Mentoring and Diversity

LSAMP INDIANA

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

LSAMP INDIANA

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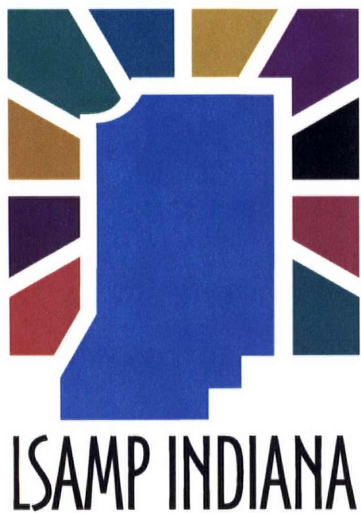
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ACKNOWLEDGEMENTS

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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 diversity in mentoring. This handbook is focused on mentoring and diversity and is designed to accompany a workshop that expands on the topics presented.

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 — it is still helpful to contextualize diversity in mentoring. That is, how does diversity affect the particular relationship between me and my LSAMP student? 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.

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, confidential assessments of your mentoring relationship on a routine basis.

Never Too Busy

Too often mentoring is thought about 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 them 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 them about an interesting talk they should attend or a newsworthy breakthrough in your field. If it is a particularly busy time for both you and the student, think about smaller hurdles that can realistically be achieved. During busy weeks, you can clear the small hurdles while on other weeks you will want to clear those moderate-to-large hurdles. Be inventive in finding new ways and means to mentor a student who is still very young in the field!

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. Difference 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 Alaska Native, Latino or Hispanic American, Native Hawaiian or other Pacific Islander;
- students who are female;
- students from lower socioeconomic background;
- students who represent the first generation of their families to attend college; and
- students who have a disability.

Although this is a partial list, it helps in understanding later sections that deal with the unique challenges often faced by underrepresented students.

For an example of what underrepresented means in terms of percentages in STEM fields, as cited in Building Engineering and Science Talent (www.bestworkforce.org/index.htm), "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 words related to diversity, refer to the Diversity Dictionary of Terms on the Web (http://www.crh.noaa.gov/diversity/divdef.htm) or access an online dictionary (www.yourdictionary.com/ahd/search) and type in your own diversity-related word.

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LSAMP Indiana Students

What Is LSAMP Indiana?

LSAMP Indiana is an alliance of five Indiana university campuses (Ball State University; Indiana University, Bloomington; Indiana University, Purdue University at Indianapolis (IUPUI); Purdue University, Calumet; 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, and particularly 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, think about 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 their group identities:

GENDER — Your LSAMP student may be of the same or different gender.

AGE — Although your LSAMP student is likely to be younger than you, there are some older LSAMP students.

SEXUAL ORIENTATION — Your LSAMP student may be heterosexual, homosexual, bisexual, or transgendered.

RELIGIOUS AFFILIATION — LSAMP students may have a denomination that they belong to, be religious with no denomination preferred, or they may be atheist.

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 — Although LSAMP students vary, it is more likely that they are among the first generation in their family to attend college.

PHYSICAL CAPABILITIES — Your LSAMP student may or may not have a disability.

These are only a few of the many group identities that may be important to consider in mentoring your LSAMP student. Be careful, however, not to presume or make incorrect assumptions about your LSAMP student's group identities. In other words, don't assume 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 their important group identities.

Why Are Some Groups Underrepresented?

To briefly review, the reasons that contribute to underrepresentation are the following:

