

Mentoring and Diversity



LSAMP INDIANA

A Handbook for Faculty Mentoring
LSAMP Indiana Students
in Science, Technology, Engineering,
and Mathematics Fields



MENTORING AND DIVERSITY

A handbook for faculty mentoring LSAMP Indiana students in science, technology, engineering, and mathematics fields.

Acknowledgements

This handbook was developed by Denise M. Driscoll (Diversity Resource Specialist, Purdue University) thanks to the generous support of the National Science Foundation Louis Stokes Alliance for Minority Participation (LSAMP) Indiana grant. We would also like to thank the Office of the Vice President for Human Relations and LSAMP Indiana for providing staffing for the project. In addition, a special thanks to the following people on the Purdue campus whose comments and advice improved the handbook: Alys C. Rollock, vice president for human relations, and Pamela Shaw, statewide project director, LSAMP Indiana. Finally, we would like to acknowledge the contributions of the participants of the Diversity in Mentoring Planning Conference: Kim Nguyen (IUPUI); Beth Pellicciotti (Purdue University, Calumet); Michael Edwards, Fitri Lamm, Anthony Scott, Robert Vantine, Dan Woodside (Indiana University, Bloomington); and Nicole Gale, Chris Lynch, Mary Sadowski, and Ethel Swartzendruber (Purdue University).

Copyright 2007 by Purdue University

An equal access/equal opportunity university
Produced by Purdue Marketing Communications 4501907c

CONTENTS

Introduction	2
Purpose of the Handbook.....	2
Program Recommendations.....	3
Critical Definitions.....	3
LSAMP Indiana Students	4
What Is LSAMP Indiana?.....	4
Why Are Some Groups Underrepresented?.....	5
Mentoring	6
What Does It Mean To Mentor?.....	6
Why Mentor?.....	6
Personal Benefits of Mentoring.....	7
Why Mentor Freshmen?.....	7
Mentoring across Group Lines.....	8
Understanding Challenges and Barriers	9
Stereotypes.....	10
Feeling Isolated and Alienated.....	10
Not Feeling a Warm Climate.....	11
Setting Low Expectations and Standards.....	12
Self-fulfilling Prophecy.....	12
Stereotype Threat.....	13
Contrast and Assimilation Effects.....	13
Attribution Biases.....	14
Social Identity Development.....	14
Mentor Roles	16
Learner-Centered Model.....	17
Being a Teacher.....	18
Being an Advocate.....	18
Being an Assessor.....	20
Thank You	22
Bibliography	23



INTRODUCTION

This handbook is for faculty in science, technology, engineering, and mathematics (STEM) fields who have agreed to mentor a Louis Stokes Alliance for Minority Participation (LSAMP) Indiana student. There are numerous handbooks and books on mentoring, but relatively few that devote time and attention to how diversity issues are relevant to mentoring. This handbook focuses on mentoring and diversity and is designed to accompany a workshop that expands on the topics presented; however, this handbook alone will benefit both the mentor and the student.

Purpose of the Handbook

The purpose of the handbook is to assist faculty in preparing to mentor an LSAMP student. Even someone having experience with diversity

— living in various countries or belonging to an ethnic or racial group that is a numerical minority here in the United States — may find it helpful to contextualize diversity in mentoring. For example, how does diversity affect the particular relationship between my LSAMP student and me? And what are some diversity issues that I should be aware of because of their impact upon my LSAMP student?

By reading this handbook and then attending a diversity and mentoring workshop, faculty will have explicitly thought about diversity in mentoring issues and spent time building a mentoring relationship with their LSAMP student. This preparation will help the mentor and student benefit from a more enjoyable, productive mentoring experience.



ATTENDING A WORKSHOP

At a mentoring and diversity workshop, you receive information and resources to help facilitate your mentoring. Web site addresses, contact information, and pamphlets help you advise and support your LSAMP student if he or she has a question about any student support services, clubs, academic services, or career-related activities. In addition, workshops provide an opportunity for you to explore topics presented in this handbook in more depth, as well as to complete exercises and activities that personalize the material presented. And, more importantly, the workshop provides time for you to begin building a relationship with your LSAMP student.

Program Recommendations

We suggest that faculty mentors follow these general recommendations:

- Meet with your LSAMP student at least once every two weeks.
- Attend a mentoring and diversity workshop with your LSAMP student as early as you can in the relationship.
- Complete and discuss short assessments of your mentoring relationship on a routine basis.

Critical Definitions

To ensure that the terms consistently used in this handbook are understood, “diversity” and “underrepresented” are defined. In Purdue University’s Barriers to Bridges report (1997), **diversity** was defined as:

Inclusiveness, wherein all members have equal opportunity to develop full human potential in an environment in which respect, mutual regard for differences, full participation, and partnership are the norm. Differences may include the full range of human variety including race, gender, age, sexual orientation, religion, physical capability, or other characteristics.

