Student Outcomes Assessment

An Institutional-level Assessment Plan for Student Outcomes

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Introduction

Today, higher education in the United States faces serious challenges. The pressure of controlling costs in a recession economy, the trend of declining public funding, the climate of the post-Spellings era, and the expectations of accrediting agencies will lead to growing demands for accountability. Colleges and universities will be increasingly called to show that they are making responsible use of available resources. Given this context, assessment plays a crucial role in helping colleges and universities demonstrate their value to external stakeholders. Truly effective assessment, however, should not function simply as an institutional report card for legislators or other external stakeholders. It must be centered on student success and yield rich data for the use of internal stakeholders as well.

The University of Minnesota — Twin Cities (UMNTC) buzzes with assessment activity. Individual colleges, departments, programs, instructors, and researchers deploy their own surveys for their own purposes, but with little or no access to the data gathered by others, and no way to share what they learn. On an institutional level, the Office of Institutional Research (OIR) collects assessment data, but does not often have access to data collected elsewhere on campus. In short, our assessment activities are taking place in silos.

We argue that the University of Minnesota can develop a comprehensive institutional assessment plan that integrates outcomes for student success. We can apply what the literature has taught us about student success (such as environmental factors and high-impact educational practices) to an ongoing, campus-wide assessment effort that is responsive to the needs of internal as well as external stakeholders. Below, we have developed a stakeholder analysis, created of a conceptual framework for institutional assessment, identified data collection instruments appropriate for assessing student outcomes, and presented information related to emerging practices in assessment, such as the increased use of e-portfolios.
purpose & definition of undergraduate assessment

The University of Minnesota-Twin Cities (UMNTC) has undertaken an innovative and ambitious plan to enhance the experience of its undergraduate students. This assessment plan represents a multidimensional effort that comprehensively addresses social, developmental, and academic outcomes to achieve a nationally unique and exemplary college experience for undergraduates.

This assessment plan outlines data collection efforts that support the University of Minnesota’s threefold mission:

**Research and Discovery**
Generate and preserve knowledge, understanding, and creativity by conducting high-quality research, scholarship, and artistic activity that benefit students, scholars, and communities across the state, the nation, and the world.

**Teaching and Learning**
Share that knowledge, understanding, and creativity by providing a broad range of educational programs in a strong and diverse community of learners and teachers, and prepare graduate, professional, and undergraduate students, as well as non-degree-seeking students interested in continuing education and lifelong learning, for active roles in a multicultural world.

**Outreach and Public Service**
Extend, apply, and exchange knowledge between the University and society by applying scholarly expertise to community problems, by helping organizations and individuals respond to their changing environments, and by making the knowledge and resources created and preserved at the University accessible to the citizens of the state, the nation, and the world.
purpose & definition of undergraduate assessment

The Office of Institutional Research collects data that provides direct and indirect evidence for the ways in which UMNTC fulfills its mission within the undergraduate student population.

Specifically, data is collected through various surveys that can assist campus faculty and administrators with meeting a number of goals, including:

- improving student satisfaction with regard to advising, campus climate, sense of belonging and community, and student life and development

- providing indirect evidence for students’ acquisition of student learning outcomes and student development outcomes

- capturing data related to students’ research activities and public, civic, and community engagement efforts

- developing a well-rounded sense of students’ overall academic and social engagement on campus

- identifying and isolating important early undergraduate factors focused on the undergraduate experiences, inside and outside the classroom, that promote or inhibit students’ personal, educational, and career goals

- discovering UMNTC’s high impact practices that work to enhance undergraduate retention and graduation rates

- providing the necessary evidence needed to develop and improve policies aimed at improving retention and graduation rates
purpose & definition of Undergraduate assessment

Assessment fulfills many purposes at once, including public accountability efforts (such as accreditation) and internal program review. Many regional accreditors in the United States agree that the accreditation process should lend attention to learning outcomes assessment (McMurtrie, 2000). According to Ewell (2005), new accrediting requirements ask that institutions develop learning outcomes, create and use assessment tools, and use the results to improve programs and services. Bresciani, Gardner, and Hickmott (2009) acknowledge that American higher education is facing a distinct shift that the compels the need for assessment:

“increasing demands for accountability for student learning by internal and external stakeholders, ever-decreasing resources, eroding public confidence, and greater numbers of students from diverse backgrounds going to college than ever before present many challenges to those responsible for creating meaningful and inspiring cocurricular learning environments” (p. 22-23).

Accountability is often a call by external and internal stakeholders and, when conducted effectively, assessment fulfills the function of accountability in addition to guiding the development of programs and services; as a result, it is inherently valuable to institutions seeking to increase overall student success through the development and improvement of university programs and services. With regard to strategic planning, assessment can help to identify goals and objectives related to a strategic plan, in addition to providing evidence for the fulfillment of objectives over time (Upcraft & Schuh, 1996).

According to Upcraft and Schuh (2000), assessment is “any effort to gather, analyze, and interpret evidence that describes institutional, divisional, or agency effectiveness” and “outcomes assessment is an attempt to show a relationship between an intentional intervention and some desired outcome, taking into account pre-college background characteristics and during-college experiences” (p. 250-251). Taking this perspective, we find that assessment can benefit institutions in several ways, as it also represents “the systematic collection, review and use of information about educational programs undertaken for the purpose of improving student learning and development” (Palomba & Banta, 1999, p. 4). “

The benefits to assessment are clear: “outcomes-based assessment, when undertaken effectively, yields tangible results that clearly demonstrate where and how learning is facilitated and enhanced in the cocurricular collegiate environment” (Bresciani, Gardner, & Hickmott, 2009, p. 24).

This assessment plan is an institutional-level assessment plan but focuses on undergraduate student outcomes assessment in the areas of student learning, development, engagement, and success. These four areas are thematically woven into the plan and the conceptual frameworks, research, and suggestions for assessment include those perspectives in their development.
principles of good assessment practices

Following the Seven Principles of Good Practice in Undergraduate Education (Chickering & Gamson, 1987), a task force of the American Association for Higher Education (AAHE, 1997) collaborated to form the following AAHE Nine Principles of Good Practice in Assessing Student Learning:

• Assessment of student learning begins with educational values

• Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time

• Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes

• Assessment requires attention to outcomes but also, and equally, to the experiences that lead to those outcomes

• Assessment works best when it is ongoing, not episodic

• Assessment fosters wider improvement when representatives across the educational community are involved

• Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about

• Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change

• Through assessment, educators meet responsibilities to students and to the public
accreditation & Undergraduate assessment

The Higher Learning Commission’s Criteria for Accreditation (2011) includes several core components that address and reinforce the need for institutional assessment:

The organization’s ongoing evaluation and assessment processes provide reliable evidence of institutional effectiveness that clearly informs strategies for continuous improvement. 

Examples of evidence:
• The organization demonstrates that its evaluation processes provide evidence that its performance meets its stated expectations for institutional effectiveness.
• The organization maintains effective systems for collecting, analyzing, and using organizational information.
• Appropriate data and feedback loops are available and used throughout the organization to support continuous improvement.
• Periodic reviews of academic and administrative subunits contribute to improvement of the organization.
• The organization provides adequate support for its evaluation and assessment processes.

All levels of planning align with the organization’s mission, thereby enhancing its capacity to fulfill that mission.

Examples of evidence:
• Planning documents give evidence of the organization’s awareness of the relationships among educational quality, student learning, and the diverse, complex, global, and technological world in which the organization and its students exist.

The organization’s goals for student learning outcomes are clearly stated for each educational program and make effective assessment possible.

Examples of evidence:
• Assessment of student learning provides evidence at multiple levels: course, program, and institutional.
• Assessment of student learning includes multiple direct and indirect measures of student learning.
• Results obtained through assessment of student learning are available to appropriate constituencies, including students themselves.
• The organization integrates into its assessment of student learning the data reported for purposes of external accountability (e.g., graduation rates, passage rates on licensing exams, placement rates, transfer rates).
• The organization’s assessment of student learning extends to all educational offerings, including credit and noncredit certificate programs.
• Faculty are involved in defining expected student learning outcomes and creating the strategies to determine whether those outcomes are achieved.
• Faculty and administrators routinely review the effectiveness and uses of the organization’s program to assess student learning.
accreditation & Undergraduate assessment

The organization demonstrates that acquisition of a breadth of knowledge and skills and the exercise of intellectual inquiry are integral to its education programs.

