

Mentor Training for Clinical and Translational Researchers

Mentor Training for Clinical and Translational Researchers

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Foreword

Medical education has always been grounded in the apprenticeship model. Prior to the advent of formal medical training, aspiring doctors would apprentice with a local, more senior physician; typically, the quality of instruction varied greatly with some physicians providing quality education, while others were indifferent to the needs of their protégés.

Like clinical training, scientific research has relied on transference of critical knowledge, skills, and attitudes from experienced to emerging generations. Yet, like the early days of physician training, research mentorship has not traditionally been taught or even explicitly articulated and, until recently, there was an implicit assumption that mentorship came naturally.

Over the past few years, however, there has been a surge of interest in the theory and practice of mentorship in academic medicine. Research has shown mentorship to be integral to a successful career in the academic health sciences, particularly for clinical and translational researchers. Formal, structured mentorship supports the success of junior researchers in publishing first authored papers and receiving federal funding, while also improving their sense of professional satisfaction. Yet, only a fraction of clinical researchers report that they currently have a mentor, and this number is significantly lower for women and scholars of color. As the clinical and translational science workforce becomes more diverse and multidisciplinary, we need to rethink the manner in which we train and evaluate mentors.

The good news is that mentor training works. As a result, many large academic medical centers have implemented new mentor development programs. Faculty members who participate in mentor training and have the opportunity to reflect on their own mentoring practices while engaging in conversation with respected peers become more skilled mentors and derive more satisfaction from mentoring.

As the first mentor training intervention to be implemented and tested in a multi-site randomized controlled trial, the curriculum *Mentor Training for Clinical and Translational Researchers* is an outstanding means of developing mentorship knowledge and skills across a broad range of mentors in this field, e.g., clinician-scientists and laboratory-based investigators. A broad range of faculty members who have participated in this training, including those with 20–30 years of mentoring experience, report a significant improvement in mentoring skills and increased awareness of factors that shape a mentor-mentee relationship. The training materials included in this curriculum build on a set of core competencies and learning objectives, and at the same time offer flexibility for facilitators to introduce multiple types of group activities and assignments for participants to apply what they have learned in their mentoring practices. The curriculum format is designed to promote peer-learning guided by discussion of provocative mentoring dilemmas that promote reflection of one's mentoring philosophy and practices.

The concepts that underpin research mentor training curricula such as this one are in fact the basic building blocks for all human relationships—clear communication, assessing understanding, establishing mutual expectations—making it adaptable to many different situations and audiences. Mentoring matters, and for those who are serious about elevating the level of mentorship

and supporting a culture of mentoring at their institution, *Mentor Training for Clinical and Translational Researchers* will prove to be indispensable.

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Pre face

Mentoring: Learned, Not Taught

Mentoring principles, not practices, are universal

Effective mentoring can be learned, but not taught. Most faculty learn to mentor by experimenting and analyzing success and failure, and many say that the process of developing an effective method of mentoring takes years, which is a reflection of the unique qualities, needs, and challenges presented by each mentee. A skilled mentor is guided by a reflective philosophy that includes careful examination of the mentee's changing needs and how best to address them, creating fluidity in the relationship. No book can prescribe a single "right" approach, but systematic analysis and discussion of mentoring generates a method for tackling the knotty challenges inherent in the job.

The goal of the curriculum outlined in this book is to accelerate the process of becoming an effective research mentor. The approach described provides mentors with an intellectual framework, an opportunity to experiment with various methods, and a forum in which to solve mentoring dilemmas with the help of their peers. The mentor training process expands each mentor's experience through secondhand exposure to the experiences of the entire group, enabling participants to engage with as many mentoring experiences as each of them would typically handle in a decade. This process in turn enhances their readiness to work with diverse mentees and anticipate new situations. At the completion of the training, mentors will have articulated their own approach to mentoring and have a toolbox of strategies to draw upon when confronted with mentoring challenges.

Although no one can provide formulas, practices, or behaviors that will work in every mentoring situation, certain principles guide good mentoring. The principles that shape this curriculum are founded on research that has revealed how people learn and identified the essential elements of environments shown to be most conducive to learning, productivity, and creativity.

Mentoring diversity, not sameness, is essential

An individual's performance in any endeavor is the product of a complex interaction involving innate ability, experience, confidence, education, and the nature of the performance environment. Professional mentors can directly influence their mentees' performance by creating an environment that is conducive to achieving excellence and that fosters confidence, even in stressful situations. Setbacks are a source of stress that everyone experiences, and the mentee's response can be modulated by a mentor's intervention. A mentor's goal is to promote a mentee's growth and achievement. People build resilience and self-reliance through positive reinforcement coupled with the expectation of excellence. The most important message a mentor can send is faith in their mentee, a willingness to embrace diversity, and an eagerness to continually improve as a mentor. A theme implicit in this book's curriculum is that mentors may facilitate growth best when they work collaboratively with their mentees to continually reexamine and adjust to their individual needs. This process, followed by the mentee producing high-quality research, will generate self-sustaining confidence for both.

Another aspect of creating an environment that is conducive to learning is being open to other ways of doing research and seeing the world, including the world of academia. The next generation

of researchers will be more diverse than the last. Working with people who are different from ourselves can at times be frustrating and baffling, though also enlightening and deeply rewarding as we learn from one another. When given the opportunity to work with mentees from different backgrounds and with distinct perspectives, who may not share the characteristics we value most in ourselves, we may struggle to imagine them fitting the academic mold. Being a good mentor requires accommodating styles that differ from our own, thereby enhancing the diversity and the vibrancy of the scientific community.

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CHAPTER 1

Curriculum Overview

CONTENT, FORMAT, IMPLEMENTATION AND ASSESSMENT

Content

The content of each session in this curriculum is designed to address the key concerns and challenges identified by research mentors. The topics include:

- ▶ Maintaining Effective Communication
- ▶ Aligning Expectations
- ▶ Assessing Understanding
- ▶ Addressing Equity and Inclusion
- ▶ Fostering Independence
- ▶ Promoting Professional Development

Each of these topics is critical for mentoring; although these divisions are, at some level, artificial and overlapping, focusing on one topic in each session allows mentors to delve more deeply into each. In addition to general content about research mentoring, all of the case studies and some of the discussion questions draw specific attention to the unique circumstances and challenges related to mentoring scholars working in the diverse areas of clinical and translation science. Session leaders who use these training materials are encouraged to read through all of the materials ahead of time so they can highlight linkages between topics throughout the training. Additional materials for the topic areas above, as well as for other topics, including ethics, are available at: <https://mentoringresources.ICTR.wisc.edu> (website to be launched in fall 2012).

This curriculum is part of the *Entering Mentoring* series and much of the content was adapted from *Entering Mentoring: A Seminar to Train a New Generation of Scientists*; created by Jo Handelsman, Christine Pfund, Sarah Miller Lauffer, and Christine Pribbenow. A PDF version of the book is available at www.hhmi.org/grants/pdf/labmanagement/entering_mentoring.pdf.

Audience

This curriculum was designed for those who wish to implement mentorship development programs for academic research mentors in clinical and translational science. It was originally developed for the primary research mentors of senior post-docs and junior faculty engaged in some aspect of clinical and translational research. While the individual activities included in the curriculum may focus on a specific type of research or a specific aspect of a mentoring relationship, the curriculum as a whole is designed to include activities relevant to a broad range of mentors across diverse areas of research and varied stages of their mentoring relationships. Curricula that target more specifically lab-based research, clinical research, behavioral health research and community-engaged research are available at <https://mentoringresources.ICTR.wisc.edu> (website to be launched fall 2012).

Format

The structure of this research mentor training program is based on the experience of faculty and staff who implemented the *Entering Mentoring* curriculum at UW-Madison. These facilitators have learned that the best results come from keeping an open discussion format to allow for participants' diverse experiences to be integrated into the training. Simply asking the mentors a few guiding questions typically leads to vigorous discussion. The case studies and reading materials can provide a tangible starting point, and the mentors often move quickly from the hypothetical examples to their own experiences with trainees and students. In fact, facilitators are encouraged to use the mentoring situations described by participants in place of the provided case studies, when appropriate. The training is most effective with mentors who are currently working with researchers. The short duration of such training intensifies the urgency of dealing successfully with challenges that arise. Likewise, frequent contact with trainees provides mentors opportunities to implement immediately ideas generated by the discussions. You may want to encourage participants to reflect on any changes they have made in their mentoring practices at the start of each training session.

Implementation: Facilitating Research Mentor Training

Facilitating research mentor training is not the same as teaching it. Your role as facilitator is to enable participants to engage in self-reflection and shared discovery; to maximize learning. Your role in the group is to build a community of mentors learning together toward the common goal of becoming more effective in their mentoring relationships. Your role in the group is to help others work through their thoughts and ideas; it is not your role to be the expert on mentoring. As a facilitator you may also walk a fine line between facilitator and participant—but remember that group members will look to you for guidance and structure. Your own experiences and ideas should enhance the discussion, but not dominate and become the primary focus of the discussion.

Being an effective facilitator is the key to helping the research mentors meet the learning objectives and become more successful mentors. To assist you in and strengthen your own facilitation abilities, we have included a brief facilitator guide in the next section that contains additional information, tips, and tools for facilitation.

