

**ASSESSING INSTITUTIONAL EFFECTIVENESS:  
THE MISSION ENGAGEMENT INDEX AS A MEASURE OF PROGRESS  
ON MISSION GOALS**

Ellen M. Boylan, Ph.D.  
Director of Institutional Research and Assessment

Marywood University  
Office of Planning and Institutional Research

**Abstract**

*As part of continuing research supported by the Teagle Foundation on mission and student learning outcomes, this paper describes intermediate steps in the development of a new performance measure for institutions called the Mission Engagement Index (MEI). The purpose of the MEI is to enable institutions to assess the relationship between their lived mission and student learning outcomes and, further, to allow a comparison of expected versus actual outcomes on institutional results. The data obtained to develop the measure is from institutions participating in an annual mission consortium administered in conjunction with the National Survey of Student Engagement (NSSE). The member schools appended a twenty question Mission Perception Inventory (MPI) to the NSSE and administered it one or more times during the period 2004-2007. Discussed are the size and strength of the data set, the statistical approach selected for developing the model, a process for determining the dependent and independent variables to be analyzed based on respondent and institutional characteristics, and possible outcomes resulting from statistical analyses. The Mission Engagement Index (MEI) subsequently developed will help to assess activity intended to advance institutional mission on college campuses, and serve as a reflection of the impact of the institutional environment on student learning outcomes.*

**Introduction**

The mission statement of a college or university can be rolled up in a dry scroll and lost atop a library shelf or become words of vibrant inspiration that enervate the life and purpose of an institution. The latter circumstance is much more likely when clear alignment exists between an institution's mission and goals and the ways they are realized in action. With regard to student learning outcomes, action takes form first in clearly articulated objectives for student learning and development (Chickering, 1993) and second, in the creation of an environment of instruction and activity that helps students achieve. Think of these actions as institutional inputs, however, and the question arises about how to measure their effect. The Mission Engagement Index (MEI) being developed here is intended to serve as a measure of the relationship between institutional mission and student learning outcomes. The theoretical framework and procedure for obtaining the necessary data to build the Index is described first, followed by a review of conditions that must be met before developing a statistical model and, finally, a discussion of possible uses of the MEI for tracking and comparing performance.

This research addresses the need of postsecondary institutions for adequate measures of mission effectiveness, particularly in relation to student learning. The fundamental assumption of the research is that a measure to assess student perception of the learning environment relative to institutional mission constructs can be devised and, further, that scores on these measures are valid indicators of institutional performance on mission objectives. A set of 20 questions called the Mission Perception Inventory (MPI) were developed in 2004 to query college students about perceptions of the mission of their college. The larger survey vehicle for appending and distributing the MPI was the National Survey of Student Engagement (NSSE), which is administered nationally each year to participating institutions. According to Pike, Kuh & Gonyea (2003), the NSSE was designed to act as a process indicator that could help colleges and universities see connections between programs and activities and student learning outcomes. Similarly, the MPI is a process indicator because its purpose is to assess activity on campus meant to enhance the learning environment and, at the same time, the context where learning occurs. Validity and reliability testing conducted in earlier studies (Boylan, 2005, 2008) has investigated and affirmed the ability of the MPI to assess and reflect the learning environment.

An important assumption of this research is that sufficient cases exist for conducting the multiple regression analysis. Table 1 appearing later will indicate whether the required number of cases per independent variable has been achieved. Another important consideration is to make sure large standard error values are not observable in results by institution, and thereby assure that the characteristic of homoscedasticity (Glass, 1996, p. 180) is present.

The purpose of this research is to develop a performance measure, or index, that will have stronger interpretive utility than MPI mean score results, alone. Using exploratory multiple regression, a prediction equation will be developed for generating residual scores on MPI scale results and individual question items. Residual score results produced by the Mission Engagement Index (MEI) will allow institutions to compare predicted versus actual outcomes on mission items, thereby providing a more meaningful way of assessing their performance. A critical step in the process of developing the prediction equation will be selecting for inclusion the most appropriate independent variables, or institutional characteristics, for the model equation. In view of this challenge, and mindful of the need for a sufficiently large and reliable data set for this analytical endeavor, this study intends to answer the following research question: Can a Mission Engagement Index (MEI) be developed to describe causal relationships among variables that affect mission perception?

