



**MULTI-INSTITUTIONAL STUDY OF
LEADERSHIP**

2015

School Report



**Study Design and
Methodology**

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Welcome

Letter from the Principal Investigator

Summer 2015

Dear MSL Colleague,

On behalf of the entire Multi-Institutional Study of Leadership (MSL) Research Team, we hope this letter finds you doing well. Not so long ago you joined us in the MSL, an international research program examining the influences of higher education on college student leadership development. Data collection for the MSL has been conducted since 2006 at over 250 colleges and universities across the United States, Canada, Jamaica, Mexico, and Australia. We are incredibly grateful for your efforts and willingness to contribute to the expansion of the leadership development knowledge base along with increasing evidence-based practice on your campus.

MSL 2015 introduced a number of new approaches to data collection including the ID Link protocol, which allows schools to connect results to student records. Our hope is that this will enhance the ability of participating campuses to make wide use of results from the study. MSL 2015 also introduced new scales related to constructs such as leadership motivation and hope/agency as well as a more expansive approach to collecting demographic data. We hope you will find these additions useful in interpreting results.

The MSL research team looks forward to working with you and your campus to assist in translating results from the study to practice at your institution. The primary vehicle for this will be your forthcoming debriefing call. Your reports and supplemental resources are available through mySSG.net. This includes access to a PowerPoint template you can use for disseminating findings on your campus, your individual school data, and several tip sheets. You will also notice that we have changed the formatting of our reports, breaking them out into sub-reports for greater ease of use. Additionally, we will again be making use of *I-Reports*, which drill down more deeply into findings related to specific areas associated with the MSL. The first of these will be an update of the 2012 *I-Report*. We anticipate releasing at least two shorter *I-Reports* over the next two years. Our hope is to keep you engaged with using your MSL findings through 2017.

As your institution transitions into the next phase of analyzing and applying MSL results, we hope you will stay in touch with us about the excellent work you are doing. We love to highlight MSL schools on our website sharing the innovative ways in which you are connecting research to practice. I would also like to share my deep appreciation for your investment of human and financial resources in the MSL.

Sincerely,

Dr. John P. Dugan

Associate Professor,

Higher Education,

Loyola University Chicago

Letter from the Survey Sciences Group, LLC¹

Summer 2015

Dear MSL Participating School,

On behalf of the Survey Sciences Group team, including your study coordinator, the survey programmers and testers, the sampling statisticians, the data processors and report writers, we thank you for another wonderful Multi-Institutional Study of Leadership (MSL) year!

While these reports represent the culmination of a great deal of effort and commitment, we do not see this as an end to this partnership, but rather the beginning of the next step of putting the MSL data to work. These reports and the accompanying dataset should be a valuable resource for leadership educators, institutional researchers, graduate students, university administration, and many academic and functional units within the university.

Members of the research team look forward to talking with each participating school in the coming months as they brief you on these reports and assist you with navigating the various results. These standardized reports provide a wealth of information that can be immediately useful. However, we also look forward to working with you to identify ways in which you can use the results of the MSL at your school. We are available to you as a resource to assist with this ongoing process.

We eagerly await feedback from you about how this past year went. We always strive to improve our services, our tools, our communications, and the products we create and continue to build on the MSL as we enter future data collections. As the data collection period for 2015 comes to a close with the delivery of the reports, we are turning our focus to the next 3-year data collection cycle. The next MSL will be administered in 2018, with recruitment beginning in mid-2017. The three-year cycle will allow schools and the research team more time to work with and use the data from the survey. During the years when the MSL is not administered, the research team will be in touch with information regarding publications and research notes to keep the MSL community informed of the exciting work that is being done with the data.

Thank you for your continued support. Please do not hesitate to contact us at any time.

Sincerely,

Scott D. Crawford

Research Consultant

Survey Sciences Group, LLC / SoundRocket

scott@surveysciences.com

¹Survey Sciences Group, LLC changed its name to SoundRocket (www.soundrocket.com) in early 2015. With regards to the MSL, this report will be the final communication coming from the old brand: Survey Sciences Group, LLC.

Using the MSL Reports

This section provides tools that will assist with reading and interpreting results from MSL data collection on your campus. This includes an overview of what is included in your results, useful terminology to help understand the nature of your data and statistical analyses employed, and sample tables with instructions on how to read and interpret them.

What's Inside

Due to the length of the MSL instrument, it is not feasible to provide tables for all variables. The reports do, however, provide substantive results from the data collection at your campus and a great deal of information that is immediately useful for shaping educational practice.

Your overall MSL report is divided into several sub-reports to explore your data and results from a variety of perspectives:

- The **Study Design and Methodology** report (this report that you are viewing now) introduces the MSL reports and provides an overview of the study.
- The **Respondent Characteristics and Distributions** report provides key information regarding who responded to the survey and what they shared overall. This report is made up of three different table types. First, the Response Rates table shows the response rate (AAPOR RR2) (The American Association for Public Opinion Research, 2011. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*. 7th edition. AAPOR) for your school compared with the overall study and your comparison groups. Response rates by demographic categories (Gender, Race, and Class Standing) are also given if data were provided in the school sample. The Basic Response Distribution portion includes sample sizes and basic frequencies for many of the variables captured - especially when those items are not included in later sections of this report that specifically focus on environments and outcomes.
- The **General and Sub-Study Outcomes** report provides key information on your students' reported achievement across the general and sub-study outcomes in the MSL. This report also provides statistical tests to determine the extent to which your students score significantly differently than their peers in the comparison groups that you've selected. This report also includes the MSL Delta Measure tables, which provide a change over time analysis focused on outcome achievement for seniors at your school (for community colleges, this measure has been adapted to include all students in your sample).
- The **Campus: Inputs and Environments by Outcomes** report and the **National: Inputs and Environments by Outcomes** report provide examinations of the relationships that exist between key demographic characteristics (e.g., race, gender) and outcome measures as well as student experiences during college (e.g., student organization involvement, mentoring relationships, participation in leadership training programs) and outcome measures. These results point to critical differences in outcome achievement among student sub-populations as well as the experiences during college that seem to have the greatest influences on your students' outcomes.