Implementation: Using this Guidebook to Facilitate Weekly Sessions

You should prepare for each session by copying the readings, descriptions of session themes and learning objectives, case studies, and sometimes worksheets for each mentor in the group (marked with a gray edge). Alternatively, all of the materials can be distributed at the first meeting or posted on a website. The themes and objectives for each session are included at the beginning of the materials. You might consider asking participants to review the themes and learning objectives at the beginning of each session, or review the objectives and themes after a few weeks to check their progress.

Guiding discussion questions and notes for group facilitators are also included in each session plan. Time estimates for activities and facilitated discussions for each of the sessions are indicated in parentheses and can be adjusted at your discretion. The facilitator notes provide directive signposts (e.g. ACTIVITY, TELL, ASK, NOTE, DISCUSS) to support the facilitation process. ACTIVITY indicates that participants are to engage in a process on their own, in small groups, or as a large group. TELL means that the information that follows needs to be shared with the whole group. ASK means a certain question or questions need to be put to the group. NOTE means that certain issues or content need to be emphasized. DISCUSS means that a broader discussion, usually supported by guiding questions, needs to occur. Sometimes more discussion questions are provided than can reasonably be addressed in the time allotted for the activity or group discussion, but the questions suggested for the case studies in this training are based on the experiences of past facilitators. REFLECTION means participants should take a few minutes to reflect on what they have learned and how they might apply it. They may wish to write down their thoughts.

We have provided an example of how the sessions might be structured as four two-hour sessions (page 6). While the spacing between these sessions is of course flexible, former participants found separating them by 1-2 weeks to be effective as it allows time for reflection and practice. Further, facilitators may want to consider alternate session pairing and length. An effective alternative could be one two-hour session, followed by two three-hour sessions):

Session 1 (2 hours): *Introductions and Maintaining Effective Communication*

Session 2 (3 hours): *Aligning Expectations, Assessing Understanding, and Addressing Equity and Inclusion*

Session 3 (3 hours): *Fostering Independence, Promoting Professional Development, and Articulating Your Mentoring Philosophy and Plan*

Assessment of Research Mentor Training

Following the research mentor training session(s), you might consider asking participants to complete a survey based on their experience. The survey that has been developed for this purpose can be used to collect feedback on the research mentor training session themselves, on your skills as a facilitator, and to assess the knowledge and skill gains of your participants upon completion of the training. We recommend using a survey that includes the Mentoring Competency Assessment (MCA), which can be found at <https://mentoringresources.ICTR.wisc.edu>.

Curriculum Outline: Competencies and Learning Objectives

Introduction to Mentor Training

Learning Objectives for Introduction:

Mentors will have the knowledge and skills to:

1. Learn about other mentors in the group and begin building a learning community
2. Reflect on group dynamics and ways to make the group functional
3. Establish ground rules for participation

Maintaining Effective Communication

Learning Objectives for Communication

Mentors will have the knowledge and skills to:

1. Provide constructive feedback
2. Communicate effectively across diverse dimensions including various backgrounds, disciplines, ethnicities, positions of power, etc.
3. Identify different communication styles
4. Engage in active listening
5. Use multiple strategies for improving communication (in person, at a distance, across multiple mentors, and within proper personal boundaries)

Aligning Expectations

Learning Objectives for Expectations

Mentors will have the knowledge and skills to:

1. Effectively establish mutual expectations for the mentoring relationship
2. Clearly communicate expectations for the mentoring relationship
3. Align mentee and mentor expectations
4. Consider how personal and professional differences may influence expectations, including differences across disciplines when working in multidisciplinary teams

Assessing Understanding

Learning Objectives for Understanding

Mentors will have the knowledge and skills to:

1. Assess their mentees' understanding of core concepts and processes
2. Identify various reasons for a lack of understanding, including expert-novice differences
3. Use multiple strategies to enhance mentee understanding across diverse disciplinary perspectives

Addressing Equity and Inclusion

Learning Objectives for Equity and Inclusion

Mentors will have the knowledge and skills to:

1. Improve and expand understanding of equity and inclusion, and how diversity influences mentor-mentee interactions
2. Recognize the potential impact of conscious and unconscious assumptions, preconceptions, biases, and prejudices on the mentor-mentee relationship and reflect on how to manage them
3. Identify concrete strategies for learning about, recognizing, and addressing issues of equity and inclusion in order to engage in conversations about diversity with mentees and foster a sense of belonging

Fostering Independence

Learning Objectives for Independence

Mentors will have the knowledge and skills to:

1. Define independence, its core elements, and how those elements change over the course of a mentoring relationship
2. Employ various strategies to build their mentee's confidence, establish trust, and foster independence
3. Identify the benefits and challenges of fostering independence, including the sometimes conflicting goals of fostering independence and achieving grant-funded research objectives

Promoting Professional Development

Learning Objectives for Professional Development

Mentors will have the knowledge and skills to:

1. Identify the roles mentors play in the overall professional development of their mentees
2. Develop a strategy for guiding professional development using a written document
3. Initiate and sustain periodic conversations with mentees on professional goals and career development objectives and strategies
4. Engage in open dialogue on balancing the competing demands, needs, and interests of mentors and mentees, e.g., research productivity, grant funding, creativity and independence, career preference decisions, non-research activities, personal development, work-family balance, etc.

Articulating Your Mentoring Philosophy and Plan

Learning Objectives for Articulating Your Mentoring Philosophy and Plan:

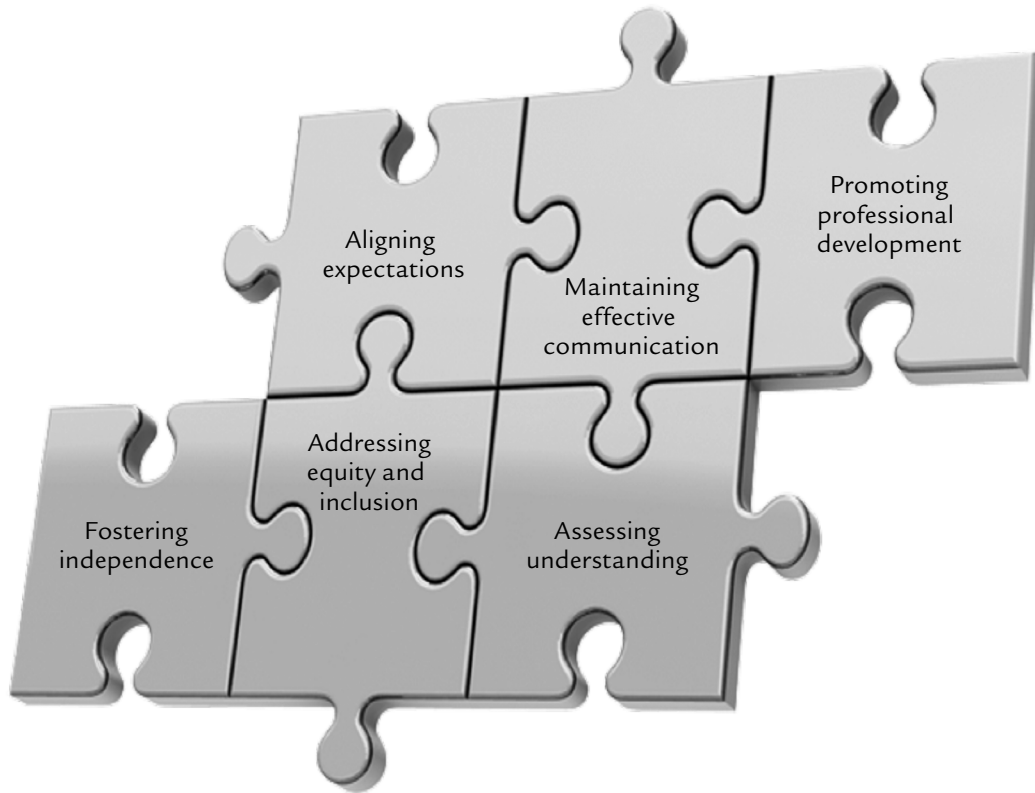
Mentors will have the knowledge and skills to:

1. Reflect on the mentor-training experience
2. Reflect on any behavioral or philosophical changes they intend to make across the mentoring competencies
3. Articulate an approach for working with new mentees in the future

Sample Clinical and Translational Research Mentor Training Schedule

Each session is 2 hours (See page 3 for a discussion about session structure and pairing).