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.
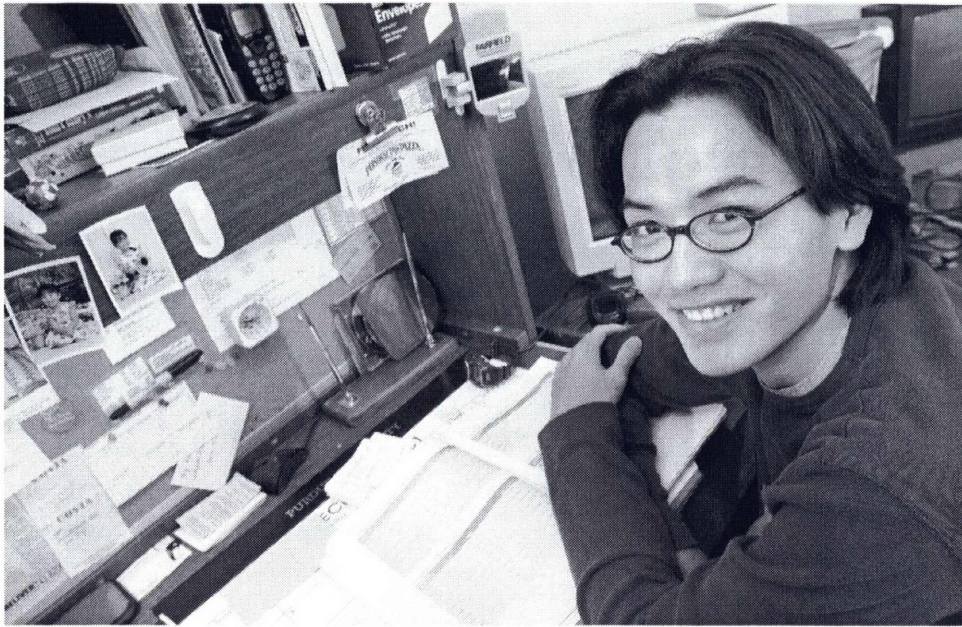
SOCIETAL — There remain societal beliefs that some groups are better suited than others to contribute to academic fields, particularly the "hard sciences" and professional degrees such as engineering. It takes a long time for such beliefs to change.

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 to degree.

ISOLATION — Being a "solo" (the only person with your group identity) in a STEM field leaves individuals 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 faced by underrepresented students, mentoring takes on increased importance in helping these students to develop a sense of belonging in their chosen STEM field.
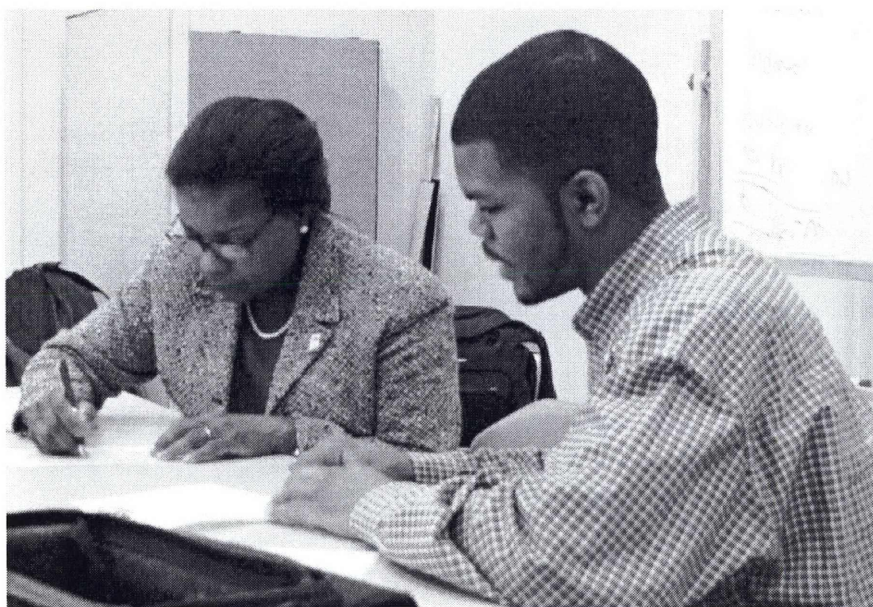
Mentoring

What Does It Mean To Mentor?

According to the MSN Encarta dictionary (http://encarta.msn.com/dictionary), the formal definition of "mentor" is:

> *"An experienced adviser 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."*

> *Mentor — "In Homer's Odyssey, the friend 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: adviser, counselor, guide, tutor, teacher, guru, merchant of hope ...*

Why Mentor?

One analogy for mentoring that helps to make its value clear is described in *The Mentor's Guide* by Lois Zachary (2000). 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 their 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).