Additional Study Resources

In addition to the reports just described, you have also received several additional resources to help you make the most of your participation in the MSL. These files are:

| Resource | Description |
|----------------------------------|---|
| SPSS data file | Your SPSS analytic dataset contains individual responses from students at your school. Along with the reports, the SPSS analytic data file will allow you to explore other variables not covered in the reports and perform any additional analysis that may be more customized for your institution. |
| About Your Analytic Data | This document provides notes to help you begin to analyze your SPSS data file. |
| MSL 2015 Codebook | This document is where you will find all the variables in your dataset along with their coding. |
| MSL Tip Sheets | Refer to this document for additional ideas for analysis. |
| PowerPoint Template | Use this helpful template to prepare presentations based on your institution's MSL data. Please see the "Data Use and Acknowledgement Policy" for more details about presentations. |
| Consent Form | A copy of the consent form for your institution |
| Custom Questions (if applicable) | If your school chose to include custom questions, the specifications for the accompanying dataset are provided here. |
| Incentive Plan (if applicable) | If your school chose to provide a local incentive, details around this incentive are provided here. |
| Respondent Communications | A copy of the respondent communications for your institution. |

Terminology

The results are presented in various tables using descriptive and inferential statistical terms. What follows are definitions for common terms that will help explain the information found in the tables in these reports.

Population

The population is the total group we would like to study for a research project. Undergraduate students are the target population for this study.

Random Sample

A random sample is a scientifically selected portion of the population. The MSL uses a random sample to reduce overall respondent burden. For this study schools were asked to provide a simple random sample of $n=4,000$ undergraduate students (or their full population if their student population is less than 4,000) who were enrolled at their school on November 1, 2014. Different schools varied in how they were able to participate. Individual school details around sample are included later in the report. For the purpose of this report, “random sample” will refer to either a random sample or a population sample, depending on what type of sample your school provided.

Comparative Sample

A comparative sample is one that was specifically selected for use in the MSL by the school. While the MSL research team will assist in documenting what the sample represents, the specific characteristics of the sample (i.e., from which population it was selected, whether it was random or purposive) are determined by the school.

Mean

The mean summarizes the responses for each item and is the arithmetic average of the respondents’ individual scores. The mean is calculated by adding all the scores for a given item and dividing the sum by the total number of scores.

Standard Deviation

Standard deviation measures how much scores vary from the mean. A small standard deviation means that most of the individual scores are close to the mean and that the scores do not vary far from the mean. A high standard deviation indicates scores are far from the mean and that there is wide variability among respondents on that item. Generally, 99% of all scores fall within three standard deviations from the mean.

Significance

Significance means that there is a relationship between two or more variables that is not simply due to chance. For example, while the mean scores for a particular item may be higher for one group (e.g., by class standing or gender), that relationship is said to be significant if statistical analysis indicates that such a relationship is not likely to be a chance occurrence. Significance is typically assessed using a p -value with smaller values relating to decreasing likelihood that the differences are a function of chance. Researchers traditionally assess significance by looking for p -values that are less than .05, which indicates a 5% chance of error. This study assesses the relative significance using a more conservative .01 level, indicating only a 1% chance of error. This is done due to the large sample sizes employed in the study as well as assumptions associated with statistical techniques.

Effect Size

Effect size offers an estimate of the magnitude of statistical differences. This is a useful tool for interpreting just how meaningful statistically significant differences might be in an analysis, particularly when sample sizes are large. When a sample size is large, it is likely that even small differences will emerge as statistically significant. However, these differences may not be practically important, and it becomes critical to also assess the magnitude of the statistical difference. In other words, how practically meaningful is the finding?

This study relies on Cohen's (1988) effect size measure (referred to as Cohen's *d*), which examines differences using standard deviation units. Cohen suggested that trivial effect sizes were associated with scores less than .2, small effects were at least .2, moderate effects were at least .5, and large effects were at least .8. Another way of understanding this is to suggest that large effects represent differences that could be seen with the naked eye. Moderate effects could also be seen with the naked eye, but one might need to examine the differences for a bit. Small effects are typically not visible to the naked eye, while trivial effects offer little to no practical meaning.

Cohen's classification system was not designed specifically for the social sciences, and he warned against a rigid application across disciplines. This sentiment has been echoed along with suggestions that Cohen's labels may be misleading in educational research or research using less potent variables where small effect sizes could potentially be practically meaningful (Trusty, Thompson, & Pertocelli, 2004; Valentine & Cooper, 2003). Leadership, by nature, is a fuzzy and multifaceted concept that is difficult to measure, and so even small effect sizes may provide beneficial insights into an otherwise under-studied, atheoretical knowledge base. Thus, we recommend consumers of this report focus on those statistical differences with effect sizes that are small or higher.

Data Use and Acknowledgement Policy

Given the scope of the Multi-Institutional Study of Leadership (MSL), the number of funding partners, and the requirements associated with Institutional Review Board (IRB) policy, it is important to review issues related to using MSL data. Please keep in mind the following considerations as you move forward with using results on your campus.

Confidentiality

- All survey response data published in any reports, publications, and presentations related to the MSL must be reported in the aggregate, and no individually identifiable information linking such data to a respondent or a participating school should be made publicly available except as required by law.
- Per the School Agreement, your school has agreed not to attempt to identify any individual respondent.
- Your school may have chosen to provide a unique identifier for the purpose of connecting student data to institutional data records after study completion. This was called the “ID Link Protocol.” Permission for this service needed to be granted by both the master Loyola University Chicago IRB and your school’s local IRB. ID Link schools’ consent forms acknowledged the intent to link the data. ID Link Protocol schools have an extra responsibility to protect access to their dataset, as it contains an ID that would allow linkage to other institutional data, including identifiable contact information.

IRB Considerations

- Many campus IRBs granted approval for the MSL study for a fixed, one-year timeframe. You should check with your local IRB to find out if you need to submit a renewal application to extend the timeframe for which you are allowed to work with the data. This is especially relevant for schools that may wish to publish or make presentations using their results.
- Remember to always consider the confidentiality of your data. Respondent confidentiality remains an important issue even though we have stripped the data of most direct identifiers. You are encouraged to handle data appropriately. This includes securely storing data, carefully monitoring who has access, and determining how data are used.
- Open-ended data collected as part of the main survey or your custom questions may contain identifying information about the participant in the responses. Please take into account confidentiality requirements as dictated specifically by the national and your local IRB.