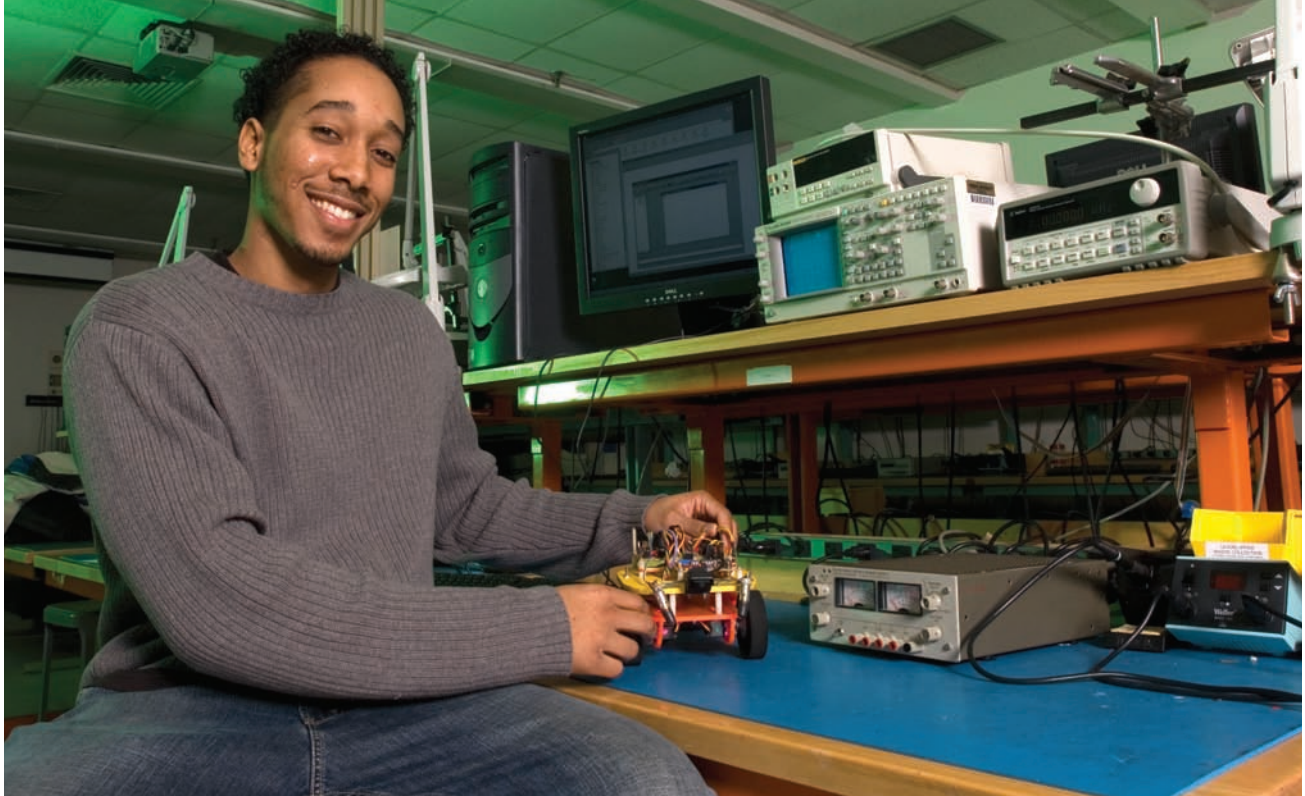
For the purposes of this handbook, **underrepresented students** are students from groups that have not traditionally majored in science, technology, engineering, and mathematics fields in U.S. institutes of higher learning in numbers that reflect their general population in the United States. Examples include the following:

- Students who self-identify as African American or Black, Asian American, American Indian or Alaskan Native, Latino or Hispanic American, or Native Hawaiian or other Pacific Islander
- Students who are female
- Students from lower socioeconomic backgrounds
- Students who represent the first generation of their families to attend college
- Students who have disabilities

Although this is a partial list, it will help you understand later sections that deal with the unique challenges faced by underrepresented students.

For an example of what underrepresented means in terms of percentages in STEM fields, as described in the Building Engineering and Science Talent (BEST) Web site (www.bestworkforce.org), “Currently, women, African-Americans, Hispanics, Native Americans, and persons with disabilities comprise two-thirds the overall workforce but hold only about one-fourth of the technical jobs that drive innovation.”

For additional definitions of words related to diversity you can access an online dictionary (www.yourdictionary.com/ahd/search) and type in your own word.



LSAMP INDIANA STUDENTS

What is LSAMP Indiana?

LSAMP Indiana is an alliance of eight university campuses in Indiana (Ball State University; Indiana State University; Indiana University, Bloomington; Indiana University Northwest; Indiana University-Purdue University Indianapolis [IUPUI]; Purdue University Calumet; Purdue University North Central; and Purdue University, West Lafayette) that, with the help of a five-year grant from the National Science Foundation, have set up programs to improve the retention and graduation of students in science, technology, engineering, and mathematics (STEM) fields. The goal of LSAMP Indiana is to improve the number of degrees awarded to ethnic minority students currently underrepresented in STEM fields.

In addition to considering the impact of ethnicity on mentoring, there are other group identities that could impact a mentoring relationship. Consider for example the many ways that your LSAMP student may be similar or different from you on other aspects of his or her group identities:

- **Gender.** Your LSAMP student may be of the same or different gender, or identify with neither or both genders.
- **Age.** Your LSAMP student may be similar or different in age.
- **Sexual Orientation.** Your LSAMP student may be heterosexual, homosexual, bisexual, asexual, or transgendered.
- **Religious Affiliation.** LSAMP students may have a denomination to which they belong, be religious with no denomination preferred, or be atheistic or agnostic.

- **Educational Level.** Although there may be some LSAMP students with advanced degrees in other fields or disciplines, it is likely that your LSAMP student has just recently graduated from high school.
- **Generation in College.** LSAMP students may have parents who graduated from college or they may be the first in their family to attend college.
- **Physical capabilities.** Your LSAMP student may or may not have a disability. Keep in mind that many disabilities are hidden, so you may not even know unless the student chooses to share such information with you.

These are only a few of the many group identities that may be important to consider in mentoring your LSAMP student. Realize, too, that it is easy to presume or make incorrect assumptions about your LSAMP student's group identities (i.e. the student is Latino or a first-generation college student). Instead, let the mentoring relationship develop in such a way that your LSAMP student freely chooses to let you know some of his or her important group identities.



NEVER TOO BUSY

Too often, mentoring is thought as one more thing to do. With schedules already under siege, how can a busy faculty member find the time to mentor another student? Think about the small ways that you can help engage your LSAMP student. Keep in mind that your primary goal is to get the student to identify with the discipline. Mentoring can be accomplished through short, productive meetings or even what Nakagawa called "mentoring on the run" — spending 10 minutes telling the student about an interesting talk he or she should attend or a newsworthy breakthrough in your field. If it is a particularly busy time for both of you, determine smaller, more realistic hurdles to achieve. Leave the moderate-to-large hurdles for weeks when you have more time. Be inventive in finding new ways and means to mentor a student who is still very young in the field!

Why Are Some Groups Underrepresented?

The reasons that contribute to underrepresentation are briefly overviewed as follows:

- **Historical.** There were laws and other barriers in place in institutions of higher learning to keep out many of the groups currently underrepresented in STEM fields. It takes a long time to reverse such trends.
- **Societal.** There remain societal beliefs that some groups are better suited than others to contribute to academic fields, particularly the "hard sciences" and professional degrees such as engineering. It takes a long time for such beliefs to change.
- **Internalized Societal Beliefs.** Negative societal beliefs are sometimes internalized by group members. This makes it more likely that such group members will choose other career options or, even if they decide upon a STEM field, be less likely to persist and attain a degree.
- **Isolation.** Being a "solo" (the only person with your group identity) in a STEM field leaves an individual susceptible to a host of negative outcomes discussed later in the handbook. Without support, talented underrepresented group members may choose other fields or career paths.

Given the barriers and negative experiences sometimes faced by underrepresented students, mentoring takes on increased importance in helping these students to develop a sense of belonging in their chosen STEM field.