*Examples of evidence:*

- The organization integrates general education into all of its undergraduate degree programs through curricular and experiential offerings intentionally created to develop the attitudes and skills requisite for a life of learning in a diverse society.
- The organization regularly reviews the relationship between its mission and values and the effectiveness of its general education.
- The organization assesses how effectively its graduate programs establish a knowledge base on which students develop depth of expertise.
- The organization demonstrates the linkages between curricular and cocurricular activities that support inquiry, practice, creativity, and social responsibility.
- Learning outcomes demonstrate that graduates have achieved breadth of knowledge and skills and the capacity to exercise intellectual inquiry.
- Learning outcomes demonstrate effective preparation for continued learning.

The organization assesses the usefulness of its curricula to students who live and work in a global, diverse, and technological society

*Examples of evidence:*

- In keeping with its mission, learning goals and outcomes include skills and professional competence essential to a diverse workforce.
- Learning outcomes document that graduates have gained the skills and knowledge they need to function in diverse local, national, and global societies.
- Curricular evaluation involves alumni, employers, and other external constituents who understand the relationships among the courses of study, the currency of the curriculum, and the utility of the knowledge and skills gained.
- The organization supports creation and use of scholarship by students in keeping with its mission.
- Faculty expect students to master the knowledge and skills necessary for independent learning in programs of applied practice.
- The organization provides curricular and cocurricular opportunities that promote social responsibility.
goals, roles & functions of undergraduate assessment

According to Forest and Keith, “education scholars generally agree that the most robust forms of assessment are driven by a clear set of goals and objectives and are used to manage an institution’s academic program more effectively” (2004, p. 26). The following are specific goals of this assessment plan.

align with the Strategic plan

- Enable users to quickly gather data by developing user-friendly websites and supporting stakeholders’ use of technology tools
- Assist with the mapping of survey data and central records to institutional metrics that are aligned with strategic plan

assess program effectiveness

- Collaborate with stakeholders to develop research questions, locate data, analyze data, and develop reports
- Develop a “toolkit” or “FAQ” website to assist programs that wish to initiate collaboration with OIR for the purposes of department- or college-level assessment

meet accreditation & external accountability

- Measure institutional-level student learning outcomes, student development outcomes, and student satisfaction
- Ensure that HLC objectives align with survey data
- Report the ways in which the university is gathering data related to HLC objectives
- Gather information related to how campus stakeholders utilize assessment data
- Enable users to quickly gather data by developing user-friendly websites
- Participate in external accountability measures (e.g. Voluntary System of Accountability, U.S. News & World Report)
- Respond to requests for data from outside constituents
goals, roles & functions of undergraduate assessment

provide data to stakeholders

- Educate stakeholders about what data is available
- Enable users to quickly gather data by developing user-friendly websites and supporting stakeholders’ use of technology tools
- Organize institutional data collection (NSSE, SERU, etc.) to support the needs of stakeholders at institutional, college, and departmental levels
- Map institutional-level data to the important objectives of stakeholders

assess institutional effectiveness

- Organize institutional data within a meaningful conceptual framework of student success
- Identify gaps in data collection
- Use institutional data to understand the effectiveness of institutional practices in relation to student success
- Connect institutional measures to scholarship related to student success outcomes
- Demonstrate to the campus community the results of efforts that promote student success on campus
- Assist stakeholders with gathering data to establish benchmark studies

provide data to assist Campus Stakeholders with assessment
Stakeholders, primary intended users & audience

Bresciani, Gardner, & Hickmott (2009) emphasize the importance of involving stakeholders in assessment activities, acknowledging that “outcomes-based assessment requires the involvement of many to ensure that assessment efforts do not fall by the wayside once the data collection and interpretation of results are complete” (p. 71). Additionally, taking steps to identify and involve stakeholders will “contribute to increased acceptance of the assessment process in general, which will affirm organizational commitment to evidence-based decision making to improve student learning and success” (Bresciani, Gardner, & Hickmott, 2009, p. 71).

We have identified several important stakeholders who will contribute to and ultimately benefit from this process of assessment. Their diverse opinions and views shape the ways in which the assessment plan was conceptualized. Since we consider stakeholders to be a larger group of individuals who benefit widely and generally from the assessment process, results, and subsequent improvements, we consider a broad group of stakeholders to include undergraduate students, faculty, staff, administrators, the campus community, and the State of Minnesota.

The primary intended users of the assessment plan include UMNTC administrators who can utilize the data collection, scholarship, and assessment to frame decisions, support student development, enhance student retention and graduation, and benchmark our relative standing with our peer institutions. The primary intended users include

- Undergraduate Education
- Associate Deans
- Accreditation Coordinator
- Faculty Affairs
- Student Affairs
- Equity and Diversity
- Office of Planning and Analysis
- Public Engagement

Additionally, while not directly involved in the assessment process, as their concerns center more on graduate students and alumni, we have identified secondary intended users who may indirectly benefit or utilize the results of institutional-wide undergraduate assessment:

- Foundation and Alumni Association
- Graduate School
- Academic Health Center
Conceptual framework

In developing a conceptual framework for the institutional assessment of student development outcomes, we sought to rely upon the influence of prior theories that incorporate understanding of students’ characteristics, as they influence students’ engagement in programs and activities. Several decades of research on college students has demonstrated the importance of sociodemographic characteristics, motivations, academic preparation, prior extracurricular involvement, and several other factors on student outcomes such as academic development, persistence, and graduation.

According to Astin, “A long history of research on college impact shows that the students’ outcome performance can be affected by a number of other input characteristics besides the pretest performance. Since many of these input characteristics are also related to the kinds of environments to which students are exposed, the possibility remains that any observed correlation between an environment and an outcome measure may reflect the effect of some input characteristic rather than the effect of the college environment” (1993, p. 130). The diverse, multiple identities of students shapes the ways in which they choose to interact and engage with the campus; additionally, these factors should, in turn, influence the ways in which the institution develops programs to fit the needs of students.

Yet, we do recognize and value the impact of college environment and the potential for powerful interactions to occur between students and the intentional creation of measures designed to engage students in campus life. As such, we found value in incorporating conceptual theories that consider the influence of campus environment on student outcomes. Common environmental considerations for any assessment plan should include institution type, size, mission, cost, selectivity, control, and other factors which ultimately shape the student experience in the individual institutional context.

Additionally, we sought to incorporate conceptual frames and student development theories that consider a variety of student outcomes, including development, learning, retention, and graduation. The diverse perspectives influencing the overarching conceptual frame ensures that the assessment plan can be applied in a variety of assessment situations (e.g. for individual programs, departments, or interventions) and for a variety of student outcomes.

The following pages present a discussion of the primary theories related to student outcomes that inform our own conceptual framework for the institutional assessment of student outcomes.
Conceptual framework

The conceptual framework for institutional assessment is heavily influenced by several college impact theories, including Astin’s (1991) input-environment-outcome (I-E-O) theory, Tinto’s (1993) theory of student departure, Pascarella’s (1985) general model for assessing change, and Terenzini and Reason’s (2005) comprehensive model of influences on student learning and persistence. Each of the theories are described below.

**Astin’s conceptual model of assessment**

Bresciani, Gardner, and Hickmott (2009) note that the ideal conceptual model for outcomes-based assessment is Astin’s (1991) input-environment-outcomes model. Astin’s (1991) conceptual model of assessment activities in higher education, the (I-E-O) model, is a “powerful framework for the design of assessment activities and for dealing with even the most complex and sophisticated issues in assessment and evaluation,” (p. 16) including educational experiences, practices, programs, or interventions. Higher education assessment is primarily concerned with the relationship between environment and outcomes; however, student inputs are also related to environments and outcomes and therefore affect the observed relationship between environments and outcomes. Below is a brief descriptor of each domain in the conceptual model:

- **Outcomes:** the “talents” colleges try to develop in their educational programs; also known as dependent variables, criterion variables, posttests, outputs, consequents, ends, goals, objectives, criterion variables, or endogenous variables.
- **Inputs:** the personal qualities a student brings into the educational program, including the student’s initial level of developed talent at the time of entry. Also known as control variables, independent variables, antecedent variables, exogenous variables, or pretests.
- **Environment:** students’ actual experiences during the educational program. Also known as independent variables, antecedent variables, exogenous variables, and treatments.

