17.75		.72	19.26	
A3	.75	19.75		.65	16.83	
A4	.71	18.40		.74	20.02	
B. Communication Skills						
B1	.51	12.61	.73	.47	11.75	.67
B2	.70	18.56		.57	14.46	
B3	.69	18.37		.67	17.97	
B4	.50	12.50		.64	16.91	
B5	.32	5.25		.73	19.89	
B6	.70	18.80		.71	19.36	
B7	.54	13.54		.48	11.84	
C. Interpersonal Skills						
C1	.73	19.82	.66	.69	18.21	.79
C2	.74	19.99		.64	16.43	
C3	.68	18.08		.72	19.20	
C4	.63	16.23		.73	19.53	
D. Analytical Skills						
D1	.61	15.48	.78	.59	15.32	.65
D2	.70	18.49		.71	19.18	
D3	.73	19.74		.70	18.92	
D4	.61	15.54		.75	20.88	
D5	.68	18.04		.73	19.89	
E. Decision-making Skills						
E1	.63	16.57	.71	.67	17.94	.77
E2	.66	17.41		.70	19.17	
E3	.69	18.63		.71	19.50	
E4	.68	18.29		.68	18.34	
E5	.58	14.77		.58	14.95	
E6	.66	17.53		.63	16.50	
F. Technological Skills						
F1	.75	20.83	.65	.65	17.21	.75
F2	.76	21.36		.73	20.10	
F3	.72	19.64		.71	19.53	
F4	.71	19.62		.75	21.04	
F5	.61	16.03		.77	21.50	
F6	.71	19.52		.64	16.89	
G. Global Economy						
G1	.76	21.49	.58	.69	18.91	.59
G2	.83	24.22		.79	22.98	
G3	.78	22.23		.86	25.78	
G4	.77	21.98		.82	24.28	
H. Ethics						
H1	.84	25.23	.74	.89	27.65	.73
H2.	.92	28.88		.91	28.66	
H3.	.77	22.20		.83	25.10	
I. Business Practices						
I1	.62	16.33	.70	.58	14.93	.72
I2	.81	23.65		.69	18.55	
I3.	.75	20.85		.69	18.35	
I4.	.73	20.43		.71	19.31	
I5.	.73	20.30		.70	18.68	
I6	.58	15.02		.61	15.90	

TABLE 6
CUBLO: COMPARATIVE ANALYSIS OF MODELS
DATA COLLECTION 2 (n = 639)

Importance *Model*	χ^2	*DF*	*AGFI*[a]	*RNI*[b]
Null	41659.29	990	.08	n.a.
One Factor	8344.02	945	.59	.81
Nine factor	2795.93	909	.86	.95

Importance *Model*	χ^2	*DF*	*AGFI*[a]	*RNI*[b]
Null	40245.17	990	.18	n.a.
One Factor	9263.84	945	.57	.78
Nine factor	2705.62	909	.87	.95

[a] Adjusted Goodness of fit index is denoted by AGFI and the relative non-centrality index by RNI.
[b] RNI = $[(\chi^2_n - df_n) - (\chi^2 - df)]/ (\chi^2_n - df_n)$ where n is the null model.

TABLE 7
NOMOLOGICAL ASSESSMENT CREATIVITY VS LEARNING OUTCOMES SCALE DIMENSIONS
CORRELATION MATRIX (n = 639)

	Leader	Comm.	Inter-personal	Analytical	Decision Making	Tech.	Global Econ.	Ethics	Business Practices	Creativity
Leadership	1.00									
Communication	.406**	1.00								
Interpersonal	.402**	.425**	1.00							
Analytical	.352**	.396**	.338**	1.00						
Decision Making	.355**	.381**	.388**	.399**	1.00					
Technological	.201**	.280**	.183**	.237**	.352**	1.00				
Global	.155**	.217**	.246**	.291**	.198**	.219**	1.00			
Ethics	.242**	.246**	.285**	.169**	.229**	.160**	.237**	1.00		
Business Practices	.328**	.350**	.278**	.401**	.383**	.282**	.203**	.256**	1.00	
Creativity	.001	.178**	.254**	.002	.024	.033	.201**	.001	.040	1.00

**correlations significant at the .01 level (2-tailed)

vidual course and classroom development (Lamb, Shipp, and Moncrief 1995). Marketing and business discipline content is obviously required and assumed by employers to be a part of any curriculum (Lundstrom and White 1997; McDaniel and White 1993; Tomkovick, Erffmeyer, and Hietpas 1996). However, the emphasis on other issues, such as leadership, interpersonal skills, communications, and global economy, points toward a shift in perspective for the entire undergraduate experience (Geiger and Dangerfield 1997). Assuming that credit hour levels and professorial manpower remain stable, this shift seems to put more responsibility for content on individual student study (Chonko 1993). This shift may also indicate more responsibility for student personal development being placed on programs and faculty. Future discussion of the implications of this potential educational move-

ment will involve not only individual departments and the marketing discipline as a whole but also employers.

The CUBLO scale could also be adapted to incorporate situational and institutionally specific objectives in its utilization. While this study incorporated student evaluations of the importance perceptions placed on specific outcomes, other stakeholders could also be utilized for importance weighting. It is possible that the importance weight of a given criteria could be developed by either the business or academic communities. In this case the importance subscale would not be utilized during survey assessment of students, but rather, a predetermined weight as proposed by a given stakeholder entity could be incorporated within the numerator of the index equation; thus capturing assessment of organization or institution specific objectives.

LIMITATIONS

Substantial numbers of employers, students, faculty, and administrators were included within the whole of the development process. Because employers tend to represent wider scopes of interest and accreditation requirements are universal, confidence in the generalizability of the results is good. However, multiple institutions may need to be examined in the future to confirm the results.

The dimensions were confirmed using only student perceptions. Other stakeholder segments can provide not only convergence of core universal business learning outcomes assessment but also insight into additional outcomes that are crucial to a specific institution's goals (McMartin 1999). Perceptions of faculty and employers can be tracked along with student perceptions to find opportunities for improvement that may not be visible through student responses (Owlia and Aspenwall 1998).

Concentration on outcome measures alone does not guarantee that students have a complete grasp of content (Slavin 1994). Underlying the generalized learning outcomes approach is the assumption that content and discipline-specific details are required, assessed, and tracked (Owlia and Aspenwall 1998).

CONTINUED RESEARCH

Additional opportunities for continued development of core universal business learning outcomes appear to center on changes over time and differences among disciplines. Although employer needs appear to have been consistent over the past (Kelley and Gaedeke 1990), it is crucial to track these needs to maintain relevance with employers (McDaniel and White 1993). Criteria for accreditation and other academic reviews may lag the employer opinions (Geiger and Dangerfield 1997) and must also be tracked to ensure consistency.

Whereas anecdotal information and preconceived ideas exist among disciplines, little attention has been given to research on actual differences in how learning outcomes are emphasized across business disciplines from either employers or academic programs. A core set of criteria such as these offer the opportunity to make comparisons of perceptions and needs among disciplines to evaluate any differences that may exist.

A final issue of concern is the development of normative values associated with continued application of a scale across multiple populations (Churchill 1979). Through subsequent administrations of the scale to differing institutions and stakeholders, eventual norms will develop as benchmarks for the provision of better understanding of the complex aspects of how skill importance impacts the determination of overall learning outcomes for a given skill set of interest.

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