Use of Data/Reports

- The MSL reports information in a national normative data set and in some cases with comparisons to data derived from your school. You may publish data for your school in any manner that you wish, including in scholarly articles and in presentations at conferences, so long as the published information does not include individual participant identifiers.
- National data may be used for comparison purposes only and may not be presented in tables. Both SSG and the PI reserve the right to present national data sets in articles and other settings.
- All uses of MSL report data must attribute the source of that data to the MSL, using an statement substantially similar to the following:

"Data used in this article were collected as part of the Multi-Institutional Study of Leadership 2015. For further information regarding that study, please visit www.leadershipstudy.net."

- You must give SSG and the PI prior written notice if anyone acting under the auspices of your school wishes to publish or otherwise disseminate information regarding the MSL, for the purpose of affording SSG and the PI an opportunity to respond to the published information in the same forum.
- The MSL Research Team has outlined a rigorous research agenda that will examine multiple facets of the national data. However, if you are interested in using the national data as part of a thesis, dissertation, or personal research project, you may submit a proposal to the Principal Investigator. Guidelines for submitting a data use request along with submission forms can be downloaded from www.leadershipstudy.net. Proposals will be reviewed on a rolling basis and permission for use is at the sole discretion of the Principal Investigator. Note that due to labor associated with data preparation, there are typically fees associated with using MSL national data.

Study Overview

Purpose

The purpose of the Multi-Institutional Study of Leadership (MSL) is to examine influences of higher education on college student leadership development. The study also directs significant attention to the examination of experiences during college and their influences on leadership-related outcomes (e.g., complex cognitive skills, social perspective-taking, leadership efficacy). The study design supports institutional efforts to engage in data-driven decision-making informed by empirical evidence regarding students' experiences, needs, and educational outcomes. The goal of this research program is to advance institutional efforts as well as the broader knowledge base regarding college student leadership.

History

The first iteration of the MSL study was administered in the spring of 2006. Subsequent data collections have been conducted in 2009, 2010, 2011, 2012, and 2015. Over 300 institutions and 350,000 students have been part of the study to date. The study was initially created and led by Co-Principal Investigators, Dr. John P. Dugan of Loyola University Chicago and Dr. Susan R. Komives of University of Maryland. The project is currently run full time by Dr. Dugan. The National Clearinghouse for Leadership Programs (NCLP - www.nclp.umd.edu) plays a central role as a sponsor of the MSL. The Survey Sciences Group, LLC, serves as the primary coordinators of the research. Over the years, the MSL has received funding from a variety of organizations; however, the most important source of funding for this research continues to be each of the partner schools that participate in the research.

Rationale

The education and development of students as leaders has long served as a central purpose for institutions of higher education as evidenced in mission statements and the increased presence of both curricular and co-curricular leadership development programs on college and university campuses (Komives, 2011). Astin and Astin (2000) go as far as to suggest that “higher education plays a major part in shaping the quality of leadership in modern society” (p. 1) and a growing number of scholars and professional associations have identified socially responsible leadership as a core college outcome (Association of American Colleges & Universities, 2007; Astin & Astin, 2000; Hoy & Meisel, 2008; National Association of Student Personnel Administrators & American College Personnel Association, 2004). Yet, research on the topic continues to reflect an incomplete picture suffering from a lack of theoretical grounding consistent with contemporary conceptualizations (Dugan & Komives, 2007; Dugan, 2011) as well as a lack of clarity regarding individual and institutional factors influencing leadership development (Kezar, Carducci, & Contreras-McGavin, 2006). If higher education institutions could begin to address these issues, the ability to enhance leadership development and the preparation of civically engaged citizens would increase dramatically.

Theoretical Frame

The social change model of leadership development (Higher Education Research Institute [HERI], 1996) provides the theoretical frame for this study as it was created specifically for college students, is typically cited as one of the most influential leadership models used in practice with college students (Kezar et al., 2006; Owen, 2012), and is consistent with contemporary theoretical perspectives that suggest leadership is a relational, transformative, process-oriented, learned, and change-directed phenomenon (Komives & Dugan, 2010; Rost, 1991). Similarly, the central principles associated with the social change model involve social responsibility and change for the common good. These are achieved through the development of eight core values targeted at enhancing students’ levels of self-awareness and abilities to work with others. The values include: consciousness of self, congruence, commitment, common purpose, collaboration, controversy with civility, and citizenship. These values function at the individual (i.e., consciousness of self, congruence commitment), group (i.e., common purpose, collaboration, and controversy with civility), and societal (i.e., citizenship) levels. The dynamic interaction across levels and between values contributes to social change for the common good, the eighth critical value associated with this model. Definitions for each of the core values are provided in Table 1. For more information on the social change model consult: *A Social Change Model of Leadership Development: Guidebook Version III* (HERI, 1996) or *Leadership for a Better World: Understanding the Social Change Model of Leadership Development* (Komives, Wagner, & Associates, 2009).

Table 1: Value definitions for the Social Change Model of Leadership Development

| Value | Definition |
|---------------------------|--|
| Consciousness of self | Awareness of the beliefs, values, attitudes, and emotions that motivate one to take action. |
| Congruence | Thinking, feeling, and behaving with consistency, genuineness, authenticity, and honesty towards others; actions are consistent with most deeply held beliefs and convictions. |
| Commitment | The psychic energy that motivates the individual to serve and that drives the collective effort; implies passion, intensity, and duration, and is directed toward both the group activity as well as its intended outcomes. |
| Collaboration | To work with others in a common effort; constitutes the cornerstone value of the group leadership effort because it empowers self and others through trust. |
| Controversy with civility | Recognizes two fundamental realities of any creative group effort: that differences in viewpoint are inevitable, and that such differences must be aired openly, but with civility. Civility implies respect for others, a willingness to hear each others’ views, and the exercise of restraint in criticizing the views and actions of others. |
| Citizenship | The process whereby an individual and the collaborative group become responsibly connected to the community and the society through the leadership development activity. To be a good citizen is to work for positive change on the behalf of others and the community. |

Higher Education Research Institute. (1996). *A social change model of leadership development: Guidebook version III*. College Park, MD: National Clearinghouse for Leadership Programs.

Conceptual Frame

The conceptual framework for the MSL is an adapted version of Astin’s (1993) inputs-environments-outcomes (I-E-O) college impact model. This model permits the researcher to “assess the impact of various environmental experiences by determining whether students grow or change differently under varying environmental conditions” (p. 7). The model was adapted in two ways. First, a cross-sectional design with retrospective questions was employed instead of the traditional time-elapsd pretest and posttest to address issues of response shift bias. Second, the influences of non-college reference groups (e.g., employers, community organizations) posited in Weidman’s (1989) model of student socialization were integrated, which extended variable measurement beyond just elements of the collegiate environment and included aspects of the external environment as well (e.g., mentoring from community members, participation in community organizations). Weidman suggested that reference groups from outside the college environment exert influence throughout the college years and should be controlled for in college impact research.