Sessions	Topics
Session 1	Introductions Maintaining Effective Communication
Session 2	Aligning Expectations Assessing Understanding
Session 3	Addressing Equity and Inclusion Fostering Independence
Session 4	Promoting Professional Development Articulating Your Mentoring Philosophy and Plan



CHAPTER 2

Introduction to Facilitation

ROLE OF FACILITATORS

The following materials were designed to assist you in your role as group facilitator of the research mentor training curriculum. Specifically, these materials will help you guide the mentors as they work through their thoughts and ideas and engage in self-reflection and shared discovery. Importantly, your role is not to teach others, but rather to guide them in learning how to be a mentor. As a facilitator, your role is to:

- ▶ **Make it safe:** Take time to tell the group members that the research mentor training sessions are a safe place to be honest about their ideas and feelings. Everyone's ideas are worth hearing.
- ▶ **Keep it constructive and positive:** Remind members of your group to keep things positive and constructive. Ask the group how they want to deal with negativity and pointless venting. Remind them the training is about working together to learn, not complaining about the current situation or discounting the ideas of others in the interest of a personal agenda.
- ▶ **Make the discussion functional:** At the start of each session, explain the goals of the session to the group. Try to keep the group on task without rushing them. If the conversation begins to move beyond the main topic, bring it back to the main theme of the session.
- ▶ **Give members of the group functional roles and responsibilities:** Assign or ask for volunteers to take notes, keep track of time, and report to the entire group at the end of the session. Functional roles help keep participants engaged.
- ▶ **Give all participants a voice:** In a group, there are likely to be issues of intimidation and power dynamics that can play out in ways that allow certain members of the group to dominate while others remain silent. At the start of the conversation, mention that the group is mixed, by design, and point out that a diversity of perspectives is an essential part of the process. Remind group members to respect all levels of experience. It's important that everyone's voice is heard.

GENERAL NOTES ON FACILITATING A GROUP

Each group will take on its own feel and personality based on the people in the group, the facilitator's approach, and a host of external factors beyond your control. It helps if you adopt a no-fault clause stating that if a group is not working well, it is through no fault of a single individual, but rather a combination of circumstances. It's hard not to take it personally if a group doesn't function well, but remember, you are just one part of the whole dynamic.

It also helps if you are able to release your expectations for how a meeting or group should go, and instead focus on core aspects of the process. Your role as facilitator is to be intentional and explicit, while remaining flexible and not overly prescriptive. You can only do so much as a facilitator—to a large extent it is up to the participants to take ownership of their own learning especially since this training is designed for adults who have advanced degrees. Individual ownership, self-reflection, and shared discovery and learning will promote the deepest learning for this type of program.

As challenging but normal group dynamics surface, the group will look to you to fix problems. But part of your role is to help others see that they too are responsible for fixing problems. You can help them realize this by holding on tightly to the following core ideas of group dynamics (and periodically reminding the team of them):

- ▶ Respectful interactions (listening, non-judging, non-dominating, genuine questioning, etc.) are essential.
- ▶ Relevant tangents that tie back to a central topic, issue, or question are fine, but don't let them derail the central purpose of the discussion.
- ▶ You need to keep moving ahead, but there is no need to push the schedule if the group needs time to reflect or slow down (if you slow down or skip something, you can anticipate participants will feel they are behind or missing out, so reassure them that the initial schedule is only a guide and there will be time to revisit topics if needed).
- ▶ If you try something and it doesn't go well, don't abandon it right away. Step back and think about what went wrong, talk to the group, learn from it, and try it again. It often takes a time or two to get the group warmed up to something new.
- ▶ Discomfort and silence are ok, but with a clearly stated context and purpose. Silence may seem like a waste of time in meetings, but it gives people a chance to think, digest, and reflect. Allow for a few silent breaks before, during, and at the end of each meeting.
- ▶ Make it easy, rewarding, and fun for people to participate, and encourage others to do the same for each other. Simple things such as, friendly reminders of meetings, providing coffee, tea, or snacks, and follow-up calls to check in with someone if they miss a meeting, all send the message that you care and want to make it easy for group members to participate.

Adapted from the *Creating a Collaborative Learning Guidebook*, Center for the Integration of Research, Teaching, and Learning: http://www.cirtl.net/files/Guidebook_CreatingACollaborativeLearningEnvironment.pdf

GROUP DYNAMICS: HOW TO HANDLE CHALLENGES

What do I do when no one talks?

Have everyone write an idea or answer to a question on a piece of paper and toss it in the middle of the table. Each participant then draws a piece of paper from the center of the table (excluding their own) and reads it out loud. All ideas are read out loud before discussion begins.

Have participants discuss a topic in pairs for three to five minutes before reconvening as an entire group.

What do I do when one person is dominating the conversation?

Use a talking stone to guide the discussion. Participants may only talk when holding the stone. Each person in the group is given a chance to speak before anyone else can have a second turn with the stone. Participants may pass if they choose not to talk. Importantly, each person holding the stone should share their own ideas and resist responding to someone else's ideas. Generally once everyone has a chance to speak, the group can move into open discussion without the stone.

Use the Constructive/Destructive Group Behaviors Exercise. Each participant chooses their most constructive and destructive group behavior from a list (page 11). Each person writes the two behaviors on the back of their table tent. Then participants share their choice with the group and explain why they selected those behaviors. This exercise also helps provide the group with a vocabulary so they may name these behaviors as they later note them in themselves and others. It provides a light hearted and nonthreatening way that they can help each other stay on track.

What do I do when the group members direct all their questions and comments to me, instead of their fellow group members?

Each time a group member talks to you, move your eye contact to someone else in the group to help the speaker direct their attention elsewhere.

Ask the participants for help resolve one of your mentoring challenges. For example, ask them for advice on how to deal with an apathetic mentee. This helps the group members stop looking to you for the right answers and redirects the problem-solving and discussion focus to the entire group.

What do I do when a certain person never talks?

Have a different participant initiate each day's discussion so that different people have the chance to speak first.

Assign participants in the group different roles in a scenario or case study and ask them to consider the case from a certain perspective. Ask the participants to discuss the case with the entire group from the various perspectives. For example, some participants could consider the perspective of the mentee, while others consider the perspective of the mentor.

Try smaller group discussions (two to three participants per group) as individuals may feel more comfortable talking in smaller groups or without certain other individuals present.

What do I do when the group gets off topic?

Have everyone write the ideas they want to share on a given topic for three minutes. This short writing time will help participants collect their ideas and decide what thoughts they would most like to share with the group so they can focus on that point.

Ask someone to take notes and recap the discussion at the half-way and end points of the session to keep the conversation focused. Remind participants of the day's topic or a question that we asked.

Adapted from Branchaw, J., Pfund, C., and Rediske, R. (2010) *Entering Research: A Facilitator's Manual Workshops for Students Beginning Research in Science*. WH Freeman and Company: New York, NY

CONSTRUCTIVE AND DESTRUCTIVE GROUP BEHAVIORS

Constructive Group Behaviors

Cooperating: Is interested in the views and perspectives of other group members and willing to adapt for the good of the group.

Clarifying: Makes issues clear for the group by listening, summarizing, and focusing discussions.

Inspiring: Enlivens the group, encourages participation and progress.

Harmonizing: Encourages group cohesion and collaboration. For example, uses humor as relief after a particularly difficult discussion.

Risk Taking: Is willing to risk possible personal loss or embarrassment for success of the overall group or project.

Process Checking: Questions the group on process issues such as agenda, time frames, discussion topics, decision methods, use of information, etc.

Destructive Group Behaviors

Dominating: Uses most of the meeting time to express personal views and opinions. Tries to take control by use of power, time, etc.

Rushing: Encourages the group to move on before task is complete. Gets tired of listening to others and working with the group.

Withdrawing: Removes self from discussions or decision making. Refuses to participate.

Discounting: Disregards or minimizes group or individual ideas or suggestions. Severe discounting behavior includes insults, which are often in the form of jokes.

Digressing: Rambles, tells stories, and takes group away from primary purpose.

Blocking: Impedes group progress by obstructing all ideas and suggestions. "That will never work because . . ."

Adapted from Brunt (1993). Facilitation Skills for Quality Improvement. *Quality Enhancement Strategies*. 1008 Fish Hatchery Road. Madison WI 53715

CHAPTER 3

Introduction to Mentor Training

OVERVIEW, LEARNING OBJECTIVES, AND ACTIVITIES

Introduction

Establishing group dynamics and laying the ground rules are perhaps two of the most important steps to launch a successful mentor training program. Once established, these parameters help ensure mentors engage in shared learning of ways to become more effective mentors.

Learning Objectives

Mentors will:

1. Learn about other mentors in the group and begin building a learning community
2. Reflect on group dynamics and ways to make the group functional
3. Establish ground rules for participation

Overview of Activities for the Introductory Session: Please note core activities for this introductory session should be chosen by the facilitator from either the list of options provided or their own experience.

Learning Objectives	Core Activities will be chosen by each facilitator <i>Sample activities are included on pages 16–17</i>
1 Learn about other mentors in the group and begin building a learning community	
2 Reflect on group dynamics and ways to make the group functional	
3 Establish ground rules for participation	

FACILITATION GUIDE

Recommended Session for Introductions (30 minutes)

Materials Needed for the Session

- ▶ Table tents and markers
- ▶ Copies of introduction and learning objectives for Introduction to Mentor Training (page 15)
- ▶ Chalkboard, whiteboard, or flip chart
- ▶ Additional materials may be needed based on introductory activities, selected
- ▶ Handouts:
 - ▷ Any handouts needed for your chosen introductory activities such as copies of the *Constructive/Destructive Behaviors* list (see page 11)

TELL: Remind participants that they are demonstrating a special commitment to mentoring by taking time from their busy schedules to improve their mentoring skills. Mention that over 90% of prior participants have reported research mentor training to be a valuable use of their time and that they found the time to discuss issues with peers as one of the most valuable aspects of training.