MENTORING

What Does it Mean to Mentor?

According to the MSN *Encarta* dictionary (<http://encarta.msn.com/dictionary.html>), the formal definition of a “mentor” is:

“An experienced advisor and supporter: somebody, usually older and more experienced, who provides advice and support to, and watches over and fosters the progress of, a younger, less experienced person.”

In Homer’s *Odyssey*, Mentor is whom Odysseus left in charge of the household while he was in Troy and who was the teacher and protector of Telemachus, Odysseus’ son.

Other word associates: advisor, counselor, guide, tutor, teacher, guru, merchant of hope...

Why Mentor?

The Mentor’s Guide by Lois Zachary (2000) describes one analogy for mentoring that helps make its value clear. When trees start growing again in a forest where there were trees before, the roots of the trees that went before help to strengthen the roots of the trees now growing. The trees now growing end up having stronger and deeper roots, and consequently, these trees are more able to help younger trees growing nearby because their strong, extensive root system helps the root system of these younger trees to grow strong.

Similarly, faculty (who were once students) are well-equipped to mentor the current students who are trying to grow strong, deep roots in their respective disciplines. Research bears out

the positive effect that faculty mentoring has on students. For example:

- Faculty mentoring enhances a student's commitment to higher education (impacting academic commitment).
- Faculty mentoring increases a student's sense of belonging in and ownership of his or her discipline and the university (impacting social commitment).
- Faculty mentoring particularly helps an underrepresented student adjust to, succeed in, and persist through college (impacting retention and graduation rates).

Personal Benefits of Mentoring

As with anything in life, there are costs and benefits to mentoring. In talking to mentors, most feel the benefits far outweigh the costs. The benefits that are typically mentioned are as follows:

- Pride and pleasure when the student does well, even years later
- A fresh, novel perspective on ongoing research — methods, reactions, and ideas that lead you to reframe your experiment or research direction
- Personal satisfaction and pleasure gained when forging a close, one-on-one mentoring relationship with an undergraduate student
- The opportunity to write a grant supplement for an undergraduate research project (i.e., NSF, NIHM sponsor), thereby getting additional support for your research

Why Mentor Freshmen?

Your initial reaction to being asked to mentor a freshman might have been, “Call me in two or three years, and I’ll say yes then.” And the response would be, “If the student is still here to say yes to!” That is the crux of the problem.

Students from underrepresented groups face many of the same barriers as other students. Often though, the isolation, alienation, and lack of support they feel as the “other” in institutions of higher education exacerbates these stressors and makes them more vulnerable to dropping out of college. What can help?

Early interventions are the key. To prevent students from leaving, Tinto (1993) pinpoints frequent interactions with faculty as particularly critical for getting students to persist in college: “Frequent and rewarding informal contact with faculty members is the single strongest predictor of whether or not a student will voluntarily withdraw from a college” (57). Keep in mind, however, that the type of contact makes the difference.

“This is especially true when that contact extends beyond the formal boundaries of the classroom to the various informal settings which characterize social life. Those encounters which go beyond the mere formalities of academic work to broader intellectual and social issues and which are seen by students as warm and rewarding appear to be strongly associated with continued persistence” (57).

Early interventions with programs such as LSAMP Indiana mentoring programs are designed to give LSAMP students casual contact with faculty in their field.

In addition, and in part because they are freshmen, it is unclear whether the students participating in LSAMP Indiana will be the “cream of the crop” in the university. LSAMP Indiana’s philosophy is that early interventions with freshmen might dramatically change who becomes the “cream of the crop.” In other words, giving an LSAMP student a chance as a freshman to connect with faculty in STEM fields might provide the impetus and spark that turns a mediocre or B student into an outstanding student. After all, at age 16, Albert Einstein failed an entrance examination that would have let him study electrical engineering at the Eidgenössische Technische Hochschule in Zurich, Switzerland. Who knows what Einstein could have achieved in that field if he would have had a good mentor?

So, what do our LSAMP Indiana mentors and students have to say about the experience?

“Mentoring Latonia has given me the opportunity to work long term with a student. Our interactions not only centered on discussions about her research project, but included academic advising and some tutoring. I have had the pleasure of watching Latonia develop from a shy, hesitant freshman to a mature, confident senior. Such opportunities are rare on our urban campus. I feel fortunate to be a part of this mentoring program.”

— Dr. Eugenia Fernandez

“I have gained confidence in oral presentations and work on my project gave me a better understanding of computer programming. The encouragement and support from my mentor over the past four years has definitely helped me achieve my goals.”

— Latonia Stovall

Mentoring Across Group Lines

Faculty might be hesitant to mentor a student from a different ethnic, gender, age, or other social group background, worrying that they will not be able to provide what a “better-matched” mentor could do in terms of connecting with the student. However, even if you match your LSAMP student on an important group membership, such as ethnicity, there will be other groups where you are unmatched, such as gender or religious affiliation. Consequently, mentoring involves, at some level, learning to reach out and connect with someone else across group lines. Even if you can’t relate very well to your LSAMP student’s experience of being from a particular underrepresented group, you can still convey a lot of support, experience from other group memberships, and expertise in your field.

By reading this handbook, you may become more conscious of biases and/or expectations you have that are based on stereotypes. With increased awareness of biases and/or expectations comes better control over these biases. In the following section of the handbook, we will raise awareness about various ways that biases help maintain our beliefs about individuals from various groups and ways to combat such biases to improve your mentoring skills.

If during the course of your mentoring you have a diversity-related question or concern, please do not hesitate to call and discuss the matter with staff from your university’s diversity or multicultural office. You may also contact your University campus LSAMP Indiana director or coordinator.



UNDERSTANDING CHALLENGES AND BARRIERS

Before discussing mentor roles, you should understand the challenges and barriers experienced by underrepresented students. What follows in this section are some ways that bias, often unintentionally and without our explicit awareness, can creep into our interactions with people from a different group and set up barriers to their success. These brief sections on different biases are drawn from the experimental social cognition literature on stereotyping, and accompanying examples are drawn from concerns, worries, and problems that are commonly experienced by students from underrepresented groups at universities.

As you read about these biases and the consequences for underrepresented students, remember that not all students have the same experiences, so do not assume that they will necessarily occur with your particular LSAMP student. Instead, simply keep in mind that these instances are commonly experienced by students from underrepresented backgrounds, and with these examples in mind you can be vigilant in noticing when there might be added stress or problems arising from such biases. You can plan ahead for times when mentoring your LSAMP student will mean providing some extra support and reassurance.