Institutions and Sample

A total of 97 colleges and universities participated in the MSL in 2015; 88 of these schools are included in the national benchmark. The data from community colleges; institutions from Canada, Mexico, and Australia; and schools that did not provide random samples are not included in the national benchmark. Following study protocols, participating schools were asked to draw a random sample of 4,000 undergraduate students from the general student population at their institution. This requested size was determined based on a desired 95% confidence interval with a margin of error of ± 3 or better for overall and sub-group analyses. It also assumes individual institutional response rates may be low. Institutions with undergraduate enrollments of less than 4,000 students conducted full population samples if possible. Some institutions selected samples lower or higher than 4,000, or lower than their full population, based on institution-specific requirements. The total sample size for the national dataset is 311,678 cases. Schools were also invited to submit comparison samples to examine relationships between this group and the school’s random sample results. Data collected as part of comparison samples are not included in the national benchmarks.

Instrument, Psychometrics, and Design Considerations

Instrument

The MSL survey questionnaire was designed specifically for this research. It is adapted from the Socially Responsible Leadership Scale (SRLS; Tyree, 1998), which measures the eight core values of the social change model (HERI, 1996). The 2006 questionnaire was updated for use in 2009 based on findings from the original research as well as feedback from institutions that previously participated. Based on research findings and consultation with a team of scholars, the 2012 questionnaire was again updated to keep up with more nuanced understandings of leadership. The 2015 questionnaire was updated further to reflect continuing evolutions in leadership studies.

The MSL is comprised of over 400 variables, scales, and composite measures representing students' demographics and pre-college experiences, experiences during college, and key outcome measures. Other leadership-related outcomes studied in the MSL include complex cognitive skills, leadership efficacy, social change behaviors, seeing alternative social perspectives, spiritual development, racial identity, resiliency, and agency. The MSL survey instrument also relies on "sub-studies." These are sets of questions that are randomly administered to 50% of the student sample at each institution. The use of sub-studies allows for the inclusion of a larger number of questions on the survey instrument without significantly increasing completion times. The MSL Codebook provides information on scaling and value labels for all variables in the study. The section on psychometrics provides an overview of the reliability and validity of key outcome variables.

Changes from the MSL 2012 to the MSL 2015 Survey Instrument

With each cycle of the MSL research program we evolve the survey instrument. These alterations reflect a desire both to continuously enhance the psychometric properties and rigor of the research and to integrate new opportunities for inquiry based on findings generated from the previous cycle. The changes are also very carefully considered, and purposefully limited, as we intend to keep consistency in the instrument over time. This section captures changes to the MSL survey instrument between the 2012 and 2015 cycles.

Outcome Measures

Removal of Common Purpose Scale:

Common Purpose serves as one of the eight core values associated with the Social Change Model of Leadership and part of the original Socially Responsible Leadership Scale (SRLS; Tyree, 1998). MSL research has allowed for greater empirical testing of the psychometric and theoretical bases of the SRLS and Social Change Model. In 2012 this led to the removal of the Change Scale from the study as the measure was sound, but the latent construct being measured did not adequately align with the theoretical conceptualization (i.e., the scale measured comfort with transition in lieu of one's overarching ability to engage in social change work). Empirical testing validated this decision and demonstrated that the omnibus measure of SRLS was more accurate and statistically appropriate.

Testing indicated similar theoretical and psychometric concerns with the Common Purpose Scale (and indeed the construct within the Social Change Model itself). Confirmatory factor analyses using structural equation modeling demonstrated that the Common Purpose Scale did not measure a construct unique from the Collaboration Scale. Further testing explored whether the issue lay with the scale or was conceptual. Testing with alternative measures (e.g., Inspiring a Shared Vision, Inspirational Motivation) did not improve models. An examination of the definitional parameters for common purpose and collaboration in the original work seems to support the statistical finding as common purpose is defined as a *function* of collaboration and *characteristic of the group*, not necessarily a capacity of individuals within the group or even of the group itself (HERI, 1996). Conceptually this entangles the constructs confounding individual leadership capacity and group functioning. As such, the Common Purpose Scale was removed.

Addition of Hope Scales:

Expanding on previous MSL work on resiliency and leadership, this cycle includes Snyder's (1991, 1995, 2002) scales designed to measure hope as a positive psychological factor. The measures are well established in the literature and include a total score as well as two subscales. Hope is defined as "the process of thinking about one's goals, along with the motivation to move toward those goals (agency), and the ways to achieve those goals (pathways)" (Snyder, 1995, p. 355).

Reduction in CRE Sub-Scales:

Measures of Collective Racial Esteem (CRE) have been included in the MSL to differentiate racial group membership from the more powerful constructs associated with racial identity. The measures have been well established in the psychological literature, although we are continuously working with them to advance quality. Based on findings we have removed the sub-scale associated with Membership Affiliation.

Demographics/Environment

A variety of additional changes were made to the instrument related to demographic items and/or environmental experience variables. These include:

- inclusion of two variables designed to capture whether students have *military service* experience;
- alterations to *academic major* categories to better capture this information;
- inclusion of a follow-up question to capture *department or office associated with on-campus employment*;
- addition of new questions that capture degree of engagement in *campus recreation experiences*;
- adjustment of categories of *student organizational involvement* including greater differentiation between types of identity-based organizations;
- slight adjustments associated with refinement of *campus climate measures*;
- alterations to response options associated with *gender, race, sexual orientation, religion, and transgender student identification*.

Validity and Reliability

The MSL survey includes more than 400 variables, scales, and composite measures. As such, it would be impossible to detail full information related to the validity and reliability of measures. Much of this information can be found in academic articles published using the various scales. These are listed in the MSL web library accessible via the following web address: www.leadershipstudy.net.

The Socially Responsible Leadership Scales (SRLS), which comprise the core of the MSL survey instrument, have undergone extensive psychometric work. Rigorous methods were used in the creation of the original SRLS to establish content validity of the measures. This process is explained in detail in the original dissertation from which the instrument is derived (Tyree, 1998). Construct validity was further examined for the SRLS in early pilot studies of the MSL instrument as well as with the 2006, 2009, and 2012 iterations of the study and demonstrated appropriate and consistent relationships amongst outcomes variables and other theoretically supported measures.