### Review of the Literature

Sources of information on assessment in higher education abound on shelves and electronic platforms as close as a click away. More difficult to obtain are assessment tools for measuring mission effectiveness in colleges and universities, particularly as defined by regional accreditation bodies. In addition to accreditation challenges, there are escalating stakeholder demands for accountability (Ewell, 2007), so providing evidence of fulfilling institutional mission can be a key part of assessment reporting. A statement of mission that is parsed into institutional goals becomes a much more manageable template for measuring performance and progress.

Frequently found in institutional mission statements are goals about providing professional preparation, striving for academic excellence, and developing a sense of commitment to community service. Toutkoushian and Smart (2001) suggest that a student’s experiences within the institutional environment correlate strongly with learning outcomes. The relation between institutional mission and student engagement and learning has been successfully measured using a methodology developed by Pike, Kuh, and Gonyea (2002).

It is important for an institution to have clearly articulated objectives for student learning and development (Chickering 1993). If the objectives are agreed upon and emphasized in oral and written communication, and are evident in the articulation of programs, a stronger sense of the institutional mission can be present. Knowledge of shared mission can unify the educational experience of students and define purpose for them within the institutional setting.

“Mission” is operationally defined for this research as the overall purpose and activity of an institution as articulated by the goals of the mission statement. This definition more accurately reflects the character and scope of activities engaged in by the institutions participating in mission research consortia, and is unlike the Carnegie Classification definition of mission found in popular publications like *America’s Best Colleges*, the annual guide to colleges published by U.S. News and World Report, (2004, p.80).

Research by Pike, Kuh, and Gonyea (2002) on institutional mission concludes that mission constructs can be measured. The methodology used by the National Survey of Student Engagement (NSSE) for producing benchmarks, or scales, of “effective educational practice” (Kuh, 2001, p.13) is reflected in this mission research in the way factor scales have been produced.

An earlier limitation of this research having to do with reliance on a single closed consortium of participants for administration of the questions has been ameliorated. In 2008, a second and characteristically different consortium was added, allowing for further comparisons of outcomes by group. These data will be added to the inventory of study data for 2004-2007 consisting of more than 30,000 respondent cases obtained in 143 administrations from 83 unique institutions across the United States.

**Table 1:** Count of participating institutions and respondents by administration year.

	<b>Institutions</b>	<b>First Year</b>	<b>Senior</b>
<b>2004</b>	<b>15</b>	<b>2,000</b>	<b>1,827</b>
<b>2005</b>	<b>16</b>	<b>1,279</b>	<b>1,332</b>
<b>2006</b>	<b>24</b>	<b>2,684</b>	<b>2,854</b>
<b>2007</b>	<b>36</b>	<b>4,533</b>	<b>4,331</b>
	<b>91</b>	<b>10,496</b>	<b>10,344</b>
	<b>(83 unique)</b>		

Methodology

The Mission Perception Inventory was developed using a mixed method qualitative and quantitative research analysis. The question items were derived from mission statements of colleges initially participating in a 2004 NSSE mission consortium. Scale-format questions like those used in the NSSE instrument were used for the mission research questions, as well. After verifying the clarity of questions with constituents, the instrument was administered by appending it to the main NSSE questionnaire.

Giving evidence of mission effectiveness is requested of all member colleges by regional accreditation bodies (Middle States Commission, 2006). A deliberate effort was made to originate mission questions with equal utility for institutions of any affiliation or status.

**Table 2:** Items by subscales and overall Mission Perception Inventory (MPI) by administration year.

	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
	<b>Number of items in factors</b>			
<b>Sense of Mission</b>	<b>8</b>	<b>10</b>	<b>10</b>	<b>10</b>
<b>Respect for Diversity</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Individual Actions</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Religious Practice</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>2</b>
<b>Mission Perception Inventory</b>	<b>17</b>	<b>18</b>	<b>18</b>	<b>19</b>

The factor analytic method used in previous analysis leading to the current research on mission has been described (Boylan, 2008). For each year of administration of the mission questions, factor analysis of results employing Thompson’s (2004) methodology indicates the presence of a highly reliable overall Mission Perception Inventory (MPI) scale consisting of up to 19 items and two to four subscales within the MPI (figure 2). Strong subscales contain multiple items, but caution is advised when interpreting factors consisting of just two items (Tabachnick & Fidell, 1996).