Objective 1: Learn about other mentors in the group (10 min)

- ▶ ACTIVITY: Introductory Activity (10 min)
 - ▷ ASK: Invite participants to engage in the activity below, choose an alternative activity from pages 16–17 or use one from your own experience.
 - ▷ TELL: Remind participants that everyone sees the world through their own cultural lens and that our diversity comes from our biography, from our own lived experiences.
 - ▷ ASK: Ask participants to think about and then list as a group the diversity that exists among themselves. Assure participants they can share as little or as much as they are comfortable with. Some potential aspects could include educational background/discipline, the educa-

tional background of their parents, whether they were raised in urban or rural settings, experiences with people with disabilities, time abroad, languages spoken, preferences in music, etc.

- ▶ Write the list for everyone to see. Sample list:
 - ▷ Listens to country music
 - ▷ Speaks more than one language
 - ▷ Has at least one family member who works in medicine and public health
 - ▷ Rides a bike or bus to work
 - ▷ Grew up in a town with a population of less than 30,000
 - ▷ Is a first generation college graduate
 - ▷ Plays a musical instrument
 - ▷ Has ever been in a play
 - ▷ Has lived abroad
 - ▷ Has more than two siblings.
 - ▷ Is a parent
- ▶ Ask participants what is missing from the list in terms of diversity they are aware of in their own mentors and mentees.

Objective 2: Reflect on group dynamics and ways to make the group functional (10 min)

- ▶ **ACTIVITY: Building Constructive Group Dynamics (10 min)**
 - ▷ Choose an activity that will engage participants in a discussion of constructive and destructive group behaviors and how to deal with them. Sample activities include:
 1. Have each participant choose their most constructive and one destructive group behavior from the list on page 11. Ask participants to write them on the back of their table tent. Each participant then explains their choices to the entire group.
 2. Engage participants in a conversation about ways to handle destructive group behavior. For example, ask participants what facilitators and other participants should do if someone starts to dominate the conversation or completely withdraws from the discussion.
 3. Have participants list good and bad group behaviors and brainstorm ways to address the behaviors if they arise in the group.

NOTE: This exercise helps provide the group with a vocabulary so they may name these behaviors as they later observe them in themselves and others. It provides a light hearted and nonthreatening way that they can help each other stay on track and provides a nice segue to discussing communication.

Objective 3: Establish ground rules for participation (10 min)

- ▶ **DISCUSS or TELL (10 min):**
 - ▷ Either supply the participants with ground rules or engage them in a discussion to establish group-generated ground rules.
 - ▷ The list of ground rules should include ways to address:
 1. Confidentiality
 2. Missing sessions and possible make-up work
 3. Destructive group behaviors
 4. Participant roles and responsibilities
 5. Facilitator roles and responsibilities

Introductory Activities: Ways to Help Participants Get to Know One Another

1. Visual Explorer

Spread thirty or more pictures* that broadly depict phenomena related to teaching, mentoring, etc. around the room. Participants choose a visual representation in response to a question or statement, such as “Choose a picture that best represents mentoring.” Each participant explains their choice.

2. Who are You?

Participants add fun information about themselves to the four corners of their nametags. Some examples include:

Hometown

Favorite food

Favorite TV show

Hobby

Favorite kind of music

Number of people in their family (How each person defines family can be very interesting!)

3. Interviews

Participants interview the person next to them and vice versa, and then introduce one another to the entire group.

4. Truth or Lie?

Everyone tells two truths and one lie, and then the group guesses the lie for each person.

5. Significant Mentor

Have participants think of a mentor they have had that influenced their own practices. This could be a positive or negative example. Have each person briefly share what they learned.

6. Memorable Moments

Each person shares something memorable about themselves.

*Adapted from Paulus, C.J., Horth, D.M., and Drath, W.H. (1999) *Visual Explorer: a tool for making shared sense of complexity*. Center for Creative Leadership Press. <http://www.ccl.org/leadership/index.aspx>. Pictures can also be obtained as a packet of postcards, pages from a magazine, printed images from websites, or participants can be asked to find an image on their own and bring it in.

7. Letter Names

Each person says their name and shares characteristics that start with the first letter of their name.

8. The M&M game

Pass around a dish of M&M candies. Ask participants to introduce themselves by sharing as many characteristics about themselves as is equal to the number of M&Ms they took from the dish.

Maintaining Effective Communication

OVERVIEW, LEARNING OBJECTIVES, AND ACTIVITIES

Introduction

Good communication is a key element of any relationship and a mentoring relationship is no exception. As research mentors, it is not enough to say that we know good communication when we see it. Rather, it is critical that mentors reflect upon and identify characteristics of effective communication and take time to practice communication skills in the session and with their mentees.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Provide constructive feedback
2. Communicate effectively across diverse dimensions including various backgrounds, disciplines, generations, ethnicities, positions of power, etc.
3. Identify different communication styles
4. Engage in active listening
5. Use multiple strategies for improving communication (in person, at a distance, across multiple mentors, and within proper personal boundaries)

Overview of Activities for the Communication Session: Please note that a core activity is listed for each learning objective. We strongly encourage you to engage the mentors in this activity. There is a list of additional activities that can be used if you have extra time if the core activity is not working well for your group.

	Learning Objectives	Core Activities	Additional Activities
1	Provide Constructive Feedback	Mentors read and discuss Case #1: <i>Giving Constructive Feedback</i> (Activity #1)	Mentors read about interpersonal communication and discuss implications for their practice (Activity #4)
2	Communicate effectively across diverse dimensions	Mentors continue discussion about Case #1, focusing on discussion questions #1–3 for Objective #2	Mentors read and discuss Case #2: <i>Saying No</i> (Activity #5)
3	Identify different communication styles	Mentors take a communication styles test and discuss their results in pairs (Activity #2)	Mentors generate a list of different communication styles and discuss styles they feel most and least comfortable with (Activity #6)
4	Engage in active listening	Mentors work in small groups or groups of three sharing current mentoring challenges, practicing active listening. (Activity #3)	Mentors role play a scripted conversation between mentor and mentee and practice active listening (Activity #7)
5	Use multiple strategies for improving communication	Mentors discuss what they learned from Activity #3 and share specific strategies for improving communication between mentors and mentees	Mentors create a list of barriers to good communication and share strategies for overcoming such barriers (Activity #8)

FACILITATION GUIDE

Recommended Session on Maintaining Effective Communication (90 minutes)

Materials Needed for the Session

- ▶ Table tents and markers
- ▶ Chalkboard, whiteboard, or flip chart
- ▶ Handouts:
 - ▷ Copies of introduction and learning objectives for *Maintaining Effective Communication* (page 19)
 - ▷ Copies of *Communication Case Study #1: Giving Constructive Feedback*, (page 23) and the additional case if desired (page 24)
 - ▷ Copies of a Communication Styles Test
 - ▷ Copies of *Building a Relationship with a Mentee* (This reading can also be sent to mentors to review in advance.) (pages 26–28)

Introductions (10 min)

- ▶ ASK: Remind everyone who you are and share what communication topics you hope will be addressed in the session today.
- ▶ TELL: Review the introduction and learning objectives for the session.

Objectives 1 and 2: Provide constructive feedback and communicate effectively across diverse dimensions (30 min)

- ▶ ACTIVITY #1: Case Study
 - ▷ Distribute *Communication Case #1: Giving Constructive Feedback*. Let participants read the case individually for two to three minutes.
 - ▷ (Objective 1) DISCUSS (15 min) with entire group: You may want to record the ideas generated in this discussion on a white board or flip chart. Use the guiding questions following the case study. Additional questions are listed below:
 1. How can you communicate constructively with a mentee whose progress is disappointing?
 2. Should there be a balance between positive and negative feedback? If so, how do you achieve that balance?
 3. How can you communicate in a way that fosters a change in behavior?
 4. What are the characteristics of good communication? What does it look like? You may wish to provide a handout or a starting list. Let participants supplement the list during group discussion. Don't forget nonverbal communication.
 5. Why might your mentee have difficulty receiving negative feedback? How can you uncover the reasons and address them?
 6. How can you tell if your mentee heard a comment the way it was intended?
 - ▷ (Objective 2) DISCUSS (10 min) with the group: You may want to record the ideas generated in this discussion on a white board or flip chart. Guide the discussion using the following questions.
 1. Discuss the role of trust in this interaction.
 2. How would your own response be affected if your mentee's cultural background were different from your own (race, ethnicity, national origin, religion, etc.)? What additional things would the mentee have to consider or do if she were using a sign or language interpreter during the presentation?
 3. Does a difference in gender affect communication in this case? What if English was the mentee's second language and speaking fluently was a challenge? Would you handle the situation differently? Does it matter that the mentor's first language is not English?

Objective 3: Identifying different communication styles (25 min)

- ▶ ACTIVITY #2: Communication Styles Test (7 min)
 - ▷ TELL: Mentors should individually complete a communication styles test and calculate their score. There are many such inventories available online such as the "Effective Communication Styles Inventory" (<http://www.whcare.com/images/form.pdf>) or the "PACE Palette" (<http://www.paceorg.com>).
 - ▷ ASK: Think about the way you communicate with your current mentees when engaging in the following activity.