Reliability levels across all eight scales in the original version, revised form, MSL pilot studies, MSL 2006 study, and current form demonstrate consistent performance levels. Given that reliability is a function of using an instrument with a specific population and not the instrument itself (Mertens, 2005), Cronbach alphas were calculated for each institution in the 2006 study as well as by categories in each major student sub-population (i.e., race, gender, sexual orientation). Reliabilities across all of these were consistent across all scales and did not deviate by more than .12.

Accuracy of Self-Report Data

The MSL instrument relies largely on student self-report data. Student self-reports have received considerable attention with regard to their accuracy and ability to adequately measure educational gains, despite the fact that researchers suggest that they can produce accurate results under specific conditions (Anaya, 1999; Astin, 1993; Bauer, 1992; Gonyea, 2005; Pace, Barahona, & Kaplan, 1985; Pike, 1995). These conditions include rigorous methodological standards as well as ease of participant use (Gonyea). The participant component is characterized by the ability to comprehend questions, the ability to retrieve necessary information, perceived value of the questions being asked, and clarity of response options (Gonyea). When the above is in place, self-reports can generally be considered appropriate. This study was consistent with these considerations given that the primary outcome measures have undergone field testing in a variety of studies (Dugan, 2006a, 2006b; Dugan & Komives, 2007; Gehrke, 2008; Humphreys, 2007; Meixner, 2000; Morrison, 2001; Ricketts, Bruce, & Ewing, 2008; Rubin, 2000) as well as multiple pilot studies. Additionally, the Crown-Marlowe measure of social desirability was employed as a means to remove items in which the responses appeared to be biased. Furthermore, a study of self- and peer-reported leadership behaviors and the quality of those behaviors found self-reports of leadership to be generally accurate (Turrentine, 2001).

Cross-Sectional Designs

This study employs a cross-sectional research design in which students were asked to reflect retrospectively on past knowledge and experiences as a means to capture input data. Researchers indicate that when measuring leadership development as an educational outcome, retrospective questions may provide a stronger indication of student gains due to concerns associated with response-shift bias that emerge in traditional time elapsed studies (Howard, 1980; Howard & Dailey, 1979; Rohs, 1999, 2002; Rohs & Langone, 1997). The inherent assumption in measurement of change is a common metric at each point in time and that:

A person's standard for measurement of the dimension being assessed will not change from pretest to posttest. If the standard of measurement were to change, the posttest ratings would reflect this shift in addition to the actual changes in the person's level of functioning. Consequently, comparisons of pretest with posttest ratings would be confounded by this distortion of the internalized scale. (Rohs & Langone, p. 51)

Researchers suggest cognitive dimensions associated with understanding leadership may cause a shift in the standards of measurement and as such cross-sectional designs offer an appropriate approach in addressing the effect (Howard; Howard & Dailey; Rohs, 1999, 2002; Rohs & Langone).

2015 Participating School Profiles

| School | Size | Control | Carnegie | Selectivity | Affiliation | Setting | Previous Participation |
|--|------------------|---------|--------------------|--------------------|-------------|---------|------------------------|
| Boise State University | 20,000 and above | Public | Master's | Competitive | Secular | City | 2012 |
| Bowling Green State University- Main Campus | 10,000-19,999 | Public | High Research | Competitive | Secular | Town | 2012 |
| Brigham Young University-Hawaii | 1,000-4,999 | Private | Baccalaureate | Very Competitive | Religious | Town | 2012 |
| Cabrini College | 1,000-4,999 | Private | Master's | Less Competitive | Religious | Suburb | |
| California Maritime Academy | 1,000-4,999 | Public | Baccalaureate | Competitive | Secular | City | |
| California Polytechnic State University-San Luis Obispo | 10,000-19,999 | Public | Master's | Highly Competitive | Secular | Suburb | |
| Central Michigan University | 20,000 and above | Public | Doctoral/Research | Competitive | Secular | Town | 2012 |
| Clemson University | 20,000 and above | Public | High Research | Highly Competitive | Secular | Suburb | 2012 |
| College of the Holy Cross | 1,000-4,999 | Private | Baccalaureate | Most Competitive | Religious | City | 2012 |
| College of William & Mary | 5,000-9,999 | Public | High Research | Most Competitive | Secular | Suburb | 2012 |
| Colorado State University-Fort Collins | 20,000 and above | Public | Very High Research | Very Competitive | Secular | City | 2012 |
| CUNY Borough of Manhattan Community College | 20,000 and above | Public | Associates | NA | Secular | City | |
| CUNY John Jay College of Criminal Justice | 10,000-19,999 | Public | Master's | Competitive | Secular | City | 2012 |
| CUNY Kingsborough Community College | 10,000-19,999 | Public | Associates | NA | Secular | City | |
| CUNY Lehman College | 10,000-19,999 | Public | Master's | Less Competitive | Secular | City | |
| CUNY Queens College | 10,000-19,999 | Public | Master's | Very Competitive | Secular | City | |
| CUNY York College | 5,000-9,999 | Public | Baccalaureate | Non-Competitive | Secular | City | |
| Curtin University | NA | NA | NA | NA | NA | NA | |
| Denison University | 1,000-4,999 | Private | Baccalaureate | Highly Competitive | Secular | Suburb | |
| DePaul University | 20,000 and above | Private | Doctoral/Research | Very Competitive | Religious | City | 2012 |
| Drake University | 5,000-9,999 | Private | Master's | Very Competitive | Secular | City | 2012 |
| East Carolina University | 20,000 and above | Public | Doctoral/Research | Competitive | Secular | City | |
| Elon University | 5,000-9,999 | Private | Master's | Highly Competitive | Secular | Suburb | 2012 |
| Emory University | 10,000-19,999 | Private | Very High Research | Most Competitive | Religious | Suburb | |
| Fairfield University | 1,000-4,999 | Private | Master's | Very Competitive | Religious | Suburb | 2012 |
| Fordham University | 10,000-19,999 | Private | High Research | Highly Competitive | Religious | City | 2012 |
| Georgetown University | 10,000-19,999 | Private | Very High Research | Most Competitive | Religious | City | 2012 |
| Gonzaga University | 5,000-9,999 | Private | Master's | Highly Competitive | Religious | City | 2012 |
| Harper College | 10,000-19,999 | Public | Associates | NA | Secular | Suburb | |
| Iona College | 1,000-4,999 | Private | Master's | Competitive | Religious | Suburb | 2012 |