Stereotypes

Mentors should be aware that if an LSAMP student belongs to a group that is negatively stereotyped, the student might have acquired coping skills for protection from the everyday negative outcomes of being subjected to “isms” (sexism, racism, etc.). Worry about being negatively stereotyped can cause a student to exercise increased vigilance in his or her environment for cues to prepare for prejudicial attacks or avoid situations where he or she might be at risk for such attacks.

A simple story might help bring the point alive that there are very real and hurtful “micro” and “macro” insults that students from underrepresented backgrounds experience on college campuses, often on a daily basis. These insults shape the students’ lenses for viewing the world. It isn’t surprising, therefore, to have students of color, female students, students from low socioeconomic backgrounds, and students with disabilities reacting to events in ways that white students, male students, middle-class students, and students without disabilities usually do not react. For example, talking about an African American student as “competent” or “articulate” might anger the student — what may have been intended as a compliment is perceived instead as an implication that most members of that student’s group are neither competent nor articulate, making it necessary to make special note of the qualities in this particular student. In contrast, white students might believe that calling someone “competent” or “articulate” is a sincere compliment. It might confuse white students as to why the comment upsets African American students, and it might make white students feel that it is hard to say anything. In contrast, it might upset African American students further that white students don’t even “get it.” This example demonstrates the difficulties of interaction across diverse groups.



TREADING LIGHTLY

In a workshop titled *Intercultural Communication: The Dreaded Diversity Discussion* in honor of Purdue’s Martin Luther King, Jr. Observance (January 2004), Peter Fredericks said: “If it is tough walking on eggshells, think of what it feels like to be the egg!”

What you can do:

Build a relationship with your LSAMP student that permits him or her to feel safe, encouraged, valued, and comfortable with you. This can go a long way toward diffusing feelings of being at risk.

Feeling Isolated and Alienated

Related to the above, one unavoidable cost of being from an underrepresented group at a predominantly white institution is that a student must cope with being a “solo” — such as being the only or nearly the only African American or female in a class. There are a number of negative consequences of being the only person from a social identity group, such as:

- Being perceived in a more extreme manner. For example, if a student performs well, it is seen as outstanding, whereas if a student performs poorly, it is seen as awful.
- Having reduced memory for a conversation. Distraction and worry about one’s own group membership directs cognitive resources away from the actual content of the conversation. Remembering less of a conversation can be detrimental to the student’s performance and reinforce existing negative stereotypes.

- Being a group's sole representative. Individuals who are white or have no observable physical disabilities can say things without fear of implicating their group (that is, they can give an incorrect answer to a question in class without fear of it reflecting on their group). In contrast, there is pressure when a student is from an observable underrepresented group to always perform well for the sake of the group.
- Drawing attention to what an LSAMP student says and does might be of inordinate interest to peers as they try to figure the student out, which can be tiring for the person who is the "solo".

What you can do:

Remember that being a "solo" can take a toll and magnify any problems that your LSAMP student is experiencing. Sometimes it is helpful for students to be exposed to the worries and problems that other students are having as well, or for them to be able to talk about their worries to an understanding and supportive mentor. Be ready to reassure your LSAMP student that such worries are experienced by many students. If a worry escalates to a point where it causes you to be concerned about the student's welfare and ability to cope, ask if the student would like to talk to someone better able to help him or her with a particular problem than you. Be prepared to recommend staff, typically in the counseling area or the Dean of Students Office, who could help the student further.

Don't use your LSAMP student to educate you about their group, that is, by asking questions such as "What do ___ people think about...?". Take it upon yourself to become more knowledgeable and informed.

Not Feeling a Warm Climate

In addition to stereotypes affecting students from underrepresented groups and creating a cold climate, academia is often an alienating place for cultures that are less competitive and more collective. Students from many cultures value a more collaborative, cooperative, supportive, group-oriented environment as opposed to what is often found in academic departments — a more hierarchical, competitive, sink-or-swim, individualistic environment. It is also not a climate that has, traditionally, been very welcoming of work-life balance, and therefore it can be particularly alienating for those students with children or other family obligations.

What you can do:

Convey your acceptance of a more supportive, collaborative style. Be responsive to your LSAMP student if more encouragement and support are needed.

Demonstrate in various ways that you appreciate the difficulties inherent in balancing work-life issues. If you have children or care for an elderly parent, have hobbies that are time-consuming, or have other community obligations that you are willing to talk about with your LSAMP student, please do so. It sets an example that even busy faculty members can have a life outside of work.



"You cannot shake hands with a clenched fist."

— Indira Gandhi (in Partnow, 210)

Setting Low Expectations and Standards

There is evidence suggesting that because of stereotypes that are often unconsciously held, a mentor might withhold support and help until the mentee proves worthy of an investment of a mentor's time and effort. Instead of automatically giving the student from an underrepresented group the benefit of the doubt (as a mentor might a student from the majority group), the mentor might sit back and wait for signs that the student is going to be a worthwhile investment. Conversely, the student from the underrepresented group might be sitting back as well, waiting for the mentor to demonstrate his or her personal commitment and trustworthiness. Ironically, then, if neither party breaks the standoff, then both parties lose and the mentoring relationship never develops.

What you can do:

Make sure that you are not perceived as withholding your support and help. Do what you can to build the student's trust and confidence in you. And even if you feel your LSAMP student is remaining distant or holding back, keep your hand open and extended toward them. Sometimes it is only when the student hits a crisis or makes a certain life decision (such as deciding he or she really will stay at Purdue to major in your discipline) that the student will dare to reach out a hand and trust in you to be his or her mentor.

Self-fulfilling Prophecy

"I would not have seen it if I had not believed it" is an expression that has been used to describe a self-fulfilling prophecy. Research has shown that expectations have the power to increase the likelihood of a person actually confirming your

expectations of him or her. That is, you help to bring out the very behavior you are expecting to occur.

How is this relevant to interacting with an LSAMP student? Many stereotypes for students from underrepresented backgrounds center around expectations of poor performance — for example, Latino students are not as smart or as hardworking as white students, or women will quit working when they get married. A faculty mentor who holds such beliefs is likely to unconsciously set low expectations for the mentee. Such low expectations are often indirectly conveyed to the student and can adversely impact the student's actual performance. If you have ever been around another individual whom you feel doesn't think highly of you, their expectations of you can affect your behavior. Studies on student grades, for example, have shown meaningful differences (that is, going from a B+ to a C) when the teacher had a negative expectation for the student's performance. Often, too, low expectations are expressed via negative nonverbal expressions, such as looking uninterested or impatient.