The reliability of the MPI scale and subscales of Sense of Mission and Respect for Diversity were consistently high as measured via internal consistency coefficient alpha (Cronbach, 1951), as indicated in figure 3. To interpret the results of factor analysis, the rule of thumb is followed wherein only variables with loadings of .32 and above are interpreted (Tabachnick & Fidell, 1996). The greater the loading, the more the variable is a pure measure of the factor. Comrey and

Lee (1992) suggest that loadings in excess of .71 are considered excellent, .63 very good, .55 good, .45 fair, and .32 poor.

**Table 3:** Cronbach's reliability analysis of the Mission Perception Inventory (MPI) and subscales 2004-2007

<b>Subscales</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Sense of Mission	.87	.88	.88	.90
Respect for Diversity	.85	.84	.87	.86
Individual Actions	.67	n/a	n/a	n/a
Religious Practice	.62	.55	.54	.62
<b>MPI scale</b>	<b>.88</b>	<b>.89</b>	<b>.90</b>	<b>.91</b>

Until 2005, the National Survey of Student Engagement (NSSE) results by institution featured an Engagement Index showing predicted versus actual performance by institutions on the five NSSE benchmarks. The Engagement Index provided an added way of assessing institutional performance based on institutional characteristics and what might be expected considering a school's profile. The change in reporting was based on the decision by NSSE researchers to reflect participant results on the student level, rather than by the average institutional scores that were previously the basis of comparison (NSSE, 2008). Observations over several years of administering the NSSE revealed that between-institution variance had been small compared to within institution differences among students, a problem for schools with larger standard errors. Larger standard errors are usually the result of a lower number of respondents (2008). Consider, however, that the NSSE institute conducts analysis on tens of thousands of cases of data in one year, alone, far exceeding the mission data collected to date. Therefore, for this research, where participating schools have smaller enrollments and institutional characteristics are similar, it can still be considered a worthwhile exploration to develop an Engagement Index for mission effectiveness to assist institutional assessment initiatives.

An Engagement Index (EI) was developed for first-year college chemistry instruction online (Trasker et al, 2003) with the purpose of measuring student engagement with different instruction modes. The independent variables selected for the regression model include student characteristics, design of online delivery of instruction, and performance behaviors. Age, gender, enrollment status, learning styles, cognitive preference, teaching style for presenting material, time on reading feedback, and performance assessment were all independent variables selected to predict "engagement" in learning.

### Developing the Prediction Equation

Independent variables to be explored for developing the Mission Engagement Index will be based on institutional characteristics of consortia participants. Two characteristics of participating institutions in consortia from 2004 to 2007 are illustrated in figure 1.

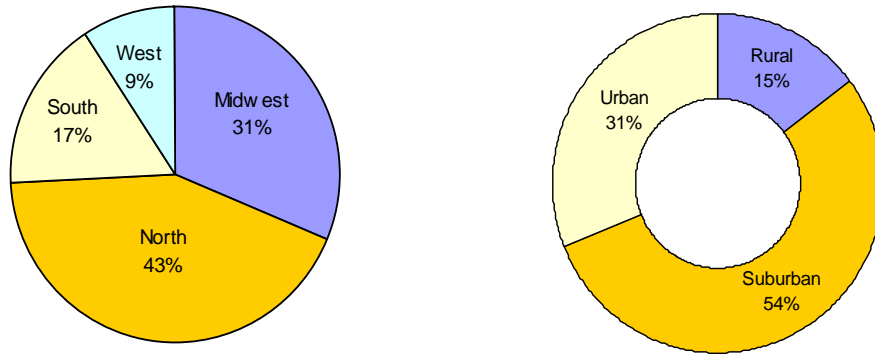


figure 1: Consortia institutions by region and urbanicity 2004-2007

The dependent variable for the prediction equation, or Mission Engagement Index (MEI), is the institution score on the Mission Perception Inventory factor. To determine independent variables and have confidence in the ability to conduct regression analysis, there must be a sufficient number of cases, or institutions, per each independent variable. According to Stevens (1992), “a recommended ratio of subjects to IV’s of at least 15 to 1 will provide a reliable regression equation.” With 83 unique institutions having participated, there is a sufficient number of “cases” for five IV’s.