**Assessing Student Inputs**

Astin (1991) writes that “it is very difficult, if not impossible, to learn how our educational policies and practices affect student outcomes in the absence of input data on the entering student” (p. 64). Within Astin’s input-environment-outcome model, inputs are always related to outputs, and inputs are almost always related to environment as well; therefore, any observed relationship between environments and outcomes may be attributed to the influence of inputs rather than actual effects of the environments on outcomes.

Controlling for student inputs is important, as inputs are related to both environment and outcome measures; such steps minimize bias in assessing the impact of college environments on student outcomes. Beyond controlling for the influence of predictors, many student input characteristics are of intrinsic interest because they can tell us something about our institution. Commonly-used student input measures include the following:
Conceptual framework

- fixed student attributes (demographics)
- cognitive functioning (ACT or SAT scores)
- aspirations and expectations (degree aspirations, career choices)
- self-ratings (comparisons between peers)
- values and attitudes
- behavioral patterns (time spent studying, participating in student clubs)
- educational background characteristics (high school preparation, transfer student information)
- bridge measures (types of financial aid, residence on campus, work-study)

Assessing the environment

According to Astin (1991), “environmental assessment presents by far the most difficult and complex challenge in the field of assessment. It is also the most neglected topic” (p. 81). In a very broad sense, the environment encompasses “everything that happens to a student during the course of an educational program that might conceivably influence the outcomes under consideration” (Astin, 1991, p. 81).

While institutions can more easily describe structural and organizational characteristics as environmental variables (e.g. size, selectivity, location, control, etc.), it is more difficult to assess students’ environments, as students can customize and “self-produce” their environments to an extent. Astin recommends two broad classifications of environmental measures to assist in assessment:

- between-institution measures: characteristics of the total institution (e.g. size, selectivity, etc.)
- within-institution measures: particular educational experiences within the institution (e.g. participation in one particular student organization, living on campus, participating in developmental education)

A primary challenge with environmental measures is the extent to which they are confounded by outcome measures; for example, the perceived degree of community may be positively related to retention rates. However, it is also likely that retention rates are positively related to degree of community, as it is possible that students who perceive a high degree of community may be more likely to persist until graduation. The confounding of variables is less likely to occur within organizational/structural or student characteristics measures, as opposed to students’ perceptions and impressions (Astin, 1991).

Assessing Student Outcomes

Given the multidimensional nature of student outcomes, it is important to decide which outcomes are important to assess and how they should be assessed. According to Astin, measurement specialists have traditionally classified student outcomes as either cognitive (students’ knowledge, reasoning, or logic) or affective (students’ feelings, attitudes, interpersonal relationships, etc.). Furthermore, the types of information that can be gathered are identified as psychological (internal states or traits of the student) and behavioral (students’ observable activities). The table below presents some examples of the types of outcomes cross-tabulated against the type of data that can be collected for each outcome.
Conceptual framework

**pascarella’s general model for assessing change**

Student learning is in large part a function of academic effort and the frequency and quality of interactions between students and important agents of socialization: faculty, student affairs professionals, and peers. Therefore, it is important to determine whether faculty and student cultures encourage or discourage student engagement in educationally purposeful activities (Pascarella & Terenzini, 2005). According to Pascarella and Terenzini (2005),

“What happens to students after they enroll at a college or university is more important than the structural characteristics of the institution they attend. What matters is the nature of the experiences students have after matriculation: the courses they take, the instructional methods their teachers use, the interactions they have with their peers and faculty members outside the classroom, the variety of people and ideas they encounter, and the extent of their active involvement in the academic and social systems of their institutions” (p. 642).

Pascarella’s model provides a comprehensive framework for assessing student outcomes and explaining the influences that affect those outcomes. The following hypotheses are inferred from the relationships among the five independent variable clusters in Pascarella’s model:

- Student background traits have a substantial influence on learning and cognitive development. This cluster is posited in the model as having more direct and indirect effects than any other variable cluster.
- Structural/organizational characteristics only have indirect effects on learning and cognitive development.
- Institutional environment also only has indirect effects on learning and cognitive development.
- Interactions with faculty and peers have direct and indirect effects on learning and cognitive development.
- The quality of student effort only directly effects learning and cognitive development.

**tinto’s student integration model**

Tinto theorized that the primary determinants of successful persistence can be broken down into two areas that are fundamental to the assessment of student development and learning outcomes, including:

- Factors that are drawn from experiences prior to college and individual student characteristics
- Factors that are drawn from experiences at college
Conceptual framework

Tinto’s student integration model explains the student integration process as mostly a function of academic and social experiences in college. He measured successful academic integration by grade point average (GPA) and evaluated social integration by the development and frequency of positive interactions with peers and faculty and involvement in extracurricular activity. Tinto found that integration along these two dimensions produced stronger student commitment to their specific institutions and increased their persistence.

Tinto stresses the importance of collaboration and why it is critical for student affairs to form partnerships, surmising that collaborations can improve student outcomes, enhance service, better capitalize on resources, create better decisions, improve graduation rates, enhance retention, revive undergraduate education, improve institutional communication, create a culture of trust and better campus relationships, increase student satisfaction, and improve organizational functioning and service, for example, more effective advising (Engstrom & Tinto, 2000). Building a relationship with students and among students, faculty, and staff is the core of student affairs work (Tinto, 1993).

Terenzini & Reason’s Model of influences on student learning & persistence
Terenzini and Reason (2005) developed a conceptual framework that extended and synthesized models by Astin (1993), Tinto (1993), and Pascarella (1985). Their model also drew upon Berger and Milem’s (2000) model that examined organizational effects on student outcomes. This model encourages higher education researchers to look more broadly at the variety of forces that affect college student outcomes: student precollege characteristics and experiences, organizational context, student peer environment, and the individual student experience.

According to Reason (2009), at its broadest level, this conceptual model “hypothesizes that students come to college with a variety of personal, academic, and social background characteristics and experiences that both prepare and dispose them, to varying degrees, to engage with the formal and informal learning opportunities. These precollege characteristics shape students’ subsequent college experiences through their interactions with institutional and peer environments, as well as major socialization agents (e.g. peers and faculty members). The college experience is broadly conceived, consisting of three sets of primary influences: the institution’s internal organizational context, the peer environment, and, ultimately, students’ individual experiences” (p. 662). As a contribution to this assessment plan, Terenzini and Reason’s model encourages assessors to consider the value and impact of interaction with staff, faculty, and peers on student outcomes. These factors may be difficult to assess but will ultimately provide deeper insights into student experiences.
Conceptual framework

**Inputs**
student background characteristics, motivations, experiences, & expectations

**Environment**
high-impact practices; campus climate; organizational & structural factors; student engagement, interactions, & experiences

**Outcomes**
research activity; student learning outcomes; student development outcomes; global citizenship; student success outcomes (retention, graduation, academic achievement); student satisfaction, and alumni outcomes (career satisfaction and overall satisfaction with educational experience)
inputs: students’ backgrounds & precollege experiences

According to Kuh, Kinzie, Buckley, Bridges, and Hayek (2007), “who students are and what they do before starting their postsecondary education make a difference in their chances for obtaining a baccalaureate degree or another postsecondary credential” (p. 21). Based on this evidence, it is important to consider students’ backgrounds in assessment studies that seek to examine the effectiveness of institutional strategies to engage students, as students’ characteristics inform the extent to which they become engaged, seek engagement opportunities, and benefit from engagement.

Students differ in their sociodemographic traits (e.g. race, gender, age), their academic preparation, their personal experiences, and their dispositions (e.g. motivations, achievements, goals). These differences affect the likelihood a student will persist through college (Pascarella & Terenzini, 2005). Reason noted that in recent years, researchers have moved away from “studies that focus on individual-level sociodemographic variables as predictors of student persistence” because “higher education researchers have come to recognize the difficulty in finding actionable implications from students focused on race, ethnicity, and gender” (2009, p. 662).

Furthermore, within-group differences can make research findings difficult to interpret or evaluate; however, sociodemographic characteristics remain important area because between-group differences do occur. For example, Kuh et al (2007) noted that large differences in high school and college achievement levels exist between students from different racial and ethnic backgrounds. These differences follow students on their path toward higher education and interact with their ability to achieve success.