Although a large part of your perception of another person might be accurate, there is still a lot of room for bias to affect the student. Low expectations can interfere with your LSAMP student's achievement toward his or her real potential.

What you can do:

Examine and make explicit to yourself those beliefs that you still hold about groups that are relevant to your LSAMP student. Research has shown that it is possible to correct for bias if you are made aware of it. Therefore, keep vigilant and correct any biased attitudes you might notice creeping in.

Stereotype Threat

A student's fear of confirming a negative stereotype about his or her group (i.e. giving an incorrect answer when there is a stereotype that the student's group is unintelligent) makes it more likely the student will fulfill the negative stereotype. Stereotype threat particularly plagues students who care about the domain (that is, math majors taking a mathematics test). For example, Steele and Aronson (1995) had African American and white students taking part of the GRE. African American students who were told it was a "test of intelligence" performed worse than white students told the same thing, whereas African American students taking the same test portrayed as a "test used to study how certain problems are generally solved" performed the same as white students told the same thing. Similar studies have shown that women's performance in mathematics suffers if they are left susceptible to stereotype threat.

What you can do:

In light of this literature on stereotype threat, mentors need to be particularly careful that they don't promote feelings of stereotype threat when in conversation with an LSAMP student. Research has shown that mentors who convey high expectations and a strong belief in their mentees' competency and ability to succeed can then more easily critically appraise their mentees — that is, point out where they need to improve their performance. This approach allows students to realize that you are their advocate, even while you necessarily have to be their appraiser. It permits students to stop worrying about you ascribing a negative stereotype to them and frees them up to accept your criticism in the spirit of trust and good faith that you want what is best for them and believe in their ability to succeed.

Here's an example of an appraisal statement: "We need to have you improve on a few of your skills so that you can reach your goals for the semester. I know this won't be a problem for you."

Contrast and Assimilation Effects

To understand this bias, think about what happens when you put your hand into a cup of hot water for a few seconds, and then take it out and put it into a cup of lukewarm water. The lukewarm water ends up feeling excruciatingly cold. This example illustrates a contrast effect, which is what happens when we use a group stereotype as the point of comparison to judge an individual member of that group.

For example, a student from an underrepresented group who turns in a wonderfully written report might have that report judged as even better than it really is because the faculty member is unconsciously comparing the student's above-average performance to his or her negative stereotype about the group's writing ability. Conversely, a somewhat poorly written report might be judged as even worse than it really is because it is being assimilated to the negative stereotype of the group.

What you can do:

Research on contrast and assimilation in judgments shows that you can correct such bias. Awareness of such influences on your judgment can lead you to review your decision process and build in checks to prevent bias from creeping into the process.

Further, make sure that your judgments of your LSAMP student are in comparison to his or her peers (i.e. other freshmen in technology) rather than only others in a particular group (i.e. other women in technology or other ethnic minorities in technology).

Attribution Biases

Past research has highlighted that individuals explain ambiguous behaviors differently depending upon whether they are performed by ingroup (those we describe as “similar” or “like me”) or outgroup (those we describe as “dissimilar” or “not like me”) members. One recurrent finding is that participants consistently favor the ingroup in how they explain behaviors. We are willing to give ingroup members the benefit of the doubt with negative behaviors (i.e., they must have failed because they didn’t study enough) and we are more willing to give them the personal benefits of positive behaviors (i.e., they must be smart because they got an A). In contrast, we are less willing to give outgroup members the personal benefits of positive behaviors (i.e. perhaps they got an A because it was an easy test), and we are more willing to ascribe the negative behaviors to something about them, personally (i.e. they failed because they aren’t that smart).

What you can do:

Try to think about giving your LSAMP student the kind of consideration that you would want for yourself or a close friend when making explanations for behaviors. If you missed a meeting, would you prefer that someone give you the benefit of the doubt and decide you were merely forgetful that day or decide that you are irresponsible?

If you need to have a discussion about some negative event or behavior on your student’s part, ask questions so that there is little or no ambiguity as to why the behavior occurred. Before you ask the question, though, be prepared to listen — at length even — to his or her explanation of how and why something occurred. That way, the student’s perception of the event or behavior has been heard and there is little room for any stereotypic assumptions to creep into your judgment of the student.



MEMBERSHIP IN MORE THAN ONE GROUP

There is a story told about a black man running for president of the United States and being asked by a reporter where his allegiance lay — whether with his ethnic group or his country. The reporter couldn’t understand that the question made no sense to the man, as he was both black and an American, and it wasn’t a matter of one of his identifications negating or subsuming the other. Try to keep your impressions of others complex!

Social Identity Development

An understanding of your own identities, as well as the diverse identities of others, can be helpful in understanding various viewpoints raised when issues of stigma, prejudice, and discrimination occur. In addition, it can lead to better understanding when there are differences in communication style (verbal and nonverbal), dress style, learning style, cognitive style, and so on. Also when considering race, ethnicity, nationality, age, socioeconomic status, religion, body type, sexual orientation, and so on, are you part of the dominant, empowered group, or the disempowered group? Do you have an understanding of being disempowered from thinking about your own social identities?

Conflict can emerge when individuals are at different stages of their individual or group identity development. For example, undergraduate students belonging to underrepresented groups might be going through stages in their social identity development such that certain underrepresented groups they belong to take on a special significance. These students may feel that no one from the dominant group can ever understand what they are like or their past, present, or future experiences.



What you can do:

In trying to figure out how best to mentor a student, a common mistake is to think from your own social identities and your own educational experiences (to treat the mentee as a clone of yourself).

Alternatively, you might make assumptions about the mentee on the basis of what you think you know about the group(s) to which the mentee belongs (i.e. the student must be bilingual since he or she is Latino). To help avoid these assumptions, get to know your LSAMP student, perhaps by attending a mentoring workshop or work-related conference. This familiarity will help you form a more complex and accurate picture of the student's life and educational experiences.

When students are grappling with their own group identity, they might display distancing behaviors. It may be more challenging to forge a connection with these students. You can help this situation by showing patience and persistence and letting the student know that you care.



**“When the teacher is ready,
the student will appear.
When the student is ready,
the teacher will appear.”**

— Anonymous



MENTOR ROLES

As you mentor, you will assume several different critical roles. Throughout the process, it is important to keep close at hand your understanding of the challenges and barriers that might be faced by your LSAMP student.