| School | Size | Control | Carnegie | Selectivity | Affiliation | Setting | Previous Participation |
|--|------------------|---------|--------------------|--------------------|-------------|---------|------------------------|
| Iowa State University | 20,000 and above | Public | Very High Research | Competitive | Secular | City | |
| Kalamazoo College | 1,000-4,999 | Private | Baccalaureate | Highly Competitive | Secular | City | |
| Lehigh University | 5,000-9,999 | Private | High Research | Most Competitive | Secular | City | |
| Liberty University | 20,000 and above | Private | Master's | Competitive | Religious | City | |
| Loyola Marymount University | 5,000-9,999 | Private | Master's | Very Competitive | Religious | City | 2012 |
| Loyola University Chicago | 10,000-19,999 | Private | High Research | Very Competitive | Religious | City | 2012 |
| Loyola University Maryland | 5,000-9,999 | Private | Master's | Very Competitive | Religious | City | |
| Marian University | 1,000-4,999 | Private | Master's | Less Competitive | Religious | City | 2012 |
| Marymount University | 1,000-4,999 | Private | Master's | Competitive | Religious | City | |
| McGill University | NA | NA | NA | NA | NA | NA | 2012 |
| Meredith College | 1,000-4,999 | Private | Baccalaureate | Competitive | Secular | City | 2012 |
| Metropolitan State University of Denver | 20,000 and above | Public | Baccalaureate | Less Competitive | Secular | City | 2012 |
| Mills College | 1,000-4,999 | Private | Master's | Highly Competitive | Secular | City | |
| Minnesota State University-Moorhead | 5,000-9,999 | Public | Master's | Competitive | Secular | Suburb | 2012 |
| Mount Aloysius College | 1,000-4,999 | Private | Baccalaureate | Competitive | Religious | Town | |
| North Carolina State University at Raleigh | 20,000 and above | Public | Very High Research | Highly Competitive | Secular | City | |
| Northwestern University | 20,000 and above | Private | Very High Research | Most Competitive | Secular | City | 2012 |
| Ohio State University-Main Campus | 20,000 and above | Public | Very High Research | Most Competitive | Secular | City | 2012 |
| Oregon State University | 20,000 and above | Public | Very High Research | Competitive | Secular | City | |
| Saint Louis University | 10,000-19,999 | Private | High Research | Very Competitive | Religious | City | 2012 |
| Saint Norbert College | 1,000-4,999 | Private | Baccalaureate | Very Competitive | Religious | Suburb | |
| San Jose State University | 20,000 and above | Public | Master's | Competitive | Secular | City | |
| Seattle University | 5,000-9,999 | Private | Master's | Very Competitive | Religious | City | 2012 |
| SUNY College at Brockport | 5,000-9,999 | Public | Master's | Very Competitive | Secular | Town | 2012 |
| SUNY College at Geneseo | 5,000-9,999 | Public | Master's | Highly Competitive | Secular | Town | 2012 |
| Temple University | 20,000 and above | Public | High Research | Very Competitive | Secular | City | 2012 |
| Texas Woman's University | 10,000-19,999 | Public | Doctoral/Research | Less Competitive | Secular | City | |
| The Citadel, The Military College of South Carolina | 1,000-4,999 | Public | Master's | Competitive | Secular | City | 2012 |
| The College of New Jersey | 5,000-9,999 | Public | Master's | Highly Competitive | Secular | Suburb | |
| The University of Tennessee | 20,000 and above | Public | Very High Research | Very Competitive | Secular | City | |
| Towson University | 20,000 and above | Public | Master's | Very Competitive | Secular | City | |
| Tulane University of Louisiana | 10,000-19,999 | Private | Very High Research | Most Competitive | Secular | City | |
| Universidad de Monterrey | NA | NA | NA | NA | NA | NA | |
| University of California-Los Angeles | 20,000 and above | Public | Very High Research | Most Competitive | Secular | City | |

| School | Size | Control | Carnegie | Selectivity | Affiliation | Setting | Previous Participation |
|--|------------------|---------|--------------------|--------------------|-------------|---------|------------------------|
| University of Central Florida | 20,000 and above | Public | Very High Research | Very Competitive | Secular | Suburb | 2012 |
| University of Cincinnati-Main Campus | 20,000 and above | Public | Very High Research | Very Competitive | Secular | City | |
| University of Dayton | 10,000-19,999 | Private | High Research | Very Competitive | Religious | City | 2012 |
| University of Delaware | 20,000 and above | Public | Very High Research | Very Competitive | Secular | Suburb | |
| University of Detroit Mercy | 5,000-9,999 | Private | Master's | Competitive | Religious | City | 2012 |
| University of Georgia | 20,000 and above | Public | Very High Research | Very Competitive | Secular | City | |
| University of Illinois at Urbana-Champaign | 20,000 and above | Public | Very High Research | Highly Competitive | Secular | City | 2012 |
| University of Kansas | 20,000 and above | Public | Very High Research | Competitive | Secular | City | |
| University of Maryland-College Park | 20,000 and above | Public | Very High Research | Highly Competitive | Secular | Suburb | |
| University of Memphis | 20,000 and above | Public | High Research | Competitive | Secular | City | |
| University of Missouri-Columbia | 20,000 and above | Public | Very High Research | Most Competitive | Secular | City | |
| University of Nevada-Las Vegas | 20,000 and above | Public | High Research | Competitive | Secular | City | |
| University of New Haven | 5,000-9,999 | Private | Master's | Competitive | Secular | Suburb | |
| University of North Carolina at Chapel Hill | 20,000 and above | Public | Very High Research | Most Competitive | Secular | City | 2012 |
| University of North Carolina at Pembroke | 5,000-9,999 | Public | Master's | NA | Secular | Town | |
| University of North Carolina Wilmington | 10,000-19,999 | Public | Master's | Very Competitive | Secular | City | |
| University of North Florida | 10,000-19,999 | Public | Master's | Very Competitive | Secular | City | 2012 |
| University of Oregon | 20,000 and above | Public | Very High Research | Very Competitive | Secular | City | |
| University of Portland | 1,000-4,999 | Private | Master's | Very Competitive | Religious | City | 2012 |
| University of Rhode Island | 10,000-19,999 | Public | High Research | Competitive | Secular | Suburb | |
| University of Rochester | 10,000-19,999 | Private | Very High Research | Most Competitive | Secular | City | 2012 |
| University of Scranton | 5,000-9,999 | Private | Master's | Very Competitive | Religious | City | |
| University of St Francis | 1,000-4,999 | Private | Master's | Competitive | Religious | Suburb | |
| University of the Incarnate Word | 5,000-9,999 | Private | Master's | Less Competitive | Religious | City | |
| University of Toronto | NA | NA | NA | NA | NA | NA | 2012 |
| University of Wisconsin-Madison | 20,000 and above | Public | Very High Research | Highly Competitive | Secular | City | |
| University of Wisconsin-Milwaukee | 20,000 and above | Public | High Research | Competitive | Secular | City | 2012 |
| Virginia Polytechnic Institute and State University | 20,000 and above | Public | Very High Research | Highly Competitive | Secular | City | |
| Washburn University | 5,000-9,999 | Public | Master's | Non-Competitive | Secular | City | |
| Weber State University | 20,000 and above | Public | Master's | NA | Secular | City | |
| Western Washington University | 10,000-19,999 | Public | Master's | Very Competitive | Secular | City | |
| Widener University-Main Campus | 5,000-9,999 | Private | Doctoral/Research | Competitive | Secular | Suburb | |
| Winona State University | 5,000-9,999 | Public | Master's | Competitive | Secular | Town | 2012 |