The conditional effects of sociodemographic characteristics makes it difficult to understand the complex interplay between identity, backgrounds, and academic achievement. For example, research typically reports that Asian and White students tend to persist at higher rates than do other students of color (Reason, 2009). However, in other studies in which variables such as academic preparation and socioeconomic status are controlled, racial differences tend to disappear, suggesting that socioeconomic status is a powerful predictor of student persistence. Demonstrating the long-term impact of income on college student success, Astin (1993) found that, after controlling for academic ability, students’ socioeconomic status was the best predictor of earning a college degree. ACT (2004) also found that students’ socioeconomic status was the second most powerful predictor of retention, behind high school grade point average.

Due to the fact that students from different racial groups are likely to come from different socioeconomic backgrounds, it is nonetheless important to continue to consider the interaction of race/ethnicity in studies of assessment. It is also important to consider the importance of educational attainment of parents and familial support in studies related to persistence as well (Reason, 2009).
inputs: students’ backgrounds & precollege experiences

Additionally, academic preparation and performance, including completion of rigorous, college preparatory coursework in high school, are among the strongest precollege predictors of persistence and degree attainment. Yet, it is important to avoid discounting the interplay between socioeconomic status and precollege academic opportunities and achievements; according to Kuh, et al (2005), “rigorous academic preparation, high educational aspirations, and family support are easier to come by if the family has economic resources” (p. 24). The higher the family income, the more likely it is that students will take steps and measures to earn a degree, including completing an application and gaining college admission (Kuh, et al, 2005).

Factors related to student dispositions are also important to consider in assessment studies; for example, student motivation, locus of control, academic motivation, self-discipline, and self-confidence have all been found to be related to student persistence (Reason, 2009). These factors also strongly influence the extent to which students become engaged on campus. Students’ educational aspirations are also closely connected to their achievement, in some cases having compensatory effects on persistence for certain groups of students (Pascarella, Wolniak, & Pierson, 2003).

Additional student characteristics are important to consider within assessment; for example, students’ status as a transfer or new student may impact the ways in which they are engaged on campus. Transfer students are likely to experience a complex adjustment process—academically, socially, and psychologically—because of the environmental differences between two- and four-year institutions. Students’ age, responsibilities (such as employment), and number of dependents also influences their ability to be engaged on campus.

It is important to advocate the inclusion of students’ precollege characteristics in the assessment process and to recognize the role that these characteristics play in students’ persistence, engagement, and achievement; however, colleges and universities also play an important role in fostering student engagement and persistence through intentional institutional measures and interventions to assist students. As a result, the University of Minnesota can use these factors to learn more about their student population so as to design effective practices to meet the needs of students and foster their success.

The following section highlights environmental factors—specific institutional practices that are considered effective in enhancing student engagement. We also include a brief discussion of the ways in which these opportunities are connected to student success in addition to the ways in which the University of Minnesota currently offers these activities for students.
Environment: Students’ college experiences

While students’ precollege characteristics and background factors are important to consider in the assessment of student learning, development, and success, we are also interested in measuring the impacts of student experiences while in college on various outcomes, including learning, development, engagement, and success.

We believe that student learning, development, engagement, and success arise from a combination of student characteristics, motivation, and effort with the opportunities that institutions provide to inspire and engage students.

Through our experiences in EDPA 5704, we have developed the following definitions of student engagement as a class:

**Engagement is the “act of making something meaningful.”** Students can be engaged in a variety of ways on campus, in the classroom, and in their interactions with peers, staff, and faculty.

Through intentional partnerships, we co-create a supportive and community-centered environment to engage others by:

- Setting and communicating clear expectations and desired outcomes,
- Challenging current knowledge and belief structures,
- Providing clear, personal, and timely feedback, and
- Promoting active analysis, reflection, and application to individual lives.

According to Nesheim, Guentzel, Kellogg, and McDonald (2007), engagement has two key components: “the amount of time and effort students put into their studies and other education-related activities, and the allocation of institutional resources for services and learning opportunities that encourage students to participate in and benefit from such activities” (p. 436). Since engagement is a two-way street, institutions can effectively and intentionally develop activities to engage their diverse learners in exciting and innovative ways.

Yet, what works at one institution to engage students may not work at all institutions; as a result, the following sections detail the ways in which specific institutional practices can be assessed at the University of Minnesota to determine how they impact students, what students benefit the most from these practices, and how these practices relate to student development, learning, and academic success.

We start with Kuh’s 10 high-impact practices to demonstrate how these best practices to promote student engagement are currently being incorporated at the University of Minnesota. We also describe how these practices have been shown in prior research to positively relate to student outcomes. It is important to emphasize that these are not the only practices to be assessed at the university; however, we surmise that they can provide a solid foundation upon which to build assessment of student engagement as they are embedded in several areas of campus life, are recognized in the field as contributing to student success, and can serve as exemplars of assessment for additional programs, services, or departments.
Environment: Students’ college experiences

Kuh, Kinzie, Schuh, Whitt, and Associates (2005) assert that students’ engagement activities have a greater impact on their learning than their background characteristics or the specific institution they attend. They continue by summarizing two primary components of student engagement that contribute to overall student success in college: 1) the amount of time and effort exerted by students in academic and co-curricular pursuits, and 2) how a college or university allocates resources and organizes engagement experiences that are of interest and benefit students. With this understanding, we view engagement to be a cooperative phenomenon; a mixture of the opportunities for engagement afforded by institutions and the extent to which students take advantage of those opportunities.

High-impact educational practices

Kuh (2008) outlines 10 high-impact educational practices that have been “widely tested and have been shown to be beneficial for college students from many backgrounds” (p. 9). These high-impact teaching and learning practices are substantiated by research that suggests they “increase rates of student retention and student engagement” (Kuh, 2008, p. 9); as a result, their effectiveness should be measured at the University of Minnesota to explore in more detail why these types of practices are effective, which students have access to them, and, finally, what effect they might have on different cohorts of students” (Kuh, 2008, p. 9). Kuh writes that these educational practices are unusually effective for the following reasons:

- These practices demand that students devote considerable time and effort to purposeful tasks; most require daily decisions that deepen students’ investment in the activity as well as their commitment to their academic program and the college

- The nature of these activities puts students in circumstances that demand they interact with faculty and peers about substantive matters, typically over extended periods of time

- Participating in one or more of these activities increases the likelihood that students will experience diversity through contact with people who are different from themselves

- Students will receive frequent feedback about their performance in every high-impact activity, providing rich opportunities for formal and informal feedback

- Participation in these activities provides opportunities for students to see how what they are learning works in different settings, on an off-campus; these opportunities to integrate, synthesize, and apply knowledge are essential to deep, meaningful learning experiences

- Doing one or more of these activities in the context of a coherent, academically challenging curriculum that appropriately infuses opportunities for active, collaborative learning increases the odds that students will be connected to the larger world (Kuh, 2008, p. 14-17)
Environment: Students’ college experiences

**First-year seminars & experiences**

First-year seminars are based on the concept that early inclusion and success provide the foundation for retention and ultimately graduation. They “represent a deliberately designed attempt to provide a rite of passage in which student are supported, welcomed, celebrated, and ultimately, (hopefully), assimilated (Schnell & Doetkott, 2002-2003).

The University of Minnesota-Twin Cities offers Freshman Seminar courses for first-year students. A Freshman Seminar is a small, discussion-oriented class that is designed just for first-year students. Faculty who teach Freshman Seminars have developed each class around their particular interests, and students are able to learn in a small class environment from an expert in the discipline.

**Learning communities**

Learning communities are linked classes that enhance intellectual interaction with faculty and fellow students. Learning communities seek to “maximize student engagement in academically purposeful ways by increasing academic and social involvement through collaborative learning” (Cabrera, Burkum, & La Nasa, 2005). Learning communities are beneficial to faculty and the institution because they require that faculty and staff collaborate and push faculty to rely upon active learning strategies, such as cooperative learning or problem-based learning (Tinto, 2005).

Additionally, fully integrated learning communities yield numerous benefits for students, including the development of supportive peer groups (Tinto, 2000). In finding “more support and spending more time studying, students in learning communities become more involved in a range of learning activities, learn more, and persist more frequently than students in traditional learning settings” (Tinto, 2005, p. 329). Learning communities can be developed in numerous ways, including in traditional classrooms but also in residence halls and living spaces.

