

Collecting Data Longitudinally

To measure how student attitudes may or may not evolve over time using the AWE LAESE survey instrument it is necessary to collect longitudinal data. To do this, you must identify all students who take the annual survey, make sure that they take the survey in subsequent years, and track and compare their responses. Longitudinal data will provide insights into how students respond in the aggregate.

Longitudinal data can also be collected by identifying a cohort of students with identified characteristics (e.g. entering first year students, participants in an activity or class, etc.) and track them over time to discover trends or outcomes. For example, by tracking a cohort or set of individuals who participated in an orientation you can find out how many are retained in the curriculum over time. If you also collect data from a cohort of first year women students who did not participate, you have comparative data that can help you assess whether your activity is meeting its objectives and projected outcomes.

Why is Collecting Longitudinal Data Important?

LAESE measures self efficacy, or a student's beliefs in her or his "capabilities to organize and execute the courses of action required to produce given attainments." See AWE Self Efficacy Research Overview (www.aweonline.org) for a full discussion. Improving self efficacy can be a powerful tool in increasing student success and persistence in the engineering curriculum, particularly students who are underrepresented. Many WIE program activities explicitly or implicitly pursue this goal.

By following a cohort of first year women students who have taken the LAESE survey instrument you can identify how their responses change or not change over time. For example, there are specific LAESE subscales designed to measure specific factors based upon current literature. These factors include:

- Student efficacy in "barrier" or challenge situations.
- Student expectations about work load in college.
- Student expectation of outcomes from studying engineering.
- Student process of choosing a major.
- Student coping strategies in difficult situations.
- Influence of role models on study and career decisions.

See the AWE Instrument Table (www.aweonline.org) for more information on LAESE.

One hypothesis is that students should gain efficacy over a period of time; the flip side of this is that measurements may indicate a loss in self efficacy. Looking at the responses of students who have participated in your activities or programs can provide an indication of whether they have increased, decreased or maintained their self efficacy during that period of time as measured by LAESE. By including students who do not have participated, or by looking at participation in different activities, you can compare the achieved self efficacy and look at trends—gaining one realistic measure of the efficacy of your programming. Longitudinal LAESE results can provide an indirect indication of potential impact of curricular and extracurricular activities and become a valuable part of your assessment and evaluation activities. It can also highlight systemic problems within their larger educational environment and provide hard data for you to use to convince faculty and/or administrators of the need for change.

How Can I Track LAESE Data?

One way is by using Microsoft ACCESS. Work directly with the information technology experts at your institution to set this up.