- ▷ DISCUSS (8 min): Mentors discuss their results in pairs and compare results. Questions to guide their discussion can include (you may wish to write these questions on the whiteboard or flipchart):
 - ▷ Specifically, to what extent did or didn't the test validate what you know about yourself?
 - ▷ What did you learn?
- ▷ DISCUSS (10 min) with entire group additional questions regarding communication styles:
 - ▷ In what other situations could you apply this type of assessment?
 - ▷ How can you determine your mentee's communication style?
 - ▷ What are strategies for communicating across different styles?

NOTE: We acknowledge that all such tests are at some level oversimplifications, but can be an effective starting point for reflection and discussion. As a facilitator, you may want to provide a specific example of how your results helped you reflect on your communication with mentees.

Objectives 4 and 5: Engage in active listening and use multiple strategies for improving communication (25 min)

- ▶ ACTIVITY #3: Active Listening (15 min):
 - ▷ Mentors form groups of three. One mentor shares a current challenge they are facing in their mentoring relationship(s). The second person practices active listening skills and tries to develop a plan of action to resolve the situation. The third person acts as observer and notes tone, body language, facial expressions, etc. Participants rotate roles and discuss what they learned as time allows. Refer to the provided reading for tips on active listening or for more information on nonverbal communication.
- ▶ DISCUSS (10 min): In the large group have mentors share what they learned from the exercise and the strategies that the groups elicited. You may want to record the ideas generated in this discussion on a white board or flip chart.

Summary Activity (5 min)

- ▶ REFLECTION (5 min): Mentors reflect on the handout about interpersonal communication and write down two areas for personal improvement.

Maintaining Effective Communication

Case #1: Giving Constructive Feedback

As he leaves the crowded conference room, Dr. Tariq tells Dr. Timms he'll see her in a few minutes. Dr. Timms was the last presenter in the practice session. Back in his office Dr. Tariq sits looking distractedly out the window and releases a heavy sigh. He shifts his attention back to his notes for a last review: . . . reading slides . . . too fast . . . too long . . . print too small . . . too much print . . . color contrast . . . meandering. . . . A few moments later he hears a knock on the door and beckons Dr. Timms to come in. She plops in a chair across from him and looks up expectantly. He meets her gaze and smiles. "Thanks for coming by. I wanted to make sure we could review your talk since the conference is in a week and I know you're in clinic all day tomorrow—and then I'm out of town," he says with a heavy accent. Dr. Timms continues to stare without comment, a blank expression on her face. "Well, as you know I think your research is really important and I'm glad that we have this opportunity to share it. I think this conference will be a great opportunity for you to meet some key colleagues in this field." She nods slightly, and shifts in her seat. "I do think there are a few things that could tighten your presentation." She continues to stare and Dr. Tariq keeps his focus on his notes as he continues. "For example you had some long sentences, and even whole paragraphs on your slides. While they were well written"—his computer chimes as a new email arrives and he glances over to see who it's from. *Oh, not again.* . . . "As I was saying, while they were well written—I mean you know your writing is strong—it is really too much text for a slide. You could try to shorten some to bullet points. Then you can still make those points without just reading your slides to the audience." He looks up and sees that she is now looking at the floor. "It would also allow you to increase the font size a bit. I think it might have been hard to read from the back of the room." He looks up again and sees she is taking some notes. "To cut back on the time, I think you could cut the four slides on the background and just briefly summarize those." He waits for comment and the silence drags on a few moments. "What do you think?"

"I can look at it." Her face remains expressionless as she glances up and briefly meets his eye.

"That might allow you to slow down a bit," he continues. "Of course it's natural to get nervous and then one tends to talk faster. Perhaps you could practice it a bit at home and focus on slowing the pace and not looking at your notes as much. Have you tried practicing out loud to yourself at home?"

"Yes."

The phone rings. He checks caller ID. *I'll have to call her back when this is over.* "Okay then. I can send you a link to some tips on slide composition and oral presentation and hopefully that will be helpful." There is another long moment of silence. "Well do you have any questions for me?"

"No, not right now."

"Okay then, well good luck!" He forces another smile and reaches out to shake her hand as she rises to leave. She takes it and smiles back feebly.

"Thanks."

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. How could this situation have been handled differently? What should the mentor do now?
3. Does a lack of response constitute feedback? When you get no response, how do you interpret that?

Additional Activities (if time allows)

Objective 1; Activity #4

Have mentors read about interpersonal communication (below). Have them discuss their own communication skills and two areas for improvement. Write these down and return to this at the end of the workshop. Have they made improvements on those specific skills?

Objective 2; Activity #5

Case #2: Saying No

Dr. Yin is a first-year K-scholar and clinical faculty member in the Department of Medicine. Dr. Yin found his first year as a K-scholar very challenging. In particular, Dr. Yin struggled to balance his clinical responsibilities with his research productivity. However, in just the last few months, Dr. Yin has figured out a schedule and an organizational system that is working well for him. He is finally feeling that his research program is moving forward and he is meeting his clinical goal. Last week, Dr. Yin's department chair asked Dr. Yin to take on an additional project. While the project is interesting and has great publication potential, Dr. Yin cannot imagine fitting it in without his current research or clinical work suffering. Dr. Yin feels he must say no to his department chair, but fears the repercussions both in terms of their relationship and his chair's opinion of him.

Guiding Questions for Discussion:

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?
3. What strategies have you used to assure that your mentee's time is adequately protected?

NOTE: This case is taken from the mentee's perspective, providing mentors a slightly different lens.

Objective 3; Activity #6:

Have mentors generate a list of different communication styles and discuss the styles they feel most and least comfortable with. If time allows, ask mentors to share practical strategies for working with mentees who have very different communication styles from their own.

Objective 4; Activity #7:

Have mentors work in pairs and role play the scripted conversation between mentor and mentee below. Then discuss how the mentor could have reacted differently; practice a response that includes active listening. Use the techniques in the reading to guide your approach. (Alternatively, facilitators could role play the scenario and then discuss with the full group.)

Scripted conversation:

Mentee walks into his mentor's office excited after coming from a meeting with a co-primary mentor.

Mentee: [Knocks and walks in office] Hi! I'm so glad I caught you in your office. I just came from my meeting with Dr. Jahns and I have really exciting news about our upcoming grant. He said—

Mentor: [Interrupting] I was hoping you'd stop by. I just submitted the abstract for the conference next month. I was thinking . . . [email notification pops up on computer and mentor is distracted]

Mentee: [Patiently waits for mentor to read email]

Mentor: Ooh I just received an email back from Dr. Tram. He agreed to present at the conference. His ideas are so innovative. I want to make sure you meet him. I have to quick run to my next meeting. What were you saying before?

Mentee: Dr. Jahns is really excited about our idea for the grant. He and I thought of a few suggestions on how to integrate our projects—

Mentor: [Interrupting] That's great but we already decided our approach at the lab meeting two weeks ago. I already know what he has to say about it and it doesn't make any sense to change it.

Mentee: I really think we should consider—

Mentor: [Interrupting] I have to go. We can talk next week. I expect a draft of the grant at our next meeting.

Mentor walks out of his office and hurries down the hall.

Objective 5; Activity #8:

Have mentors brainstorm a list of barriers to good communication, record them on a white board or flip chart, and then have mentors choose two or three barriers and discuss practical ways to overcome them. For example, one barrier might be a lack of time to meet one-on-one. Some solutions might be more frequently email, telecoms, or setting up a time to chat by instant message each week.

Alternatively, have the mentors create a list of all the forms of communication used by them and their mentee (face-to-face meetings, email, sticky notes, phone calls, etc). Organize the resulting list by types of communication and assign each type to a sub-group of two to three mentors. Each sub-group should then discuss ways each method can be improved. At the end, have each smaller group report to the entire group. Record all ideas on the whiteboard or flip chart. You may want to send a compiled list to the entire group.

¹ Mehrabian, Albert. *Nonverbal communication*. Chicago: Aldine-Atherton, Chicago; 1972.

Building a Relationship with a Mentee

Building an effective relationship of mutual understanding and trust with the mentee is a critical component of effective mentoring. Mentors can establish rapport with their mentees by using effective interpersonal communication skills, actively building trust, and maintaining confidentiality. This document contains information and advice to help mentors build rapport and create positive relationships with mentees so both parties can achieve the greatest benefit from the mentoring experience.

Interpersonal Communication

Interpersonal communication is a person-to-person, two-way, verbal and nonverbal sharing of information between two or more persons. Good communication helps to develop a positive working relationship between the mentor and mentee by helping the mentee to better understand directions and feedback from the mentor, feel respected and understood, and be motivated to learn from the mentor. Mentees learn best from mentors who are sincere, approachable, and nonjudgmental. These qualities are communicated primarily by facial expressions, and, to a limited extent, by words. People often remember more about how a subject is communicated than the speaker's knowledge of the subject.

There are two types of communication: verbal and nonverbal. Verbal communication is communication that occurs through spoken words. Nonverbal communication is communication that occurs through unspoken mediums, such as gestures, posture, facial expressions, silence, and eye contact. It is important for mentors to remember they are communicating to mentees both when they are speaking and when they are not speaking. Up to 93% of human communication is nonverbal.¹ Body language tells those with whom we are communicating a great deal about what we are thinking and feeling. Examples of positive or open body language include:

- ▶ Eye contact (depending on the culture)
- ▶ Open or relaxed posture
- ▶ Nodding or other affirmation
- ▶ Pleasant facial expressions

Examples of negative or closed body language include crossed arms, averted eyes, and pointing fingers. The mentor needs to be aware of what he or she is communicating nonverbally as well as what the mentee is communicating nonverbally.