Mentoring creates a more welcoming space in the university learning environment for an underrepresented student. Thus, mentoring is one way to help universities achieve their strategic goals and values pertaining to creating and retaining a more diverse academic environment. Mentoring provides academic and social support to students, which is critical for keeping them committed, identified with their STEM field, and progressing toward a degree.

Personal Benefits of Mentoring

As with anything in life, there are costs and benefits of 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; and
- the opportunity to write a grant supplement for an undergraduate researcher, thereby getting additional support for your NSF or NIMH 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 they are 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 really 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. You never know when you might be passing up an opportunity to mentor the next Einstein.

"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
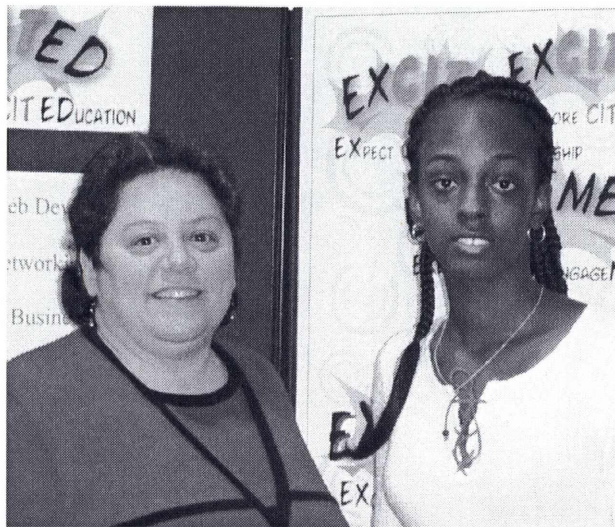
Dr. Eugenia Fernandez (left), Latonia Stovall

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. And, of course, there are some very real advantages. However, even if you match your LSAMP student on some important group memberships such as an ethnic group, there will be other groups that are unmatched, such as gender or religious affiliation. Consequently, mentoring always involves, at some level, learning to reach out and connect with someone else across group lines. And even if you can't relate very well to your LSAMP student's experience of being from a particular underrepresented group,

there is still a lot of support, experience, and expertise that you can convey to the student.

While reading through this handbook, an individual may become more conscious of any biases or expectations they have that are based on stereotypes. In this way, individuals can help bring biases and expectations based on stereotypes better under their own control. In the following section of the handbook, we will talk about various ways that biases help maintain our beliefs about individuals from various groups and ways to combat such biases, in order to improve your mentoring.

If during the course of your mentoring you have a diversity-related question or concern, please don't hesitate to call and discuss the matter with staff from your university's diversity or multicultural office.

Understanding Challenges and Barriers
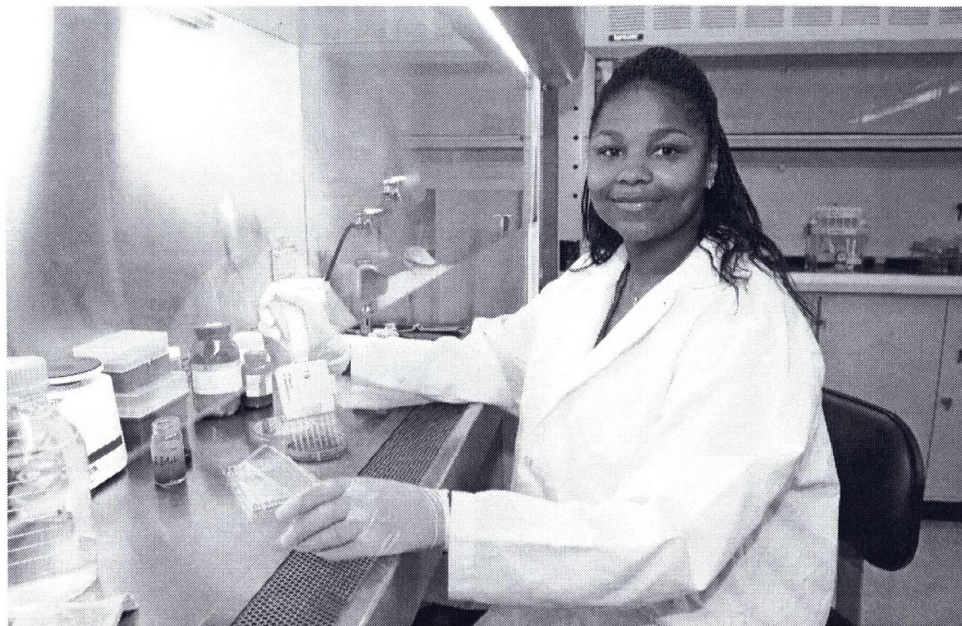
Before discussing mentor roles, an understanding of the challenges and barriers experienced by underrepresented students is needed. What follows in this section are some ways that bias, often unintentionally and without our explicit awareness, can creep into our interactions with someone from a different 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. This information is being provided as an introduction to thinking about these topics or as a refresher if you already have had exposure to such information.