Table 4 shows the choices among independent variables that are available. Stepwise regression analysis will reveal the statistics on the variables which make the highest contribution to variance in the prediction and therefore make possible the determination of the most salient components of the index.

**Table 4:** Selecting independent variables (IVs) for regression analysis.

<b>Institution</b>	<b>region</b>	<b>Carnegie Class</b>	<b>% resident</b>	<b>% female</b>	<b>% ethnic/ cau</b>	<b>UG enroll</b>	<b>% Part-time</b>	<b>Setting</b>	<b>% Accept</b>
<b>a</b>	<b>North</b>	<b>U Master's</b>	<b>39</b>	<b>81</b>	<b>95</b>	<b>2119</b>	<b>25</b>	<b>Suburb</b>	<b>74</b>
<b>b</b>	<b>Midwest</b>	<b>U Master's</b>	<b>33</b>	<b>87</b>	<b>70</b>	<b>928</b>	<b>40</b>	<b>Suburb</b>	<b>57</b>
<b>c</b>	<b>South</b>	<b>National U</b>	<b>32</b>	<b>88</b>	<b>39</b>	<b>4130</b>	<b>42</b>	<b>Suburb</b>	<b>54</b>
<b>d</b>	<b>South</b>	<b>Bacc.. Coll</b>	<b>43</b>	<b>67</b>	<b>78</b>	<b>1011</b>	<b>21</b>	<b>Rural</b>	<b>66</b>
<b>e</b>	<b>Midwest</b>	<b>U Master's</b>	<b>43</b>	<b>67</b>	<b>70</b>	<b>1882</b>	<b>23</b>	<b>Suburb</b>	<b>85</b>
<b>f</b>	<b>Midwest</b>	<b>Bacc. Coll</b>	<b>42</b>	<b>58</b>	<b>89</b>	<b>978</b>	<b>83</b>	<b>Urban</b>	<b>70</b>
<b>g</b>	<b>Midwest</b>	<b>U Master's</b>	<b>31</b>	<b>88</b>	<b>78</b>	<b>2885</b>	<b>37</b>	<b>Suburb</b>	<b>83</b>
<b>h</b>	<b>West</b>	<b>U Master's</b>	<b>32</b>	<b>88</b>	<b>23</b>	<b>1088</b>	<b>60</b>	<b>Urban</b>	<b>94</b>
<b>i</b>	<b>North</b>	<b>Bacc. Coll</b>	<b>82</b>	<b>58</b>	<b>62</b>	<b>8568</b>	<b>18</b>	<b>Suburb</b>	<b>42</b>
<b>j</b>	<b>Midwest</b>	<b>U Master's</b>	<b>28</b>	<b>72</b>	<b>81</b>	<b>1602</b>	<b>37</b>	<b>Urban</b>	<b>79</b>
<b>l</b>	<b>North</b>	<b>U Master's</b>	<b>24</b>	<b>78</b>	<b>79</b>	<b>1320</b>	<b>815</b>	<b>Suburb</b>	<b>60</b>

### Discussion

The conditions required for conducting regression analysis to develop a Mission Engagement Index (MEI) have required several years of consortium data collection in conjunction with the administration of the annual National Survey of Student Engagement (NSSE). This research promises to have utility and elegance for future applications as a result of several conditions that have been achieved: the internal consistency of the factors has been affirmed through repeat administrations and factor analysis of the data by year, the institution sizes relative to enrollment are reasonably varied and geographically diverse, and there are data sufficient to conduct regression analysis. It is concluded that a Mission Engagement Index can be developed and serve as a viable indicator of mission effectiveness for those institutions participating in mission research.

Future steps include, first, an *a priori* selection of independent variables for the regression analysis and subsequent exploration of alternatives. Once the best selection of variables has been made, further exploration of differences among institutions can be conducted and conclusions drawn about characteristics of strongest influence on student learning outcomes.

Acknowledgments: A two-year grant from the Teagle Foundation begun in 2007 makes possible the administrative and financial support to continue this research.

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