When mentoring, effective communication involves more than providing information or giving advice; it requires asking questions, listening carefully, trying to understand a mentee's concerns or needs, demonstrating a caring attitude, remaining open-minded, and helping solve problems. There are many communication skills that mentors can utilize to effectively communicate with mentees, including the following:

- ▶ *Active listening*: Be sure to really listen to what a mentee is saying. Often, instead of truly listening to the mentee, the mentor is thinking about his or her response, what to say next, or something else entirely. It is important to quiet these thoughts and remain fully engaged in the task of listening.
- ▶ *Attending*: Listen while observing, and communicate attentiveness. This can include verbal follow-up (saying "yes" or "I see") or nonverbal cues (making eye contact and nodding the head).

- ▶ *Reflective listening*: Verbally reflect back what the mentee has just said. This helps the mentor to check whether or not he or she understands the mentee, and helps the mentee feel understood. Examples:
 - ▷ “So it seems that you’re overwhelmed with your workload.”
 - ▷ “It seems that you are concerned about that experiment.”
- ▶ *Paraphrasing*: Determine the basic message of the mentee’s previous statement and rephrase it in your own words to check for understanding. Examples:
 - ▷ “You’re interested in developing a system for improving that.”
 - ▷ “It sounds like you’re concerned about the design of the experiment.”
- ▶ *Summarizing*: Select main points from a conversation and bring them together in a complete statement. This helps ensure the message is received correctly. For example, “Let me tell you what I heard, so I can be sure that I understand you. You said that the main challenge right now is balancing your clinical load and writing the research proposal.”
- ▶ *Asking open-ended questions*: Ask mentees questions that cannot be answered with a simple yes or no. Open-ended questions encourage a full, meaningful answer using the mentee’s own knowledge and feelings, whereas closed-ended questions encourage a short or single-word answer. Examples:
 - Close-ended question*: “You didn’t think the experiment would work?”
 - Open-ended question*: “What factors led you to your decision to change the protocol?”
 - Close-ended question*: “Did you understand what we discussed today?”
 - Open-ended question*: “Can you summarize what we discussed today?”
- ▶ *Probing*: Identify a subject or topic that needs further discussion or clarification and use open-ended questions to examine the situation in greater depth. For example, “I heard you say you are overwhelmed; please tell me more about that.”
- ▶ *Self-disclosure*: Share appropriate personal feelings, attitudes, opinions, and experiences to increase the intimacy of communication. For example, “I can relate to your difficult situation, I have experienced something similar and recall being very frustrated. Hopefully I can assist you to figure out how to move forward.”
- ▶ *Interpreting*: Add to the mentee’s ideas to present alternate ways of looking at circumstances. When using this technique, it is important to check back in with the mentee and be sure you are interpreting correctly before assigning additional meaning to their words. For example, “So you are saying that the reason the interpretation is flawed is because of the statistical test used to analyze the data? That is likely one reason, but have you also considered that the design may be wrong as well?”
- ▶ *Confrontation*: Use questions or statements to encourage mentees to face difficult issues without accusing, judging, or devaluing them. This can include gently pointing out contradictions in mentees’ behavior or statements, as well as guiding mentees to face an issue that is being avoided. For example, “It’s great that you are so committed to mentoring the younger researcher in the group. However, I am concerned that you are not dedicating enough time to your own research.”

A number of attitudes and/or behaviors can serve as barriers to communication—these can be verbal or nonverbal. Verbal barriers to communication that should be *avoided* include the following:

- ▶ *Moralizing*: Making judgments about a mentee’s behavior, including calling it right or wrong, or telling them what they should or should not do.
- ▶ *Arguing*: Disagreeing with instead of encouraging the mentee.
- ▶ *Preaching*: Telling the mentee what to do in a self-righteous way.

- ▶ *Storytelling*: Relating long-winded personal narratives that are not relevant or helpful to the mentee.
- ▶ *Blocking communication*: Speaking without listening to the mentee's responses, using an aggressive voice, showing impatience, showing annoyance when interrupted, or having an authoritative manner. These behaviors often lead to the mentee feeling down, humiliated, scared, and insecure. As a result, the mentee may remain passive and refrain from asking questions, or distrust the mentor and disregard his or her recommendations.
- ▶ *Talking too much*: Talking so much that the mentee does not have time to express themselves. As a mentor, it is important not to dominate the interaction.

Examples of nonverbal barriers to communication include shuffling papers, not looking directly at the mentee when he or she is speaking, and allowing interruptions or distractions. These barriers may have consequences for both the mentor and the mentee. They may lead to a poor sharing of information, fewer questions being asked by the mentee, difficulty in understanding problems, uncomfortable situations, and a lack of motivation on the part of the mentee.

Establishing Trust

Establishing trust is an essential component in building rapport with a mentee. Trust is the trait of believing in the honesty and reliability of others.² Some mentees may be nervous about working with a mentor. To put them at ease, create a trusting relationship by empathizing with their challenges, share knowledge without being patronizing, and remain nonjudgmental. Along with the other communication skills listed above, establishing a trusting dynamic is essential for a productive and positive mentor/mentee relationship.

The following list provides some ideas for how the mentor can build trust with the mentee:

- ▶ Share appropriate personal experiences from a time when they were being mentored.
- ▶ Acknowledge mentee strengths and accomplishments from the onset of the mentoring process.
- ▶ Encourage questions of any type and tell the mentee that there is no such thing as a bad question.
- ▶ Take time to learn culturally appropriate ways of interacting with your mentee and helping your mentee to interact appropriately with their peers.
- ▶ When appropriate, consider how local knowledge can be incorporated into the mentoring experience.
- ▶ Acknowledge the mentee's existing knowledge and incorporate new knowledge into existing knowledge.
- ▶ Ask for and be open to receiving feedback from mentees, apply constructive feedback to improve mentoring skills.
- ▶ Eat a meal with the mentee to get to know him or her in a non-work setting.

Adapted from the I-TECH Clinical Mentoring Toolkit, produced by the International Training and Education Center for Health (I-TECH)/University of Washington with funding from the US Health Resources and Services Administration. For more information, visit www.go2itech.org.

CHAPTER 5

Aligning Expectations

OVERVIEW, LEARNING OBJECTIVES, AND ACTIVITIES

Introduction

One critical element of an effective mentor-mentee relationship is a shared understanding of what each person expects from the relationship. Problems between mentors and mentee often arise from misunderstandings about expectations. Importantly, expectations change over time so frequent reflection and clear communication is needed to maintain a collaborative relationship.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Effectively establish mutually beneficial expectations for the mentoring relationship
2. Clearly communicate expectations for the mentoring relationship
3. Align mentee and mentor expectations
4. Consider how personal and professional differences may influence expectations, including differences across disciplines when working in multidisciplinary teams

Overview of Activities for the Expectations Session: Please note that a core activity is listed for each learning objective. We encourage you to engage your mentors in this activity. There is a list of additional activities that can be used if you have extra time in the session or if the core activity is not working well for your group.

	Learning Objectives	Core Activities	Additional Activities
1	Effectively establish mutually beneficial expectations for the mentoring relationship	Mentors read and discuss Case #1: <i>The Second Year Blues</i> (Activity #1)	Mentors create a list of predicted mentee expectations and discuss how they can determine whether they are being met (Activity #4)
2	Clearly communicate expectations for the mentoring relationship	Mentors review compact examples and begin to outline their own (Activity #2)	Mentors discuss how to elicit their mentees' learning goals and incorporate them into individualized compacts (Activity #5)
3	Align mentee and mentor expectations	Mentors have a post-session meeting with their mentee to discuss the draft of compact (see above)	Mentors develop strategies to identify their own expectations, those of their mentee, and align the two (Activity #6)
4	Consider how personal and professional differences may influence expectations	Mentors read and discuss Case #2: <i>Misaligned Expectations</i> (Activity #3)	Mentors discuss challenges mentees face when working with multiple mentors and brainstorm solutions to these challenges (Activity #7)

FACILITATION GUIDE

Recommended Session on Aligning Expectations (75 minutes)

Materials Needed for the Session:

- ▶ Table tents and markers
- ▶ Index cards
- ▶ Chalkboard, whiteboard, or flip chart
- ▶ Handouts:
 - ▷ Copies of introduction and learning objectives for *Aligning Expectations* (page 29)
 - ▷ Copies of *Expectations* case studies (*The Second Year Blues* and *Misaligned Expectations*) (page 33)
 - ▷ Copies of example mentor-mentee compacts (pages 34–47)

Introductions (10 min)

- ▶ REFLECTION: Ask mentors to write down any new mentoring activities they have engaged in since the last session. If none, they should write down something they are thinking about regarding their mentoring relationship based on the previous session.
- ▶ ASK: Share the most important thing you learned from the last mentor-training session.
- ▶ TELL: Review the introduction and learning objectives for the session.