A large part of being a mentor is encouraging students to identify with their chosen field, explore how they fit into the field, and develop a concept of themselves as an expert in their chosen field. Before this academic identification can move forward, research suggests that students need to socially identify with their university. Tinto (1993) points out three ways faculty are critical, particularly for freshman students: (1) contact with faculty outside the classroom; (2) helpfulness of faculty; and (3) the concern they show for students (135).

A mentor who exemplifies these three criteria helps students reflect on learning experiences in their chosen disciplines through honest, safe, and caring discussions. A good mentor asks, “Who is this student? How can I facilitate him or her becoming a colleague?” The informal knowledge acquired about a field allows students to fit their talents, their interests, and what they are learning into a bigger picture. This motivates and improves the students’ understanding of their classes. Here are three overlapping roles a mentor ideally plays in his or her LSAMP student’s life.

Teacher. Your goal as a mentor-teacher is to improve the research proficiency of your LSAMP student, as well as the student's overall professional development within the field. To fulfill this role, you need to be:

- a knowledgeable person with experience in the field; and
- a person who will take the time to talk about his or her field and what it takes and means to be working in the field.

Advocate. Your goal as a mentor-advocate is to improve the self-confidence, social network, and sense of community of your LSAMP student within his or her department or school, university, and chosen STEM field. To fulfill this role, you need to be:

- a supportive person who cares about your student's best interest;
- a person who will help the LSAMP student to meet others in the field; and
- a person who is knowledgeable about the resources at your university.

Assessor. Your goal as a mentor-assessor is to be analytical and gently critical of your LSAMP student in order to encourage the student to reach for your high — yet accurate and attainable — expectations for performance. To fulfill this role, you need to be:

- a person who can give constructive feedback; and
- a person who takes the time to guide the student to improve his or her professional skills.

Not all mentors will have the capabilities and/or comfort levels to excel at all three of these mentor roles. For example, some mentors are much better at being advocates and less able to be assessors. Likewise, mentees will have different needs and

comfort levels with you taking on a given role. For example, some mentees might only accept a mentor as a teacher and have more difficulty with him or her playing the role of advocate or assessor. Each mentor-mentee relationship will evolve a bit differently, but each mentor should strive to fulfill at least some aspects of the three roles as the roles mirror what research has shown to be most effective in predicting student success.

Learner-Centered Model

Although it is primarily the mentor who teaches, advocates, and assesses, as many mentors will attest, there is also opportunity for the mentors to learn from the mentees. This learner-centered mentoring model views mentoring as less hierarchical and more collaborative — a give-and-take relationship where both parties win.

For example, imagine a faculty member explaining his or her research to the student mentee, which typically involves providing more information than would typically be required in discussions with colleagues. Out of this conversation, the faculty member might gain a new insight or identify new avenues for further research — even if it was serendipitous — that will benefit both the faculty member and the student engaged in the research. The faculty member gets a new perspective on the research, and the student feels involved and valued in the process.

Most good mentors are individuals who are relentlessly giving of themselves — their time, their experiences, their intellectual property, and their life energy.

Taking a personal interest in your LSAMP student will enable him or her to feel encouraged and connected to you and his or her chosen field. Try to connect with your LSAMP student in terms of the three roles, consider the associated tips, and come up with some tips of your own.

Being a Teacher

Many faculty are so immersed in university life that it no longer seems mystifying how everything works. For some, it can be difficult to remember that some words are only used in the context of university life — T.A., R.A., S.I. — and such words might not have any clear meaning to undergraduate students, especially those who represent the first generation of their families to attend college.

When advising a student who was part of a summer program, a faculty member once invited the student to attend a lab meeting with a large group of graduate students. The graduate students began a discussion about various graduate programs in the U.S., and the undergraduate student looked a little lost. Afterward, she was asked if she had any questions. Looking a little embarrassed, she admitted that she wasn't quite sure what the difference was between master's and doctoral programs. Some information that faculty members take for granted can be uncharted and confusing territory for students. Sometimes the meaning of a conversation can be lost to students who haven't been exposed to higher education lingo. What a relief it must be, then, to have a mentor to ask those basic but critical questions!

Bringing Clarity

- Bring clarity to university programs, processes, and procedures. Try to think about things that your LSAMP student might not even know to ask.
- Make sure your LSAMP student understands the terminology being used in your laboratory, or at least knows and feels comfortable asking you.

- Clarify expectations that the discipline has for undergraduates — especially by talking about experiences, internships, or jobs that other undergraduates or graduate students have in the field.
- Clarify your expectations for the research part of the relationship. What do you expect in terms of the time your LSAMP student should spend on the research in the laboratory? Outside the laboratory?
- Think about the way diversity is relevant in your field. Increasingly, students are being asked to think competently about diversity as it relates to their field, whether it be thinking about acquiring global competence and/or working across disciplines within a field. Communicate information on this topic to all your research students.
- Link up with a faculty member from the library with expertise in your field to help increase the access of your LSAMP student to resources.
- Talk to your LSAMP student about the qualities you think help make an undergraduate successful in your field. Talk to the student about how someone succeeds as a graduate student or as a professional in your field.
- Ask whether the student is thinking about graduate school. Let the student know that you'd be happy to talk with him or her about preparing for it now.

Being an Advocate

There are countless ways to be an advocate for your LSAMP student. Four recommended ways to provide advocacy are: (1) forming multiple mentor groups; (2) providing career sponsorship; (3) creating a safe, valued place; and (4) knowing your campus well enough to help your student find resources.

Forming Multiple Mentor Groups

One of the best ways to serve as an advocate for your LSAMP student is to help him or her meet individuals from the field — other faculty, graduate students, post-docs, laboratory technicians, administrators, and individuals already working in the student’s chosen field. These individuals can help provide mentoring, even in on-the-run ways. Group mentors, mentoring circles, and mentoring nets all offer opportunities for a student to have more than a single mentor. Research shows having multiple mentors is advantageous. In multiple mentoring groups, it is more likely, too, that underrepresented students will find other individuals from their same race, ethnicity, gender, or other group to help them negotiate the challenges and isolation experienced as underrepresented group members.

Providing Career Sponsorship

As part of your advocacy role, you can find ways to sponsor your LSAMP student in a number of career-building activities.

- Encourage your student to identify with his or her field by attending a professional conference. Find a conference nearby and support your student at the conference by introducing him or her to faculty and helping him or her affiliate with other undergraduates or graduate students at the conference. Poster sessions are a good place for your mentee to engage in casual conversation.
- Invite your LSAMP student to departmental talks and colloquiums. Forwarding an e-mail about the event is easy enough, and it might provide the incentive the student needs to engage more in the field. Encourage your LSAMP student to attend general research meetings with your graduate students.