The University of Minnesota offers several learning community options for students. Examples of learning communities can be found in the following web pages:

- Living Learning Communities through Housing and Residential Life (26 LLCs): http://www.housing.umn.edu/student/llic/
- CEHD First Year Experience program http://www.cehd.umn.edu/current/undergraduate/fye/default.html
- Spring 2011 PSTL Learning Communities http://www.cehd.umn.edu/PSTL/LearningCommunities/
- SEAM (Student Excellence in Academics and Multiculturalism) http://www.mcae.umn.edu/acadsupport/SEAM.html
- Biology Colloquium http://www.cbs.umn.edu/bcq/

Additionally, from 2003-2010, the College of Liberal Arts offered a cluster of courses that first-year students took in common along with a section of CLA 1001 (an extended orientation course). Starting in 2011, CLA 1001 will be revised and no longer linked with other courses.
Environment: Students’ college experiences

Common intellectual experiences
Learning is enhanced when students engage in collaborative learning together. Good learning, like good work, is collaborative and social, not competitive and isolated. Discussing common readings and experiences with others often increases involvement in learning. Sharing one’s ideas and responding to others’ improves thinking and deepens understanding (Chickering & Ehrmann, 1996).

At the University of Minnesota, common intellectual experiences such as those developed in the College of Education and Human Development’s common book program unite college staff, faculty, and students as they read one common book each year. Known as “CEHD Reads,” this program features events, classroom discussions, lectures, and presentations associated with the common reading.

Writing intensive courses
Launched in 2007, the University of Minnesota’s Writing-Enriched Curriculum (WEC) Project pilots a process for meaningfully infusing writing and writing instruction into all undergraduate curricula. During the four-year pilot period (2007-2011), the project engaged 22 academic units in developing and implementing customized Undergraduate Writing Plans. The project works toward the University’s ultimate goal of making all undergraduate degrees “writing-enriched.”

The WEC project is founded on the following principles, gleaned from three decades of research and experience:

- Writing can be flexibly defined as an articulation of thinking, an act of choosing among an array of modes or forms, only some of which involve words.
- Writing ability is continually developed rather than mastered.
- Because writing is instrumental to learning, it follows that writing instruction is the shared responsibility of content experts in all academic disciplines.
- The incorporation of writing into content instruction can be most meaningfully achieved when those who teach are provided multiple opportunities to articulate, interrogate, and communicate their assumptions and expectations.
- Those who infuse writing instruction into their teaching require support. (Writing Enriched Curriculum, 2011).

In fall 2010, the Office of Institutional Research partnered with the Writing Enriched Curriculum program to determine whether students who were involved with majors that implemented Writing Enriched Curricular effects had additional academic gains. It was found that students in WEC majors reported higher scores on the following areas: the use of facts and examples to support their viewpoint; the incorporation of ideas or concepts from different courses when completing assignments; the examination of how others gathered data, interpreted data, and assessed the soundness of their conclusions; and the reconsideration of their own position after assessing the arguments of others.
Environment: Students’ college experiences

Collaborative assignments & projects
The active exchange of ideas within small groups not only increases interest among the participants but also promotes critical thinking. There is persuasive evidence that cooperative teams achieve at higher levels of thought and retain information longer than students who work quietly as individuals. The shared learning gives students an opportunity to engage in discussion, take responsibility for their own learning, and thus become critical thinkers (Gokhale, 1995).

diversity & global learning
For the past 20 years in the United States, colleges and universities have been promoting the importance of developing campus environments that value cultural diversity in institutional policies, in student admissions, in the curriculum, and in hiring practices for faculty and staff. We have learned during this time period that unless there is an institutional commitment to diversity, it is often relegated to isolated programs on the periphery of campus life. Not only is a more comprehensive approach to diversity needed on our campuses, but we must link our understanding of diversity to an understanding of globalization as well (Moses, 2002).

At the University of Minnesota, many students participate in study abroad activities. The University of Minnesota has a goal that 50% of all undergraduates who graduate have learning abroad experience.

Service learning & community-based learning
Service as an extracurricular activity has positive effects on student outcomes (Rhoads, 1997; Sax & Astin, 1997); however, service incorporated into the classroom, more commonly known as service-learning, adds significantly to those outcomes (Astin, Vogelgesang, Ikeda, & Yee, 2000). In their longitudinal study of over 22,236 college undergraduates, Astin, et al (2000) documented the benefits of course-based service-learning, including positive effects on academic performance such as writing skills, grade point average, and critical thinking skills. Marcus, Howard and King (1993) found similar results, as well as improved beliefs about service as well as community.

Community engagement has many benefits for students, faculty, institution, and community partners, although much research has focused on benefits for students. Through engagement efforts with community partners, students can increase awareness of career choices and enhance their resumes. Additionally, Strage (2004) has found that students who conduct service-learning perform better academically than students in the same course who did not engage in service-learning. In their longitudinal study of over 22,000 college students, Astin, et al (2000) found that service-learning participation had significant positive effects on grade point average, critical thinking skills, writing skills, self-efficacy, leadership, and interpersonal skills.

A recent report by the Office of Institutional Research demonstrates survey data that describes University of Minnesota students’ involvement in community engagement activities, including the organizations in which they serve, their perspectives on community engagement, and their involvement in courses that integrate service learning. The Community Service Learning Center coordinates several service learning courses and community engagement experiences for students.
Environment: Students’ college experiences

Undergraduate research
Many researchers have found evidence suggesting that student-faculty interaction is a particularly important factor in overall student success (Astin, 1993; Pascarella & Terenzini, 2005; Tinto, 1993). Evidence suggests that student-faculty interactions are positively associated with student persistence and other positive student outcomes, including what students gain from their college experience, their view of the campus environment, and their overall satisfaction (Pascarella & Terenzini, 1976; Kuh, et al, 2007).

Informal student-faculty interactions (e.g. speaking with faculty outside of class, working on a research project with a faculty member, or serving on committees with faculty) are also positively correlated with student learning and development (Astin, 1993; Kuh, 2003; Kuh and Hu, 2001). Generally speaking, out-of-class contacts with faculty “appear to positively shape students’ perceptions of the campus environment and seem to positively influence educational aspirations” (Kuh, 2007, p. 56). Such engagement activities may reinforce students’ collegiate goals, deepen their commitment to graduate (Pascarella & Terenzini, 1991), and lead students to develop a strong bond with the institution (Kuh, et al, 1994). Conversely, it is expected that students who do not have meaningful connections with faculty are likely to feel less connected to the institution, have lower educational aspirations, and are less satisfied with the campus environment—factors which contribute to their attrition.

There are several resources related to undergraduate research opportunities at the University of Minnesota. For example, the Undergraduate Research Opportunities Program (UROP) provides many opportunities for students to connect with faculty mentors, conveys the importance of research, and connects students to scholarships and other funding opportunities for research.

Internships
Internships can connect students to career opportunities, provide work experience to list on students’ resumes, and can benefit the University through public engagement, partnerships, and collaborations. Career services centers in every college provide support for students as they seek these valuable experiences.

Capstone courses & projects
Research shows that capstone courses provide student with the opportunity to gain theory and content knowledge and comprehension. In addition, capstone courses help students develop advanced cognitive abilities such as critical thinking, problem solving, and communication skills (Major & Palmer, 2001). Capstone projects and courses are embedded in several levels of coursework at the University of Minnesota--from some first-year courses to senior-year projects.
environment: Students’ college experiences

While Kuh's high impact practices provide an excellent foundation upon which to build, modify, and exemplify assessment practices, we recognize that some of those activities may be more effective for some students than others; for example, Kuh (2008) discovered that some student populations tend to benefit more from high impact practices (e.g., students of color and other historically underserved groups) when compared to White students; there were compensatory effects for students participating in these types of programs.

However, we emphasize that administrators and practitioners should remain mindful that other high impact practices recommended by Kuh (2008), including study abroad and service learning, may exclude students who are not as privileged as their middle/upper-class peers.

When assessing student engagement opportunities such as study abroad, for example, college administrators may not take into account the financial burden, family responsibilities, or living situations of working-class students that may prevent their active integration in those opportunities. Even relatively innocuous opportunities such as service learning may be an opportunity only afforded to more privileged students who do not have as many employment or familial obligations—a phenomenon already identified by Butin (2006), who wrote that “service-learning may come to signify a luxury available only to the privileged few” (p. 482).