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. In thinking about these biases, you can plan ahead for times when mentoring your LSAMP student will call for you to provide 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 the "isms" (sexism, racism, etc.). Responses to worrying about being negatively stereotyped include increased vigilance in their environment for cues that they need to protect themselves against prejudicial attacks and avoidance of situations where they might be at risk for prejudicial 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

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often on a daily basis. These insults shape the students' lens for viewing the world. It isn't surprising, therefore, to have students of color, female students, students from low socioeconomic backgrounds, and students with a disability reacting to events in ways that white students, male students, middle-class students, and students that do not have a disability usually do not react. For example, talking about a Latino student as "competent" or "articulate" (as though everyone else in their group isn't competent or articulate, so you have to make note of it when they are) might anger Latino students. 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 Latino students, and it might make white students feel that it is hard to say anything. In contrast, it might upset Latino students further that white students don't even "get it." This example demonstrates the difficulty of sometimes interacting across diverse groups.

What you can do

Building a relationship with one's LSAMP student that permits them to feel safe, encouraged, valued, and comfortable with you can go a long way toward diffusing feelings of being at risk.

Feeling Isolated and Alienated

Related to the above, one often unavoidable cost of being from an underrepresented group (that is, being an African American at a predominantly white institution or a woman majoring in physics)

is that one must cope with being a solo (that is, being the only or nearly only African American or female in the 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 (that is, if you perform well, it is seen as outstanding, whereas if you perform 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. With negative stereotypes in place about the group, it then becomes a self-fulfilling prophecy when less of the actual conversation that took place is recalled.
- Being your 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, "I can give a stupid answer to a question in class without fear of it reflecting on my group"). In contrast, there is pressure when you are from an underrepresented group to always perform well for the sake of the group.
- 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 such that it

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causes you to be concerned about the student's welfare and ability to cope, be ready to recommend staff (typically in a counseling or Dean of Students Office) who can help the student to better manage anxiety or help the student to solve problems.

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 a very 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 to 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 other community obligations that you are willing to talk about with your LSAMP student, please do so as it sets an example that even busy faculty members can have a life outside of work.

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 their 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 that the student will dare to reach out a hand and trust in you to be their advocate.

> *"You cannot shake hands with a clenched fist."*
>
> — Indira Gandhi
> (in Partnow, 210).

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 them. 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 for poor performance (for example, Latino students are not as smart or as hardworking as white students, and 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 might adversely impact the student's actual performance. If you have ever been around another individual who you feel doesn't think highly of you, it is clear the myriad ways that their expectations for 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, there are nonverbal messages that give clues about negative expectancy.

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

What you can do

Examine and make explicit 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 made aware of it.

Therefore, keep vigilant and correct for any biases you might notice creeping in.

Stereotype Threat

The worry that a student has about confirming a negative stereotype, such as proving his or her group is less intelligent, makes it more likely the student will fulfill the negative stereotype, such as by performing poorly on a test. 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 suffer 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 in conversing with an LSAMP student. Research has shown that conveying high expectations coupled with a strong belief in their mentee's competency and ability to succeed has been beneficial in allowing mentors to then critically appraise their mentees (that is, point out where they need to improve their performance). This approach to appraisal 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, believe in their ability to succeed, and have their best interest at heart.