2015 Data Collection

Timeline

Preparation for the MSL 2015 began with school enrollment in the spring of 2014. Table 2 provides the dates on which your school reached certain key milestones in the process of preparing for and fielding the MSL. You may find this information useful as you participate in future MSL iterations.

Table 2: Preparation Timeline

| | |
|-------------------------------|-----------|
| Study Enrollment | 8/18/2014 |
| Kick-off Call | 10/1/2014 |
| IRB Approval Submitted to SSG | 1/7/2015 |
| Sample Uploaded to SSG | 1/7/2015 |

Summary of Survey Participation

Table 3 contains the details of your school's participation in the MSL 2015.

Table 3: Summary of MSL2015 Participation

| | |
|----------------------------------|---------------|
| Protocol | Standard Data |
| Coalition Participation | No Coalition |
| Total Sample Provided | 5000 |
| Total Random Sample Provided | 4000 |
| Total Comparison Sample Provided | 1000 |
| Local Incentive Included | Yes |
| Custom Questions Included | None |
| Custom Logo Included | Default |
| Comparison Sample Description | None |

Data Collection

The MSL was administered entirely online with a web-based survey designed, hosted, and implemented by the Survey Sciences Group, LLC (www.surveysciences.com). Students selected to participate were invited to the survey through a series of email invitations and reminders. Each student received a pre-notification email designed to inform students that a survey was coming, an invitation email, and then a series of up to three reminder emails. Reminder emails were only sent to students who had not completed the survey. The emails were derived from a standardized template, which was customized (if desired) by participating schools based on unique institutional requirements and specific incentive programs offered to promote student participation.

The invitation and reminders provided students with a link containing a study identification number (assigned randomly for the purpose of this data collection only). Before being presented with any survey questions, students were asked for their consent to participate in the study. If a student refused the consent request, their survey was closed and they were not contacted again as part of the MSL 2015.

The sections that follow provide information regarding data collection on your campus. The results represent your general population sample and do not include information about comparative sample data. The following terminology may be helpful in interpreting the content of these tables:

Table 4: Definitions of Terms

| Term | Definition |
|------------------------|---|
| Sample Size (n) | The count of students who were selected by each school to participate in the study. |
| Eligible Sample (e) | The count of students who were eligible to take the survey. This number in most cases is the number of students provided by the school. In some cases students were removed from the sample before, during, or after data collection if they were determined to be ineligible for the study (i.e., they were no longer a student, they were not 18 years of age or older). |
| Complete Responses (c) | The count of students who consented to participate, and then who navigated through the entire survey and submitted their answers as final. |
| Partial Responses (p) | The count of students who consented, but did not complete all questions related to the core outcome measures. |
| Visitors (v) | The count of students who logged into the survey but did not respond to the consent question. |
| Response Rate | The number of completed (c) surveys plus the number of partially (p) completed surveys divided by the eligible (e) sample size. This calculation follows AAPOR response rate calculation #2. $((c+p)/e)$ |
| Completion Rate | The number of completed (c) surveys divided by the number of completed (c) surveys plus partially (p) completed surveys. $(c/(c+p))$ |
| Ineligible (i) | Count of respondents who indicated that they were under the age of 18 or no longer a student. |
| Ineligible % | Count of respondents who indicated that they were under the age of 18 or no longer a student divided by the total sample size. (i/n) |
| Refusals (r) | Count of students who indicated that they did not want to participate in the survey. |
| Refusal % | Count of students who expressed that they did not want to participate in the survey divided by the total sample size. (r/n) |
| Note | For the purpose of these reports, we have modified the definition of a complete and partial survey. Disposition codes, response rates, and completion rates described in this table are all based on the published AAPOR Standard Definitions document. (The American Association for Public Opinion Research. 2011. <i>Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys</i> . 7th edition. AAPOR.) |

Table 5 shows the counts of emails at each stage of the data collection process that were successfully sent as well as the count that did not get delivered, otherwise known as “bounced” emails. If a respondent’s email invitation bounced, reminders were still sent to this respondent in case the cause of the bounce was a temporary situation. We should note that email bounces are not a very accurate way to identify failed email delivery. Few email systems reliably send bounces, and often bounces are sent when email is successfully delivered. Bounces are just one indicator to look at when evaluating the quality of the contact information provided.

The date sent represents the date that the first email from each contact was sent. Because most emails were sent at a pace of approximately 10 emails per minute, or because of any delay that was implemented to ensure a complete data quality check was completed, it is possible that some emails did not get sent until the next day. The standard MSL design was to include three reminder emails. A few select schools received special permission from their local IRB to send additional emails.

Emails used a subject line that identified the study, and the email appeared to be coming from the MSL primary investigator (John Dugan) or an individual selected by your institution. All respondent communications used for your school are included as deliverables with your final report, data, and related study materials.