Furthermore, administrators may not take into account the impacts that not engaging in such opportunities may have on students’ sense of belonging and overall integration into the campus community. As a result, we recommend that those who are assessing these practices consider the impact of socioeconomic status, academic preparedness, and other factors on student outcomes related to the high impact practices.

As we consider the impact of these practices on student outcomes, it can be useful to pause to identify the student outcomes that have been developed as important priorities at the University of Minnesota: the student development outcomes and student learning outcomes.

Additionally, we will discuss related student achievement outcomes that have reach institutional priority, including retention and graduation rates of students, and other factors traditionally important to many college campuses, including campus climate, student satisfaction, and alumni satisfaction.
Student development Outcomes

The successful University of Minnesota student engages in activities which develop and demonstrate achievement in several areas:

**Responsibility and Accountability**
- Makes appropriate decisions regarding his/her own behavior
- Recognizes and accepts consequences of actions
- Meets agreed upon expectations
- Follows through on commitments
- Willing to accept responsibility for personal errors
- Takes responsibility for his/her own learning

**Independence and Interdependence**
- Appropriately determines when to act alone and when to work or consult with others
- Demonstrates ability to initiate action and effectively engage others to enhance outcomes
- Works with minimum supervision whether it be alone or within a group
- Adapts behavior as appropriate in response to team or organization needs

**Goal Orientation**
- Manages energy and behavior to accomplish specific outcomes
- Possesses and maintains sufficient motivation to achieve goals
- Has an understanding about how to use his/her talents and skills to contribute to the betterment of society
- Demonstrates effective planning and purposeful behavior
- Does not allow distractions to prevent timely completion of tasks
- Pushes self, when needed, to accomplish goals

**Self Awareness**
- Maintains and projects optimistic perspective
- Expects the best from self and others
- Accurately assesses and articulates (when appropriate) personal strengths and weaknesses
- Shows interest in learning about others and their accomplishments
- Demonstrates ability to help others adapt to new situations
Student development Outcomes

Resilience
- Able to recover from disappointment or bad experience and continue to work successfully
- Able to learn from a bad experience and recover
- Able to work through disappointments (i.e., what caused them, what can be done to avoid them next time, and what can be done to repair them now)

Appreciation of Differences
- Works effectively with others, despite differences; can respectfully discuss differences with others
- Recognizes advantages of moving outside existing “comfort zone”
- Seeks out others with different backgrounds and/or perspectives to improve decision making
- Appreciates the importance of diversity and conveys this value to others
- Understands and respects the values and beliefs of others

Tolerance of Ambiguity
- Demonstrates intellectual and emotional ability to perform in complicated environments and the absence of standard operating procedures
- Can work under conditions of uncertainty

Student learning Outcomes

At the time of receiving a bachelor’s degree, students:
- Can identify, define, and solve problems
- Can locate and critically evaluate information
- Have mastered a body of knowledge and a mode of inquiry
- Understand diverse philosophies and cultures within and across societies
- Can communicate effectively
- Understand the role of creativity, innovation, discovery, and expression across disciplines
- Have acquired skills for effective citizenship and life-long learning
Student Outcomes

**campus climate**
Climate refers to how students, faculty, staff, and other institutional agents perceive and experience their institution (Baird, 1988). For example, institutions differ in the degree to which students believe faculty and administrators are supportive of their learning and personal development goals (Kuh, Vesper, Connolly, & Pace, 1997). If students view the campus as “chilly” or “inhospitable,” it can negatively affect their academic performance (Torres, 2003). Indeed, students’ perceptions of their institution almost always have a nontrivial, indirect influence on learning and personal development (Pascarella & Terenzini, 2005).

Many scholars believe that campus climate for diversity has an indirect effect on student persistence (Pascarella & Terenzini, 2005); for example, Museus, Nichols, and Lambert, (2008) found that campus climate affected students’ goal commitment, social involvement, academic involvement, and institutional commitment. Based on their review of the literature, Pascarella and Terenzini concluded that at certain institutions, “the effects of campus climate may be more indirect than direct, influenced by more supportive faculty and peer relations and overall educational environment” (2005, p. 438).

**satisfaction**
Studies indicate that “student centered-ness,” “campus climate,” and “instructional effectiveness,” have a strong impact on how satisfied a student is with his/her overall educational experience (Elliott & Healy, 2001). Student satisfaction is linked with such positive behaviors as increased academic effort and outcomes such as promoting openness to diversity, social tolerance, and personal and interpersonal development (Cabrera, Nora, Bernal, Terenzini, & Pascarella, 1998). In addition, student who are satisfied with their college experience are more likely to connect with an affinity group of peers, which is important for student retention, success, and personal development (Whitt, Edison, Pascarella, & Nora, 2001).

**sense of belonging**
A sense of belonging contains both cognitive and affective elements in that the individual’s cognitive evaluation of his or her role in relation to the group results in an affective response. Thus, a sense of belonging further enhances students’ affiliation and identity with their colleges (Hurtado & Carter, 1997). If students make sense of their environments through memberships in multiple peer groups that help them acquire the skills they need in college, then particular activities and groups can both meet students’ immediate needs and link students to the larger whole of campus life (Attinasi, 1992).

Looking at studies conducted on the retention of college students, there is a strong relationship between belonging (i.e., academic and social integration into the college/university setting) and student persistence—and, ultimately, student retention and graduation (Alford, 1998; Tovar, Simon, & Lee, 2009). The greater the sense of belonging to the academic and social community for the student, the more likely it is that the student will persist towards graduation (Hausmann, Schofield, & Woods, 2007; Hoffman, Richmond, Morrow, & Salomone, 2002-2003). Hausman, Schofield, and Woods (2007) discovered that sense of belonging was found to predict intentions to persist, controlling for background variables and other predictors of persistence.
assessment methodology

In order to gather data related to student development and learning outcomes, we recommend a multi-pronged strategy to assessment. For one of the prongs, we recommend quantitative assessment methods, which have the “potential to generalize results to a broader audience and situations” (Bresciani, Gardner, & Hickmott, 2009, p. 59). Quantitative assessment can take advantage of a variety of data collection tools, including structured interviews, questionnaires, and surveys. In order to gather quantitative data, we recommend several institutional-wide surveys that can be used to assess broad outcomes for many students. In addition to surveys, we recommend conducting institutional research studies to determine relationships between student achievement measures gathered by the institution (such as grade point average, retention, etc.) and participation in programs.

These institutional-wide surveys can be mapped to student development outcomes and student learning outcomes; some surveys (such as the SERU) can also be modified to include questions that specifically pertain to development and learning outcomes. Other outcomes should be incorporated; for example, we advocate for the inclusion of noncognitive measures to assess student achievement, as noncognitive factors have been shown to be positively related to outcomes for diverse populations.

Recognizing the limitations often present in a quantitative-only data collection design, we next recommend incorporating qualitative means of gathering data on student outcomes. Some of the surveys below (such as the SERU) incorporate qualitative questions that can be analyzed for themes. Additionally, document analysis can be conducted on other areas, such as e-portfolios. The process of qualitative analysis is often inductive, whereas quantitative research is often characterized as deductive.

Maki (2009) recommends that, regardless of the methods chosen for assessment, it is generally wise to gather information about student learning using several methods and from multiple sources. This results in a “much more complete picture of overall student learning and development than the information provided by only one method” (Bresciani, Gardner, & Hickmott, 2009, p. 67).

When choosing methods of assessment, it is important to remember that it is often not necessary to recreate the wheel, as many excellent assessment methods already exist at the University of Minnesota to capture student development, learning, and success outcomes. As such, we have provided a list of resources already available at the University of Minnesota below; these tools can revitalized to meet the University’s assessment needs; for example, existing survey data can be mapped to student development and learning outcomes to provide data for stakeholders. Explanations of these data collection measures, including existing surveys, a discussion of noncognitive measures, and e-portfolios are offered below.
data collection & rigor in assessment

The survey plan is both cross-sectional (obtaining annual data on different classes of undergraduates) and longitudinal (collecting data at different times for the same group of students). The combination of surveys will allow assessment of whether educational and social goals are being met and what experiences and programs are most beneficial in achieving goals.