An example appraisal: 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 essay might have that essay judged as even better than it really is because the faculty member is unconsciously comparing the student's above average performance to a negative stereotype of individuals from the student's social identity group and generalizations about the group's writing ability. Conversely, a somewhat poorly written essay can 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 for such biases, and so awareness of such influences on your judgment can lead you to check your decision process and build in checks to prevent bias from creeping in to the process.

Make sure that your judgments of your LSAMP student are in comparison to their peers (that is, other freshmen in technology) rather than only others in a particular group (that is, 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 members (those we describe as "dissimilar" or "not like me"). 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 (such as, they must have failed because they didn't study enough) and willing to give them the personal benefits of positive behaviors (such as, 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 — 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 — 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 their explanation of how and why something occurred. That way, their perception of the event or behavior has been heard and you leave

little room for any stereotypic assumptions to unknowingly creep into your judgment of your student.

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 a better understanding of when there are differences in communication style (verbal and nonverbal), dress style, learning style, cognitive style, and so on.

Conflict can emerge when individuals are at different stages of their individual or group identity development.

What you can do

In trying to figure out how to best mentor a student, a common mistake is to think from your own social identities and your own educational experiences (that is, 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) the mentee belongs to (that is, the student is bilingual because of being Latino). To help avoid these assumptions, get to know your LSAMP student. This familiarity will help you form a more complex and accurate picture of the student's life and educational experiences.


Membership in More Than One Group
There is a story told about a black man running for president of the U.S. and being asked by a reporter what his allegiance was to, 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!

Think about your own social identities. When considering race, ethnicity, nationality, age, socioeconomic status, religion, body type, sexual orientation, and so on, are you a part of the dominant, or empowered, group or the disempowered group? Do you have an understanding of being disempowered from thinking about your own social identities?

Understand that 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 might feel that no one from the dominant group can ever understand or ever know what they are like or what experiences they've had in the past, present, or even will have in the future. When students feel this way, they might display distancing behaviors. These students might be more challenging to forge a connection with, and patience and persistence in showing that you are a person who cares about them is the only approach that might help.

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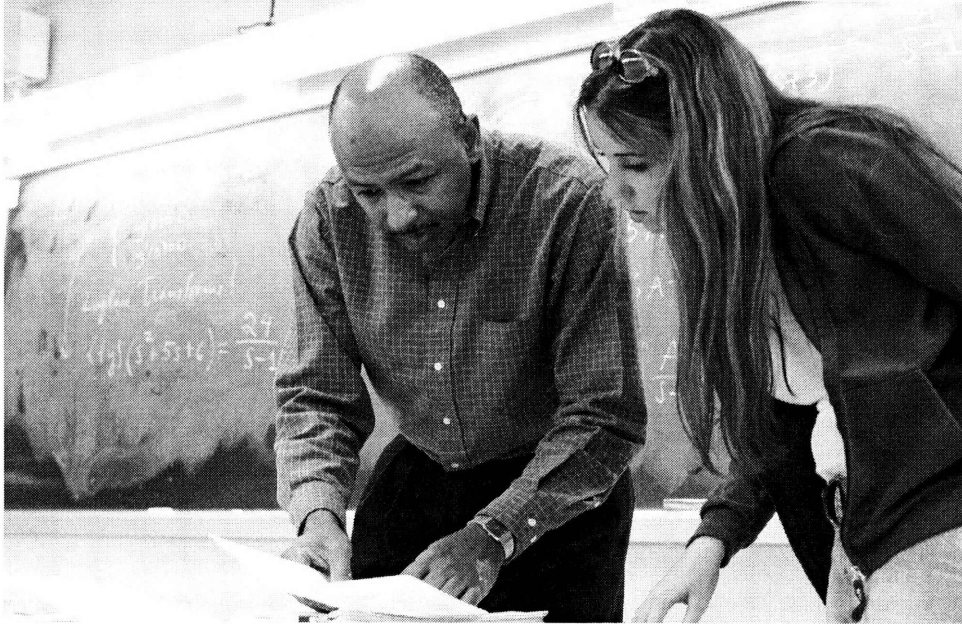
As you mentor, you will assume several different critical roles. Throughout the process, it is important to keep close at hand your understanding of the challenges and barriers that might be faced by your LSAMP student.