Table 5: Email Dates and Counts

| Date Sent | Contact Type | Emails Sent | Emails Bounced |
|-----------|-----------------|-------------|----------------|
| 1/26/2015 | Prenotification | 5000 | 1 |
| 1/27/2015 | Invitation | 5000 | 1 |
| 1/31/2015 | Reminder 1 | 4344 | 2 |
| 2/4/2015 | Reminder 2 | 3998 | 7 |
| 2/13/2015 | Reminder 3 | 3816 | 11 |

Responses

Overall, the response rate for all schools in the national benchmark was 31.0% and the total number of completed cases was 77,489, with 19,099 additional partial responses. The response and completion rates for the overall study and for your school are shown in Table 6. Chart 1 and Chart 2 show how your institution’s rates compare to other 2015 MSL participating schools. The numbers shown in Table 6, Chart 1, and Chart 2 only include response rate figures for your random sample cases. Comparison sample results are not included in these figures.

Table 6: Responses

| School | Visitors | Partials | Completes | Response Rate % | |
|---|----------|----------|-----------|-----------------|-------------------|
| | | | | (AAPOR RR2) | Completion Rate % |
| National Benchmark | 9,750 | 19,099 | 77,489 | 31.00% | 80.20% |
| Metropolitan State University of Denver | 104 | 153 | 858 | 25.3% | 84.9% |

Chart 1: Response Rates

Response Rate: Metropolitan State University of Denver ■

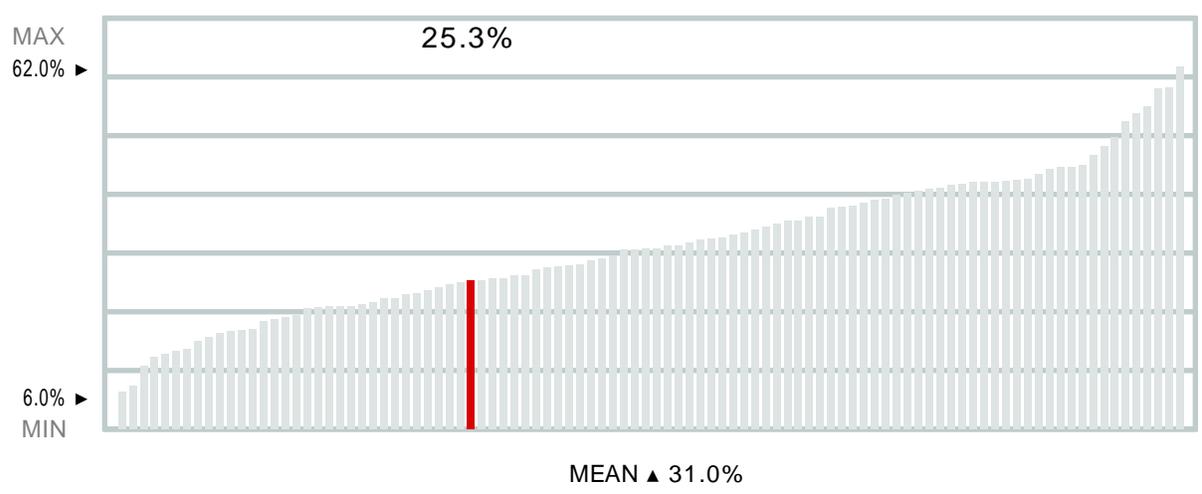
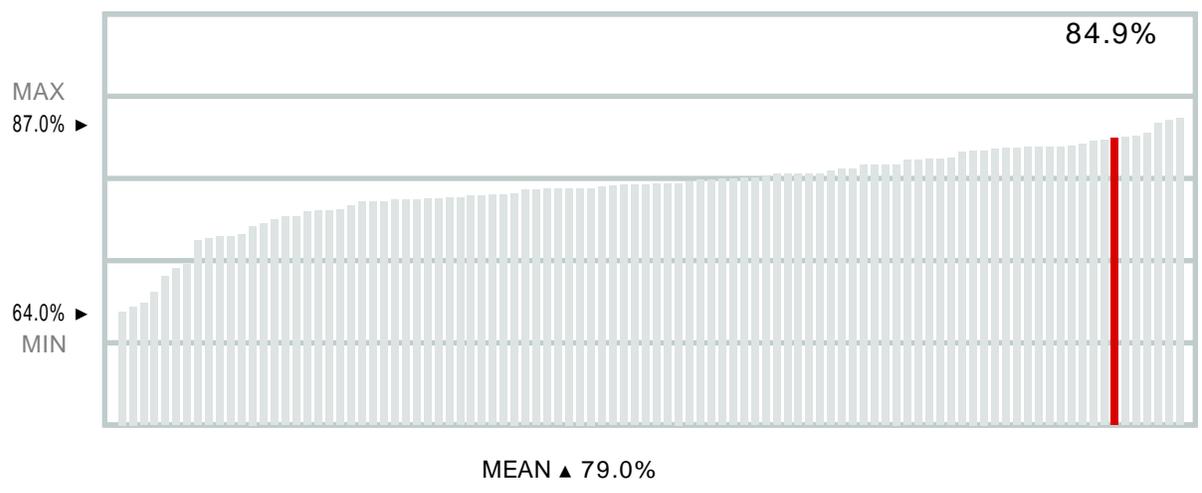


Chart 2: Completion Rates

Completion Rate: Metropolitan State University of Denver ■



Completion Time

Table 7 shows the average and median completion times for the main survey (not including any custom questions) nationally and for your institution. Because respondents were able to leave the survey and return later (possibly several hours or days later), we have excluded as an outlier any survey where we detected multiple logins as well as any surveys with a duration over 66 minutes (three times the median survey duration) from these calculations. This is a standard conservative method to estimate actual web-based survey completion time.

Table 7: Completion Times

| School | Average Completion Time (Minutes) | Median Completion Time (Minutes) |
|---|--|---|
| National Benchmark | 24.0 | 22 |
| Metropolitan State University of Denver | 25.7 | 24 |

Custom Peer Groups

If your school selected the “Custom Peer Group” column for your report, you will find a list of the schools in your Custom Peer Group in Table 8. If your school did not select a Custom Peer Group, this table will be blank. The Custom Peer Group will be labelled “Custom Peer: XXXXXX” where the “XXXXXX” will be your IPEDS number when you see it displayed in the report. If you do not recall which schools you requested to be included, this table will provide you with that information.

Table 8: Custom Peer Group Schools

n/a

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