Keeling, Wall, Underhile, and Dungy (2008) offer the following recommendations to establish rigor in assessment:

- Assessment should be transparent—the purpose, values, and use of assessment should be clear
- Assessment should engage stakeholders
- Assessment methods should be driven by questions and context
- Assessment methods (qualitative, quantitative, or mixed methods) should follow the highest possible standards and traditions of inquiry
- Assessment should be ethical
- Assessment should attend to questions of the public good

The broader context of the institutional-level assessment plan is tied to the University’s strategic plan and includes working with stakeholders to answer their questions. To that end, data collection conducted by the Office of Institutional Research meets these recommendations by undertaking the Institutional Review Board process for each large-scale survey that is administered to undergraduate students.

Additionally, the Office of Institutional Research strives to rely upon evidence collected by instruments that adhere to validity standards. According to Borden and Young (2008), validity standards for higher education institution accountability measures include the following:

- Intended use: e.g. indicates the quality of the learning experience for students, institutions with higher scores on the measure have more effective general education programs, etc.
- Conceptual basis: e.g. assumes a unitary view of outcomes (i.e. critical thinking is the same skill regardless of the field), performance of samples of freshmen/seniors controlling for academic background indicates institutional effectiveness
- Evidence of claims: e.g. value-added scores are positively associated with other measures of institutional effectiveness in student learning (i.e. graduation rates,), controlling for precollege academic background
- Appropriate implementation: e.g. students must have a stake in the outcome
- Fairness in use: e.g. context for students taking the exam should not favor one type of student over another because of factors like cultural or major field differences

With those perspectives in mind, Borden and Young (2008) write that “we must know whether those differences are explainable by factors other than students’ skills and abilities, for example, as related to interactions between task context and student characteristics or statistical artifacts like regression to the mean or ceiling effects” (p. 34).
description of data collection instruments

Bresciani, Gardner, and Hickmott (2009) acknowledge that, “when engaging in institutional assessment, it is imperative that validity and reliability are ensured” (p. 57). Many nationally-recognized and administered survey instruments are designed to be reliable (meaning that the measure produces the same results over time) and valid (meaning that the tools are designed to accurately measure what is appropriate). As a result, we recommend continual use of the following instruments to collect information on student outcomes:

**Cooperative Institutional Research Program Freshman Survey**
(administered nationally, with UMNTC participating every other year)
The CIRP freshman survey project is aimed at providing information on the characteristics and educational goals and aspirations of first-time college students. The data provide information on changes in the characteristics of freshmen and form the baseline for conducting longitudinal studies of important student outcomes issues. Since a number of other public universities participate in the project, the data also provide comparisons of UMNTC freshmen to those from other institutions. UMNTC has participated in the CIRP survey every other year since 1991. The survey is sponsored by Office of Institutional Research and administered by Orientation and First Year Programs.

**National Survey of Student Engagement**
(administered nationally—UMNTC planned participation every other year)
This national survey project focuses on the quality of undergraduate learning and aims to develop national benchmarks of effective educational practice. NSSE was first administered at UMNTC in spring, 2008. It is administered to a sample of freshmen and seniors and provides a longitudinal database for evaluating the effectiveness of undergraduate programs and other aspects of the undergraduate experience. UMNTC participates in the survey and shares data with fellow AAU consortium participants. The survey is sponsored by the Office of Student Affairs.

**Student Experience in the Research University Survey**
(annual survey to all nine University of California undergraduate colleges and eight other AAU research universities)
This survey project began as a vehicle at UC’s nine undergraduate colleges to generate institutional and comparative data on the undergraduate experience and to encourage systematic use of data and analysis as a tool for policy research and institutional self-improvement. Survey is sponsored by Undergraduate Affairs, Student Affairs, Equity and Diversity and the Office of Institutional Research.

**Graduate Exit Survey**
Locally developed survey sponsored by Student Affairs. Survey is a census of all recent undergraduate degree recipients six months prior to graduation. The survey focuses on current job and educational activities since graduation, and assessment of their educational experiences.
description of data collection instruments

University of Minnesota Student Experiences Survey (administered locally every other year)
In-house developed survey sponsored by the office of Undergraduate Education, the survey is administered to a stratified random sample of undergraduate, graduate and professional students historically across the system focusing on educational and social experiences and satisfaction. Twin Cities will continue portions of the UMSE within the optional item section of the SERU to undergraduates. The UMSE will continue to be administered on coordinate campuses. Continuation of UMSE with graduate and professional students is under review.

University of Minnesota Student Interest Survey (administered locally every five years)
Roger Harrold created the Student Interest Survey, and has provided leadership in its administration to random samples of students at five-year intervals since 1971. The year 2006 marked the eighth administration of the survey and was a joint project of five University units. The Office for Student Affairs, Department of Recreational Sports, and Student Unions & Activities funded the project, and the Office of Institutional Research administered the survey and prepared the data for analysis.
e-portfolios

An e-portfolio is a digitized collection of artifacts including demonstrations, resources, and accomplishments that represent an individual, group, or institution. This collection can be comprised of text-based, graphic, or multimedia elements archived on a Web site or on other electronic media such as a CD-ROM or DVD. An e-portfolio is more than a simple collection—it can also serve as an administrative tool to manage and organize work created with different applications and to control who can see the work. E-portfolios encourage personal reflection and often involve the exchange of ideas and feedback (Lorenzo & Ittelson, 2005).

There are three broad categories of e-portfolios: student e-portfolios, teaching e-portfolios, and institutional e-portfolios.

In general, student e-portfolios are helping students become critical thinkers and aiding in the development of their writing and multimedia communication skills. E-portfolios can help students learn information and technology literacy skills and how to use digital media. Beyond academic evidence, they give student the opportunity to create a digitized showcase of their work and skills that can be presented to prospective employers.

Institutional e-portfolios incorporate student and teaching e-portfolios as well as e-portfolios from a wide range of programs and departments. An institutional e-portfolio would typically present “a focused selection of authentic work, data, and analysis that demonstrates institutional accountability and serves as a vehicle for institution-wide reflection, learning and improvement” (Kahn, 2001).

Institutions seeking ways to demonstrate student learning outcomes to their governance boards and the public can find comprehensive and authentic data in student e-portfolios and include it in their institutional e-portfolios, provided that privacy and licensing issues are properly addressed. Data collected from e-portfolios can show how students have made progress collectively rather than individually (Cambridge, 2001).

Bradley Young, Ph.D., an expert in implementing information technologies in both educational and professional environments, put together for Quill a top 10 list of things a university should consider when adopting assessment tools and the implementation of e-portfolios (Burns, 2010).

- Be committed: Assessment rubrics and e-portfolios need to be part of the institution’s vision.
- Develop a backbone: Improving the campus’s IT network or information backbone may be necessary in addition to either purchasing a commercial e-portfolio system or creating a unique institutional system.
- Dig deep: Whatever the cost, double it and add half again for a considered deployment.
- Articulate steps to success: Break down strategic plans into operational tasks increases the chance for success.
e-portfolios

- Develop measurable benchmarks: Implement a regular peer-reviewed examination of assessment practices. Archive course assessment results.

- Provide curriculum-complemented facilities: Campus learning and teaching centers can help students create their e-portfolios, departments develop effective assessment strategies and faculty adapt teaching methods to adopted assessment tools.

- Address ownership issues: Who owns the e-portfolio? The school? The student? What becomes of the e-portfolio after the student graduates?

- Include assessment in faculty evaluations: In their annual review documents, ask educators to demonstrate how they use assessment tools and the e-portfolio system in classes.

- Look for assessment experience when hiring: Hiring teachers experienced in assessment and unafraid of information technologies will help cement a culture of assessment and e-portfolio usage at your institution.

- Market the changes both internally and externally: E-portfolios can both encourage campus wide educational innovation and reinforce the institution’s commitment to high academic standards among the general public.

The University of Minnesota currently has an e-portfolio system for undergraduate students; however, the system is underutilized and underdeveloped. As a result, we recommend promoting greater use of the portfolios and developing a systematic means of assessing the portfolios to demonstrate student development and learning outcomes.

ePortfolio is a secure web site at the University of Minnesota for individuals to enter, save, organize, view, and selectively share educational records, artifacts, and reflections. ePortfolio is a web-based information management tool, which allows U of M and non-U of M users (guests) the opportunity to access and share Portfolio records and other documents. ePortfolio can be thought of as an electronic file cabinet in which one can store and easily find text and documents of multiple types by and about yourself, such as writing samples, photographs, design samples, video clips, music clips, resumes, internship experiences or mentors.