First, a part of being a mentor that looms large for faculty is the role of encouraging students to develop in terms of identifying with their chosen field, exploring how they fit into the field, and beginning to develop a concept of themselves as an expert in their chosen field. However, before this academic identification can move forward, research suggests that students need to socially identify with their university. Tinto (1993) points out three ways that faculty are critical, particularly for freshman students: "contact with faculty outside the classrooms, helpfulness of faculty, and the concern they show for students" (135).

In providing this interaction, a mentor, therefore, helps students reflect on learning experiences in their chosen discipline through honest, safe, and caring discussions. A mentor asks, "Who is this student? How can I facilitate them becoming a colleague?" A part of what motivates and improves

students' understanding of classes is the informal knowledge acquired about a field that allows them to fit their talents, interests, and what they are learning into a bigger picture. Having a mentor, even one that is not explicitly tutoring, can improve classroom performance.

Below are three overlapping roles that mentors ideally play in their LSAMP student's life.

1. Teacher — The 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 their field and what it takes and means to be a professional.

2. Advocate — The goal as a mentor-advocate is to improve the self-confidence, social network, and sense of community of your LSAMP student within their department or school, university, and

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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.

3. Assessor — The 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 way toward improvement.

Not all mentors will have the capabilities and/or comfort levels to excel at all three of the above 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 the roles. For example, some mentees might only accept a mentor as a teacher and have more difficulty with them 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 above 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 also is 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 their research to their student mentee, which typically involves providing more information than would typically be required in discussions with colleagues. Out of this conversation, the faculty might gain a new insight or identify new avenues for further research that 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 valued mentors have been individuals who were always relentlessly giving of themselves — their time, their intellectual property, their life energy, and their experiences that make them what and who they are.

Taking an interest in your LSAMP student, personally, will enable them to feel encouraged and connected to you and their 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.

> *"When the teacher is ready, the student will appear. When the student is ready, the teacher will appear."*
>
> — Anonymous

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 they might not have any clear meaning to undergraduate students, especially those who represent the first generation of their families to attend college.

Once when advising a student of color who was part of a summer program, a faculty member 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 doctorate programs. Some information faculty members take for granted can be uncharted and confusing territory for many students. Sometimes the meaning of a conversation is 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 to ask 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 in the laboratory? Outside the laboratory?
- Think about the way diversity is relevant in your field. Increasingly, students are being asked to be competent in thinking about diversity as it relates to their 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. Later, bring up how someone succeeds as a graduate student or as a professional in your field.
- Ask whether the student is thinking about graduate school and let them know that, if so, you'd be happy to talk with them 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: forming multiple mentor groups; providing career sponsorship; creating a safe, valued place; and knowing your campus well enough to help your student find resources.

> *"A young person doesn't really want you to answer his question, he wants you to hear it ..."*
>
> — James Baldwin

Forming Multiple Mentor Groups

One of the best ways to serve as an advocate for your LSAMP student is to help the student meet individuals from the field — other faculty, graduate students, post docs, laboratory technicians, administrators, and individuals already working in their chosen field. These individuals can help in providing mentoring, even in on-the-run ways. Group mentors, mentoring circles, mentoring nets, whatever the label, 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 might find another individual from their same race, ethnicity, or gender to help negotiate the challenges and isolation experienced as the underrepresented group member.

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 students to identify with their field by attending a professional conference. Find a conference nearby, and support your student at the conference by introducing them to faculty and helping them to affiliate with other undergraduates or graduate students also 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 join the group.

• Encourage your LSAMP student to attend your general research meetings with your graduate students. Be sure you let them 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, the students will be surprised that

more and more of what they hear will begin making sense until they feel as though they understand after all. Exposure to the field's specific language, jokes, and climate of doing research will let your LSAMP student have access to more of what it means to be in the field.

• Have a conversation about the different things they should know about in order to be competitive, such as internship opportunities.

Creating a Safe, Valued Place

Undergraduates often don't feel valued by faculty. Aside from the obvious ways and means — holding a regular meeting, doing active listening, and assigning important along with the mundane tasks — there are many ways to make your LSAMP student feel more valued.