- Be sure you let students know that a lot of what they’ll hear will sound like gibberish initially because they are new to the field. Over the course of the semester, more and more of what the students hear will begin making sense. Exposure to the field’s specific language, jokes, and climate of doing research will let LSAMP students have access to more of what it means to be in the field and help them grow in their understanding of the subject.
- Have a conversation about the different things the student should know about in order to be competitive, such as internship opportunities.

Creating a Safe, Valued Place

Undergraduates don’t always feel valued by faculty. Aside from the obvious ways and means — holding regular meetings, practicing active listening techniques, and assigning important tasks as well as the necessary mundane tasks — there are many ways to make your LSAMP student feel more valued.

- There might be times when you are busy, and even if your intentions are to be the best mentor in the world, you may, verbally and non-verbally, communicate only your impatience to your LSAMP student. When you feel this happening, explain what is going on so that your LSAMP student won’t end up making assumptions about you (for instance, “He doesn’t care about me,” or, “She is always too busy.”). Also, in the same conversation, set a specific date, time, and place for meeting that will allow you to devote your attention to the student.
- There also might be times when you are so busy juggling the various graduate, faculty colleague, and undergraduate research projects that you somewhat lose track of your LSAMP

student's project and what was discussed the last time you met. To solve this problem, use meeting notes to help update and remind you of progress on the project. Make the student responsible for updating you before each meeting by e-mailing any notes from the last meeting.

- Recruit other faculty to mentor or simply be facilitators (help informally pair students with faculty mentors) and thereby create a supportive mentoring climate throughout your department.

Knowing Your Campus

There might be times when your LSAMP student has trouble in his or her life or academics, or what have been called “diversity moments” (such as a cold climate in the community or repeated micro-insults). Your student may also be experiencing psychological problems that would be better handled by a professional. Make yourself aware of the resources available on your campus so you can appropriately intervene with the right kind of professional help.

- Early on in your interaction with your LSAMP student, have a discussion about boundaries (i.e. topics that are more personal and topics you don't have much experience with). Then if you become aware that the student is struggling with problems that require an expert, you can remind the student of that boundaries discussion. Sometimes the best way you can be supportive is to have him or her talk to someone with expertise.
- If you see relevant undergraduate program, fellowship, research, or grant opportunity information at your campus, pass it along to your LSAMP student. If you can make the time, help him or her complete the application or offer to write a recommendation letter.

- If you don't know the answer to a student's question, try to find out and e-mail or give him or her the name of someone on campus who might know.
- Be aware of the different offices and services that support students (such as diversity and multicultural offices).
- Know the contact information for resources at your university and within your school.

Being an Assessor

When providing assessment information to your LSAMP student, keep in mind the previous section on challenges and barriers. Plan the discussion you want to have with your student, and make sure to take into account the following principles:

- It is sometimes difficult to offer criticism and be encouraging and supportive at the same time. Constructive — but gently dispersed — criticism helps individuals make progress in their field.
- Do not rely on assumptions about your LSAMP student that might be linked to stereotypes. Remember, we often don't intend to stereotype, but the stereotypes might already be activated, making it more likely that we come up with a biased interpretation or judgment. For example, if a student is not making the progress that you expect, instead of assuming that the student is not really dedicated or hardworking (a common stereotype ascribed to many minority ethnic groups), be direct in conveying that you have higher expectations for his or her performance. Then try to understand what might be the real reason for the student's lack of progress — for example, family demands, work outside the university, or failure to understand what to do but being hesitant to let you know he or she doesn't understand.

- Do not avoid criticism because you are uncomfortable with conveying it to your LSAMP student. Accepting criticism is a part of learning to grow as a student in any field. Be sure to have established the relationship with your LSAMP student that is required for him or her to accept your criticisms as constructive (refer to the prior section on Stereotype Threat).
- When your LSAMP student has a research experience that is disappointing — as happens all too often in laboratory research when trying new research areas or techniques — try to balance it with a successful experience by providing the student with a small project that will certainly work or an opportunity to collaborate on a project that is working and close to being completed. It is common for students new to the field to become easily discouraged or to make self-attributions for failures. If a student is already worrying about his or her competency or whether he or she fits in the field, too many disappointing experiences right at the beginning could discourage the student and make it more likely that he or she will drop out or change majors.
- Keep in mind that your LSAMP student is an undergraduate and be sure to keep your expectations reasonable. If a project is difficult and your LSAMP student is feeling hesitant about talking with you about it, the student might feel set up to fail. Track your student's progress and continually check in as to how the student feels about the project, as well as what he or she is accomplishing.
- When you assess your student, think about your style of mentoring and then consider, as you get to know your student, the student's expectations about being mentored. Having a dramatically different set of styles or expectations might cause conflicts in doing

research because they affect how the research and the relationship will develop. For example, your student might want you to be more directive in your mentoring style, while you want him or her to take more of the initiative. Communicate honestly, openly, and frequently!

Do anything and everything with the conviction that your LSAMP student will persist and succeed in your field. The number one thing individuals from underrepresented groups say about mentoring experiences is how much it helped to have people believe in them, even when they faltered in their belief in themselves.



ASSESSING YOUR MENTORING RELATIONSHIP

Assess your mentoring relationship on a routine basis in order to keep making progress. Consider assessing your progress on research, in addition to your progress meeting each other's mentoring expectations. Check to see whether your university has assessment forms and procedures in place to help you assess your mentoring relationship.



THANK YOU

Indiana LSAMP thanks you for being an LSAMP mentor. We appreciate the time and energy you have spent thinking about diversity in your mentoring relationship. Throughout the process, if you have any questions or comments, please be sure to contact us at LSAMP@purdue.edu. As mentors, a part of our reward is sending LSAMP students successfully on their way, well-prepared for their field and life challenges. We want our LSAMP students to not just survive their college experience, but to thrive and go on to be productive scientists, engineers, mathematicians, and world citizens. We hope you enjoy the process of watching your LSAMP student develop into a colleague.



"The question is not how to survive, but how to thrive with passion, compassion, humor, and style."