Objective 1: Effectively establish mutually beneficial expectations for the mentoring relationship (18 min)

- ▶ ACTIVITY #1: (18 min)
 - ▷ Distribute *Expectations Case #1: The Second Year Blues* and let participants read the case individually for two to three minutes.
 - ▷ DISCUSS (15 min) with entire group. You may want to record the ideas generated in this discussion on a white board or flip chart. Use the guiding questions following the case study. Additional questions are listed below:
 1. How do you establish and communicate your expectations of your mentee?
 2. What are strategies for uncovering the unspoken expectations mentees and mentors may have about issues such as authorship, job placement, hierarchy, letters of recommendation, etc.?
 3. How can you help a mentee navigate the different expectations articulated by multiple mentors?

Objective 2 and 3: Clearly communicate expectations and how to align mentee and mentor expectations (25 min)

- ▶ ACTIVITY #2: Reviewing Mentor-Mentee Compacts (15 min)
 - ▷ ASK: Do any of you use mentor-mentee compacts? If so, what has your experience been in using them?
 - ▷ Mentors review sample compacts and circle or highlight the items in the examples that they would like to include in their own compact.
 - ▷ NOTE: The sample compacts include one from the University of Pittsburgh Clinical and Translational Science Award (CTSA) Program, one from the University of Wisconsin-Madison, and another from the American Association of Medical Colleges. Some of the items will resonate with you, while others will not. The goal today is to identify those elements that you would definitely include in your own compact and note additional items you might want to incorporate later.
 - ▷ TELL: Remind mentors that while they may create a template expectations document that can be used to initiate a discussion on the topic with mentees, an essential component in this process is eliciting the goals and expectations of each mentee. Individual development plans, like those included in the “Promoting Professional Development” session can be utilized in concert with your expectations template to tailor a holistic plan for each mentee.
 - ▷ DISCUSS (10 min) in pairs: Mentors discuss items chosen for their compacts.

Objective 4: Consider how personal and professional differences may impact expectations, including differences across disciplines when working in multidisciplinary teams (20 min)

► **ACTIVITY #3: Case Study (20 min)**

- ▷ Distribute *Expectations Case #2: Misaligned Expectations* and let participants read the case individually for two to three minutes.
- ▷ **DISCUSS (17 min)** with entire group. You may want to record the ideas generated in this discussion on a whiteboard or flip chart. Use the guiding questions following the case study. Additional questions are listed below:
 1. What kind of conversations regarding expectations might have been helpful earlier in this relationship?
 2. What kind of conversations would be helpful at this point? Who should be involved in these conversations?
 3. How might the culture of the Department of Surgery and the training and experience of the lab manager influence Dr. Lumen's ability to conduct his research?
 4. How is it possible for each individual to succeed in this arrangement?
 5. How does a mentee learn the social dynamics and structure of a research group and the sense of hierarchy of personnel and projects? How can a mentor communicate these aspects of research? At what point is it appropriate for the mentor and mentee to discuss these topics?
 6. How can you confirm that your expectations take into account a mentee's research training and individual learning style, background, and abilities?

Follow-Up Activity (2 min)

- **TELL:** You should try to find time to complete a draft of your mentoring compact and then meet with your mentee to discuss the draft, while recognizing that the draft may change based on the discussion. Make sure the compact aligns your expectations with those of your mentee.

Aligning Expectations

Case #1: The Second-Year Blues

Dr. Bento is beginning the second year of her appointment as a research scholar in clinical and translational research at BIG U Academic Health Center. To date, she has enjoyed working on her mentor's research project but is becoming anxious that she has not yet started an independent research project. She wants to bring up her concerns, but it seems her mentor never has enough time to have a discussion focused on Dr. Bento's research goals. This situation is becoming frustrating for her, as she likes her mentor and she understands that the past few months have been extremely busy for her mentor due to a host of factors, e.g., budget constraints, preparing applications for the NIH funds, adoption of a new family member, etc. Being a politically astute assistant professor, Dr. Bento is reluctant to make a misstep with her well-established, senior mentor, yet she knows the clock is ticking. Dr. Bento is also concerned that her strong interests in translational research are too divergent from her mentor's basic research program. She wants to stop feeling stuck.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?
3. How do you find out your mentee's expectations of you and for the research experience?

Case #2: Misaligned Expectations

Dr. Chris Lumen is a fellowship-trained cardiovascular surgeon and has been on the clinical faculty for three years. Dr. Lumen is highly motivated to develop a new translational science line of inquiry. He discussed this exciting new line of research with his mentor, Dr. Pat Stent, a senior research faculty member in the department with a large and well-funded research laboratory. Dr. Stent was very enthusiastic about these new sets of experiments. After a few discussions, Dr. Stent invited Dr. Lumen to join the laboratory, then introduced Dr. Lumen to the lab manager, Dr. Gene Plaque, and instructed them to develop the research together. The laboratory manager, Dr. Plaque, had previously experienced a great deal of frustration with rotating medical students and residents, and having been "assigned" to assist such individuals with their work, and had concerns regarding the competing demands Dr. Lumen would experience between clinical practice and basic research. However, Dr. Plaque did not feel comfortable expressing any of these concerns directly to Dr. Stent or Dr. Lumen because of the hierarchy of a physician-led surgical department. After about two months, Dr. Plaque did finally express his concerns and frustration to Dr. Stent, indicating that Dr. Lumen frequently leaves the laboratory in the middle of experiments to attend to clinical cases. Dr. Lumen leaves much of the work incomplete and typically asks Dr. Plaque and other laboratory staff to continue the experiments in his absence, placing an unexpected extra workload on Dr. Plaque and other members of the laboratory. Moreover, Dr. Lumen frequently expresses frustration to Dr. Plaque about how much time experiments take to complete.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now?
3. What are the differences to consider when clinicians work with basic scientists?

EXAMPLE: UNIVERSITY OF PITTSBURGH TEAM MENTORING AGREEMENT

Clinical Research Scholars Program (CRSP) Team Mentoring Expectations

A critical element of the CRSP is the use of team mentoring. For this program, team mentoring means more than having multiple mentors working with the mentee; it means having mentors working together as a team to contribute to the mentee's career development. The concept was developed through the NIH Roadmap initiative, which found that "the scale and complexity of today's biomedical research problems increasingly demands that scientists move beyond the confines of their own discipline and explore new organizational models for team science." Today's research requires bringing together the perspectives of multiple disciplines to examine a research question right from the beginning. This multidisciplinary approach allows us to develop and conduct research projects that are new and innovative and that would not be possible using a traditional single discipline or multiple disciplines working individually with a mentee approach. It is the synergy created when investigators from multiple disciplines come together that will result in the development of new scientific approaches. This team mentoring model provides benefits for the mentee as he/she learns multidisciplinary methods of discovery and the mentors as they have the opportunity to bring fresh perspectives to the research question they are examining. The CRSP is promoting the development of this team science through the conduct of multidisciplinary research and the use of team mentoring for mentees.

Team Mentoring Goals

1. To enhance the supportive academic environment for team science for the mentee.
2. Working as a team and providing multiple perspectives, to facilitate the entry of mentee into the University culture, including the structures, processes, and interpersonal climate of the University.
3. To facilitate the development of appropriate clinical research skills and team science approaches related to the balance and evaluation of research, scholarship, and service.
4. To provide opportunities for developing and working on mentored and independent multidisciplinary research projects with a multidisciplinary clinical research team.
5. To enhance decision-making and other skills involved in working with a team related to the mentee's career development and advancement.

Expectations of Mentors

1. The mentoring team must conduct regular and frequent team meetings with the mentee. There should be a minimum of one hourly meeting of the primary mentors and the mentee per week, and at least one hourly meeting per month of the entire mentoring team and the mentee. Consultants contributing to specific research issues should meet with the team when these issues are being discussed or decisions regarding these issues are being made.
2. The mentoring team must participate in the one-day team mentoring training retreat to obtain or enhance skills in team mentoring.

3. The mentoring team will develop, with the mentee, clearly delineated specific expectations of the substantive learning/skills to be achieved through the use of team mentoring in the program.
4. The mentoring team will develop, with the mentee, clearly delineated specific milestones and timelines for achieving program goals.
5. The mentoring team will attend meetings and seminars in which the mentee is presenting.
6. The mentoring team will participate in biannual evaluations and assessments of the team mentoring relationships. The Multidisciplinary Advisory Committee (MAC) reserves the right to change the mentoring team should difficulties continue for a sustained period of time.
7. The content of all exchanges between the team mentors and the mentee are subject to the expectations of professional confidentiality. Although this confidentiality is legally limited, the contents should not be discussed with anyone else without written permission from the mentee.

Expectations of Mentees

1. The mentee must conduct regular and frequent team meetings with the mentoring team. There should be a minimum of one hourly meeting with the primary mentors per week and at least one hourly meeting per month with the entire mentoring team. Consultants contributing to specific research issues should meet with the team when these issues are being discussed or decisions regarding these issues are being made.
2. The mentee must participate in the one-day team mentoring training retreat to obtain skills in working in a team science environment.
3. The mentee will develop, with the mentoring team, clearly delineated specific expectations of the substantive learning/skills to be achieved through team mentoring in the program.
4. The mentee will develop, with the mentoring team, clearly delineated specific milestones and timelines for achieving program goals.
5. The mentee will share career plans, recount initiatives on behalf of his/her professional development; ask for advice; reflect on the mentoring team's observations and inform the mentoring team about the results of the mentee's efforts.
6. The mentee must present the mentee's work to the MAC and at seminars with the mentoring team in attendance.
7. The mentee will participate in biannual evaluations and assessments of the mentoring team relationships. The MAC reserves the right to change the mentoring team should difficulties continue for a sustained period of time.
8. The mentee will keep the content of the team mentoring relationship confidential; the mentoring team may share personal information that they wish to be honored as confidential.