• There might be times when you are busy, busy, busy, and even if your intentions are to be the best mentor in the world you will, verbally and nonverbally, only communicate 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 that are probably quite commonly ascribed to faculty (for instance, "they don't care about me" and "they are 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 them.

• 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 discussion happened the last time you met. To solve this problem, use meeting notes to help update and remind you of progress on the project.

• Recruit other faculty to mentor or simply to 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 is having trouble in their life or academics, experiencing what has been called "diversity moments" (for instance, a cold climate in the community or micro-insults). Or your student might be experiencing psychological problems that would be better handled by a professional. Make yourself aware of the resources available on your campus so that you can appropriately intervene.

- Early on in your interaction with your LSAMP student, have a discussion about boundaries. 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. Let them know that you are not an expert in dealing with this particular situation and that the best way you can be supportive is to have them talk to someone with expertise.

- If you see some undergraduate program, fellowship, research, or grant opportunity at your campus, pass it along to your LSAMP student. If you can make the time, help them complete the application.

- If you don't know the answer to a student's question, try to find out and e-mail them or give them 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 a chosen 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, and they can influence interaction with or interpretation of group members' behaviors. 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 minority ethnic groups), be direct in conveying that you have higher expectations for their 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 not understanding what to do but being hesitant to let you know they don'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, though, to have established the relationship with your LSAMP student that is required for them 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 stu-

dent with a small project that has a high certainty of working or collaborating 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 their competency or whether they fit in the field, too many disappointing experiences right at the beginning could discourage them and make it more likely that they 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 too 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 is being done on the project.

• When you assess your student, think about your value orientation and then consider, as you get to know your student, the student's value orientation. Having a dramatically different set of values might cause conflicts in doing research because values affect expectations for how the research and the relationship will develop. For example, your student might want you to be more directive, while you want them to take more of the initiative. Communicate honestly and openly and frequently!

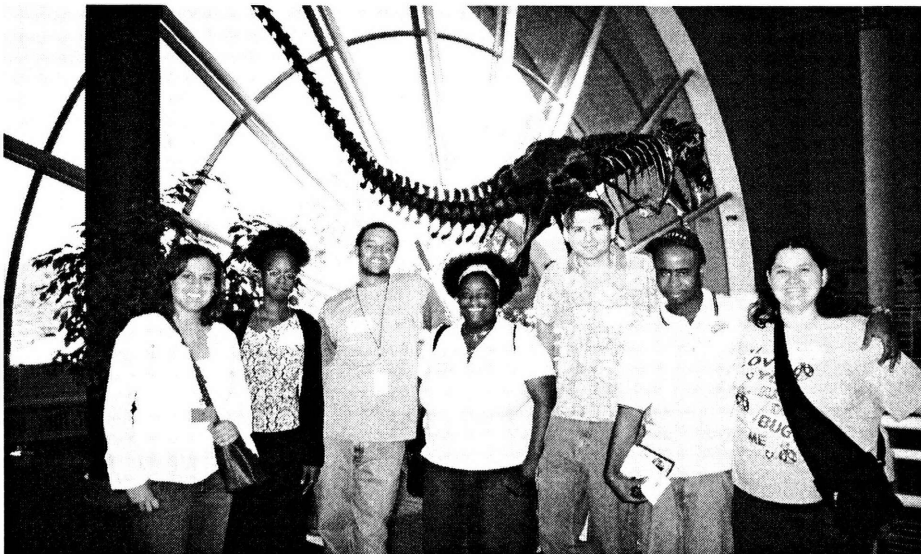LSAMP at Indiana University, Bloomington

Conclusions

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 them to have someone believe in them, even when they themselves faltered in their beliefs in themselves.

Indiana LSAMP thanks you for being an LSAMP mentor. We appreciate the time and energy you spend 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."*
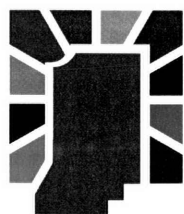>
> — Maya Angelou

LSAMP at Indiana University-Purdue University, Indianapolis

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