— Maya Angelou

BIBLIOGRAPHY

- Adams, M., Bell, L. A., Griffin, P. (Eds.). (1997). *Teaching for diversity and social justice*. New York: Routledge.
- Adviser, teacher, role model, friend: on being a mentor to students in science and engineering. The National Academy of Sciences and the National Academy of Engineering and Institute of Medicine. Retrieved from <http://www.nap.edu/readingroom/books/mentor>.
- Astin, A. W. (1975). *Preventing students from dropping out*. San Francisco: Jossey-Bass.
- Astin, A. W. (1993). *What matters in college?: Four critical years revisited*. San Francisco: Jossey-Bass.
- Astin, A. W., & Austin, H. S. *Leadership reconsidered: Engaging higher education in social change*. Battle Creek, MI: W. K. Kellogg Foundation.
- Blaine, B. E. (2000). *The psychology of diversity: Perceiving and experiencing social difference*. Mountain View, CA: Mayfield Publishing Company.
- Boreen, J., Johnson, M. K., Niday, D., & Potts, J. (2000). *Mentoring beginning teachers: Guiding, reflecting, coaching*. York, Maine: Stenhouse Publishers.
- Bowen, W. G., & Bok, D. (1998). *The shape of the river: Long-term consequences of considering race in college and university admissions*. Princeton, NJ: Princeton University Press.
- An essay by the committee on policy for racial justice. (1993). *The inclusive university: A new environment for higher education*. Washington, DC: Joint Center for Political and Economic Studies, Inc.
- Faculty mentoring resource booklet, 2002-03 Edition. *Mentoring as the "giving and receiving of wisdom" among faculty and students*. Compiled by participants of faculty mentor training project, fall semester, 2002. Retrieved from <http://www.csun.edu/eop/htdocs/fmp.html>.
- Frederick, P. (2004). *Intercultural communication: The dreaded diversity discussion*. West Lafayette, IN.
- Garcia, M., Hudgins, C. A., McTighe, Musil, C., Nettles, M. T., Sedlacek, W. E., & Smith, D. G. (2001). *Assessing campus diversity initiatives: A guide for campus practitioners*. Washington, DC: Association of American Colleges and Universities.
- Goodman, D. J. (2001). *Promoting diversity and social justice: Educating people from privileged groups*. Thousand Oaks, CA: Sage Publications, Inc.
- Green, M. F. (Ed.). (1989). *American Council on Education (1989). Minorities on campus: A handbook for enhancing diversity*. Washington, DC.
- Hamilton, D. L., Stroessner, S. J., & Driscoll, D. M. (1994). *Social cognition and the study of stereotyping*. In P. G. Devine, D. L. Hamilton, & T. M. Ostrom (Eds.), *Social cognition: Contributions to classic issues in social psychology*. New York: Springer-Verlag.
- Harleston, B. W., & Knowles, M. F. (1997). *Achieving diversity in the professoriate: Challenges and opportunities*. Washington, DC: American Council on Education.
- Helms, J. E. (Ed.). (1990). *Black and white racial identity: Theory, research, and practice*. Westport, CT: Praeger.
- Hewstone, M. (1990). *Causal attribution: From cognitive processes to collective beliefs*. Oxford, UK; Cambridge, MA: B. Blackwell.
- Hrabowski, F. A. III. (2004). *Overcoming the odds: Producing high-achieving minority students in science and engineering*. In Hale, F. W., Jr. (Ed.), *What makes racial diversity work in higher education*. Sterling, VA: Stylus Publishing, LLC.
- Lord, C. G., & Saenz, D. S. (1985). *Memory deficits and memory surfeits: Differential cognitive consequences of tokenism for token and observer*. *Journal of Personality and Social Psychology*, 49, 918-926.
- Merkel, C. A., & Baker, S. M. (2002). *How to mentor undergraduate researchers*. The Council on Undergraduate Research, Washington, DC.
- Morrison, A. M. (1992). *The new leaders: Guidelines on leadership diversity in America*. San Francisco, CA: Jossey-Bass Publishers, Inc.
- Morrison, A. M., Ruderman, M. N., & Hughes-James, M. (1993). *Making diversity happen: Controversies and solutions*. Greensboro, NC: Center for Creative Leadership.
- Partnow, E. (1977). *The quotable woman (Vol. 2)*. Los Angeles: Pinnacle Books.

- Portner, H. (2003). *Mentoring new teachers*. Thousand Oaks, CA: Corwin Press, Inc.
- Reiman, A. J., & Thies-Sprinthall, L. (1998). *Mentoring and supervision for teacher development*. Addison Wesley Longman, Inc.
- Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom: Teacher expectations and student intellectual development*. New York: Holt, Rinehart, & Winston.
- Ruderman, M. N., Hughes-James, M. W., & Jackson, S. E. (Eds.). (1996). *Selected research on work team diversity*. Washington, DC: American Psychological Association. Greensboro, NC: Center for Creative Leadership.
- Sandler, B. R., Silverberg, L. A., & Hall, R. M. (1996). *The chilly classroom climate: A guide to improve the education of women*. National Association for Women in Education, Washington, DC.
- Smith, D. G., and Associates. (1997). *Diversity works: The emerging picture of how students benefit*. Washington, DC: Association of American Colleges and Universities.
- Steele, C. M. (1999). Thin ice: "Stereotype threat" and black college students. *The Atlantic Monthly* (<http://www.theatlanticmonthly.com>), August 1999.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, 69 (5), 797-811.
- Sue, D. W., and Sue, D. (1999), (4th Ed.). *Counseling the culturally different: Theory and practice*. New York.
- Swim, J. K., & Stangor, C. (Eds.). (1998). *Prejudice: The target's perspective*. San Diego, CA: Academic Press.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research* 45, 89-125.
- Tinto, V. (1987), (2nd Ed.). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago; London: University of Chicago Press.
- Tinto, V. (1989). Principles of effective retention. Paper presented at the University of California Student Research Conference, Asilomar, CA, April. 23-4.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. (2nd Ed.), Chicago: University of Chicago Press.
- Turner, R. Faculty panel: Sharing strategies for being a good mentor. Mentoring for students success in a diverse environment (February 13, 2004). Purdue University, West Lafayette, IN.
- Westat (2000). A description and analysis of best practice findings of programs promoting participation of underrepresented undergraduate students in science, mathematics, engineering, and technology fields. National Science Foundation.
- Wilson, M. S., Hoppe, M. H., & Sayles, L. R. (1996). *Managing across cultures: A learning framework*. Greensboro, NC: Center for Creative Leadership.
- Zachary L. J. (2000). *The mentor's guide: Facilitating effective learning relationships*. San Francisco, CA: Jossey-Bass Inc. Publishers.



CONTACT US:

LSAMP Indiana Statewide Office

Purdue University
West Lafayette, IN 47907

(765) 496-7967

Email: LSAMP@purdue.edu
www.purdue.edu/lkamp

Mentoring and Diversity



LSAMP INDIANA