Similar to an investment portfolio, the broader the range of documents demonstrating one's proficiencies that are stored in ePortfolio, the greater the return to the user. Creating an academic and profesional ePortfolio encourages one to think critically about and document his or her thoughts and experiences related to life-long learning. Once this information is entered within one's ePortfolio account, the ePortfolio owner can choose to share either part or all of his or her ePortfolio with other individuals.

All U of M enrolled students and employees may create and manage personal Portfolio accounts and they may view other people’s Portfolios (presentations) to which they have been granted access. Non-U of M users may also view Portfolios to which they have been granted viewing access. U of M graduates may continue using their ePortfolio accounts, provided those accounts are actively used at least every six months.
analyzing assessment data

The Office of Institutional Research primarily conducts data analyses in two ways: descriptive analyses and inferential analyses. Descriptive analyses attempt to describe the student sample group but do not allow us to make conclusions beyond the data we have analyzed, whereas inferential analyses attempt to broaden or generalize to the larger student population. Commonly used descriptive statistics include frequency, ranges (high and low values), means, and distributions. Inferential statistics include factors such as correlations, interactions, levels of significance, direction, and other measures found from t-tests, analysis of variance, regression, and other techniques.

Descriptive analyses allow us to present the data in a more meaningful way, thereby leading to a simpler interpretation of the raw data. Inferential analyses aim to make inferences from the data in order to make conclusions that go beyond the data; for example, inferential analyses often seek to examine the ways in which variables are predictive of or related to a given outcome. Compared to bivariate analysis, multivariate techniques attempt to describe more complex relationships while controlling for the effects of other variables. Measures of analysis frequently include analysis of variance, linear and logistic regression, factor analysis, structural equation modeling, and hierarchical linear models.

In addition to quantitative analysis, we recommend qualitative analysis to capture additional sources of student information; for example, in reviewing the e-portfolios, document analysis can be used to develop deeper understanding of student learning.

Schuh and Associates (2009) describe several key strategies to ensure the goodness, trustworthiness, and rigor in the data collection and analysis processes:

- Triangulation--using multiple sources of data, data collection methods, or both, and multiple investigators to collect data

- Member checks--taking initial interpretations, findings, and descriptions back to the participants from whom they were derived to determine whether they are accurate from the participants' point of view

- Positionality--making sure that the positionality (e.g. race, gender, class, sexual orientation, ableness) of all researchers in the study is addressed particularly as it relates to the topic being researched and the participants

- Peer-debriefing--having someone who is not familiar with the study review findings and interpretations, as well as ask questions about the study

- Audit trail--keeping detailed records of all assessment and research procedures, methods, and decisions made throughout the course of the project

- Use of rich, thick descriptions--when conveying the setting, context, participants, and findings. This helps the reader determine whether the findings would be transferable in a similar situation (p. 168-169)
reporting assessment results

According to Banta, Lund, Black, and Oblander (1996), “once assessment data is collected, analyzed and interpreted, it must be disseminated in compelling ways” (p. 44); yet, Palomba and Banta (1999) argue that the “assessment information is of little use if it is not shared with appropriate audiences and used in meaningful ways” (p. 297). Therefore, the dissemination of assessment results to the appropriate audience is an important consideration for any assessment plan.

One way the Office of Institutional Research can effectively communicate assessment results to a variety of stakeholders and intended users is through the development of a website. Key features of the website include links to survey data, a toolkit, and a business intelligence environment that offers interactive results.

Bresciani, Garnder, & Hickmott (2009) recommend the following steps related to using and reporting assessment results:

- Compile a complete list or a report of all outcomes-based assessment results
- Consider the resources (human, financial, time) available for using results for change
- Include the necessary stakeholders throughout the use process. This includes determining how the results will be sued as well as ensuring follow-through for the entire process
- Establish deadlines for the use process and evaluate the effectiveness of the process as well as any changes made according to the deadline
- Use the results in a manner that produces the greatest change and enhancements in student learning and development

When it comes to reporting results, we recommend a public website to promote the transparency of assessment, more easily communicate results to stakeholders, and involve stakeholders in the review process. Survey data, demonstrations regarding students’ acquisition of student development outcomes and student learning outcomes, and related information can be provided on this public website, thus increasing the transparency of assessment and accountability at the university.
evaluating assessment

In their survey of assessment professionals at nearly 1,400 higher education institutions, Peterson and Augustine (2000) found that the number of institutional assessment studies conducted and reported is one of the best predictors of the efficacy of assessment; however, according to Upcraft and Schuh (1996), it is not uncommon for assessment to stall between the phases of reporting and use. As a result, “the failure to make the transition from gathering results to using those results to make informed decisions may cause apathy on the part of stakeholders who are disenfranchised because little to no change occurs as a result of simply gathering information” (Bresciai, Gardner, & Hickmott, 2009, p. 82).

Bresciai, Gardner, and Hickmott (2009) note the importance of developing criteria to evaluate assessment plans and reports. To that end, they recommend the following questions for the design of effective evaluation criteria:

- Why do we require what we require in the assessment plan/report?
- Do our criteria clearly state what we want reported in a manner that is effective, efficient, yet reflective of a quality inquiry process?
- Are our criteria applicable to all types of units within our division?
- Do the proposed criteria assist in the development of more reflective planning and reporting of outcomes-based assessment?
- Are the criteria based on good practice?
- Do the criteria limit creativity?
- Do the criteria promote thoughtful reflection and inquiry?
- Do the criteria contribute to a culture centered around student learning?
- Do the criteria promote a culture of evidence-based decision making? (p. 107)

Finally, Bresciai, Gardner, and Hickmott (2009) share the following questions to evaluate the effectiveness of assessment:

- What do we want our organization to look like once we have successfully implemented systematic outcomes-based assessment?
- How will the quality of student learning and development be enhanced by the process?
- How will the quality of intentional planning and purposeful reflection by enhanced?
- How do we know that time invested in this process is worth the improvement brought about by the process? (p. 108)
The feedback loop we propose for this plan is an upward spiral; the assessment spiral never closes and is always a work in progress, as we continually increase the quality of student experiences. According to Wehlburg (2007), the assessment spiral increases its width as it moves upward, indicating the opportunity to include additional outcomes, measures, and programs within the institution. The assessment spiral presumes that quality will increase and that appropriate and meaningful changes will occur in student learning, in outcomes, and in the ways that these outcomes are measured.
Conclusion

This assessment plan is intended to provide a holistic framework of recommendations the University of Minnesota can consider as it implements effective undergraduate assessment of a variety of student outcomes. The assessment plan is intended to start a conversation toward the institutionalization of assessment, as we believe that assessing student outcomes is vital toward improving the undergraduate experience for all learners.

We have attempted to incorporate diverse perspectives, theories, and literature into this assessment plan; however, as we have noted above, the assessment plan should be developed along with key stakeholders to assess its utility and feasibility. In short, the assessment plan should itself be assessed to determine whether it is designed to meet the unique needs of diverse learners and all elements of assessment should be developed with student development theories in mind. In closing, we hope that this assessment plan begins an important conversation between leaders at the University and is a step toward developing effective practices to engage undergraduate students.

We can expect that the University of Minnesota, like all other American institutions of higher education, will be driven to more extensive assessment through greater demands for accountability; however, we argue that assessment should not be viewed as a burdensome obligation imposed by external stakeholders, but as a powerful tool for promoting student success. The University of Minnesota is already engaged in high-impact educational practices and has already articulated a commitment to a broad and comprehensive set of learning and development outcomes. The challenge now is to make sure assessment activities are grounded in the literature on student success and the desired learning and development outcomes. To that end, we make the following recommendations:

- Make data accessible to stakeholders
- Use multiple instruments to measure a variety of outcomes for diverse learners
- Develop a meaningful conceptual framework based on theories and research
- Create a feedback loop that captures the results of assessment

The greatest challenge to implementing a meaningful and effective assessment plan will be the difficulty presented by measuring intangible qualities. Some of the most important outcomes will not likely be easily revealed through survey data. Using more qualitative methods, such as e-portfolios, can describe individual students’ progress; however, conducting qualitative assessment on a campus-wide scale would be a dauntingly labor-intensive, not to mention expensive, effort. However, a multifaceted assessment plan could incorporate a sampling of qualitative data in order to show dimensions of student development that could not easily be described in surveys.
References


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