We, acting as team mentors and mentee, agree to enter into a team mentoring relationship based on the criteria described above, which sets forth the expectations, parameters, and process for the mentoring relationship.

_____ (mentor's signature) date ___/___/___

_____ (mentor's signature) date ___/___/___

_____ (mentee's signature) date ___/___/___

_____ (CRSP director's signature) date ___/___/___

Additional mentors as applicable

_____ (mentor's signature) date ___/___/___

_____ (mentor's signature) date ___/___/___

_____ (mentor's signature) date ___/___/___

The Institute for Clinical Research Education, serving as the Research Education and Career Development Core of the Clinical and Translational Science Institute (CTSI) University of Pittsburgh



Tomorrow's Doctors, Tomorrow's Cures®

Compact Between Postdoctoral Appointees and Their Mentors

December 2006

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The *Compact Between Postdoctoral Appointees and Their Mentors* is intended to initiate discussions at the local and national levels about the postdoctoral appointee-mentor relationship and the commitments necessary for a high quality postdoctoral training experience.

The Compact was drafted by the AAMC Group on Graduate, Research, Education, and Training (GREAT) and its Postdoctorate Committee. It is modeled on the AAMC *Compact Between Resident Physicians and Their Teachers*, available at www.aamc.org/residentcompact. Input on the document was received from the GREAT Group Representatives, members of the AAMC governance, and other members of the postdoctoral community, including the National Postdoctoral Association. At its October 8, 2006, annual business meeting, the GREAT Group unanimously endorsed the document. The document was subsequently endorsed by the AAMC Executive Committee on October 20, 2006.

The Compact is available on the AAMC Web site at www.aamc.org/postdoccompact

Compact Between Postdoctoral Appointees and Their Mentors

Postdoctoral training is an integral component of the preparation of scientists for career advancement as scientific professionals. Postdoctoral appointees typically join an institution to further their training in a chosen discipline after recently obtaining their terminal degree (e.g., Ph.D., M.D., D.V.M.). This training is conducted in an apprenticeship mode where she/he works under the supervision of an investigator who is qualified to fulfill the responsibilities of a mentor. The postdoctoral appointee may undertake scholarship, research, service, and teaching activities that together provide a training experience essential for career advancement.

Core Tenets of Postdoctoral Training

Institutional Commitment

Institutions that train postdoctoral appointees must be committed to maintaining the highest standards of training and to providing a program sufficient to ensure, that when completed, the trainee can function independently as a scientific professional. Institutional oversight must be provided for terms of appointment, salary, benefits, grievance procedures, and other matters relevant to the support of postdoctoral appointees. A responsible institutional official must be designated to provide this oversight, and a suitable office should be available for the administrative support of postdoctoral affairs.

Quality Postdoctoral Training

Individuals should be trained to independently formulate meaningful hypotheses, design and conduct interpretable experiments, adhere to good laboratory practices, analyze results critically, understand the broad significance of their research findings, and uphold the highest ethical standards in research. The development of additional skills—including oral and written communication, grant writing, and laboratory management—are considered integral to this training.

Importance of Mentoring in Postdoctoral Training

Effective mentoring is critical for postdoctoral training and requires that the primary mentor dedicate substantial time to ensure personal and professional development. A good mentor builds a relationship with the trainee that is characterized by mutual respect and understanding. Attributes of a good mentor include being approachable, available, and willing to share his/her knowledge; listening effectively; providing encouragement and constructive criticism; and offering expertise and guidance.

Foster Breadth and Flexibility in Career Choices

Postdoctoral appointees must have training experiences of sufficient breadth to ensure that they are prepared to pursue a wide range of professional career options. Effective and regular career guidance is essential and should be provided by the mentor and the institution.

Commitments of Postdoctoral Appointees

- **I acknowledge that I have the primary responsibility for the development of my own career.**
I recognize that I must take a realistic look at career opportunities and follow a path that matches my individual skills, values, and interests.
- **I will develop a mutually defined research project with my mentor that includes well-defined goals and timelines.** Ideally, this project should be outlined and agreed upon at the time of the initial appointment.
- **I will perform my research activities conscientiously, maintain good research records, and catalog and maintain all tangible research materials that result from the research project.**
- **I will respect all ethical standards when conducting my research including compliance with all institutional and federal regulations as they relate to responsible conduct in research, privacy and human subjects research, animal care and use, laboratory safety, and use of radioisotopes.**
I recognize that this commitment includes asking for guidance when presented with ethical or compliance uncertainties and reporting on breeches of ethical or compliance standards by me and/or others.
- **I will show respect for and will work collegially with my coworkers, support staff, and other individuals with whom I interact.**
- **I will endeavor to assume progressive responsibility and management of my research project(s) as it matures.** I recognize that assuming responsibility for the conduct of research projects is a critical step on the path to independence.
- **I will seek regular feedback on my performance and ask for a formal evaluation at least annually.**
- **I will have open and timely discussions with my mentor concerning the dissemination of research findings and the distribution of research materials to third parties.**
- **I recognize that I have embarked on a career requiring “lifelong learning.”** To meet this obligation I must stay abreast of the latest developments in my specialized field through reading the literature, regular attendance at relevant seminar series, and attendance at scientific meetings.
- **I will actively seek opportunities outside the laboratory (e.g. professional development seminars and workshops in oral communication, scientific writing, and teaching) to develop the full set of professional skills necessary to be successful for my chosen career.**
- **At the end of my appointment, in accordance with institutional policy, I will leave behind all original notebooks, computerized files, and tangible research materials so that other individuals can carry on related research. I will also work with my mentor to submit the research results for publication in a timely manner.** I can make copies of my notebooks and computerized files, and have access to tangible research materials which I helped to generate during my postdoctoral appointment according to institutional policy.

Commitments of Mentors

- **I acknowledge that the postdoctoral period is a time of advanced training intended to develop the skills needed to promote the career of the postdoctoral appointee.**
- **I will ensure that a mutually agreed upon set of expectations and goals are in place at the outset of the postdoctoral training period, and I will work with the postdoctoral appointee to create an individual career development plan.**
- **I will strive to maintain a relationship with the postdoctoral appointee that is based on trust and mutual respect.** I acknowledge that open communication and periodic formal performance reviews, conducted at least annually, will help ensure that the expectations of both parties are met.
- **I will promote all ethical standards for conducting research including compliance with all institutional and federal regulations as they relate to responsible conduct in research, privacy and human subjects research, animal care and use, laboratory safety, and use of radioisotopes.** I will clearly define expectations for conduct of research in my lab and make myself available to discuss ethical concerns as they arise.
- **I will ensure that the postdoctoral appointee has sufficient opportunities to acquire the skills necessary to become an expert in an agreed upon area of investigation.**
- **I will provide the appointee with the required guidance and mentoring, and will seek the assistance of other faculty and departmental/institutional resources when necessary.** Although I am expected to provide guidance and education in technical areas, I recognize that I must also educate the postdoctoral appointee by example and by providing access to formal opportunities/programs in complementary areas necessary for a successful career.
- **I will provide a training environment that is suited to the individual needs of the postdoctoral appointee in order to ensure his/her personal and professional growth.** I will encourage a progressive increase in the level of responsibility and independence to facilitate the transition to a fully independent career.
- **I will encourage the interaction of the postdoctoral appointee with fellow scientists both intra- and extramurally and encourage the appointee's attendance at professional meetings to network and present research findings.**
- **I will ensure that the research performed by a postdoctoral appointee is submitted for publication in a timely manner and that she/he receives appropriate credit for the work she/he performs. I will acknowledge her/his contribution to the development of any intellectual property and will clearly define future access to tangible research materials according to institutional policy.**

- **I recognize that there are multiple career options available for a postdoctoral appointee and will provide assistance in exploring appropriate options.** I recognize that not all postdoctoral appointees will become academic faculty. To prepare a postdoctoral appointee for other career paths, I will direct her/him to the resources that explore non-academic careers, and discuss these options.
- **I will commit to being a supportive colleague to postdoctoral appointees as they transition the next stage of their career and to the extent possible, throughout their professional life.** I recognize that the role of a mentor continues after the formal training period.

This compact serves both as a pledge and a reminder to mentors and their postdoctoral appointees that their conduct in fulfilling their commitments to one another should reflect the highest professional standards and mutual respect.

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Sample Compact from Laboratory of Dr. Trina McMahon for Graduate Students, University of Wisconsin-Madison

Mentor-Mentee Contract

The broad goals of my research program

As part of my job as a professor, I am expected to write grants and initiate research that will make tangible contributions to science, the academic community, and to society. You will be helping me carry out this research. It is imperative that we carry out good scientific method, and conduct ourselves in an ethical way. We must always keep in mind that the ultimate goal of our research is publication in scientific journals. Dissemination of the knowledge we gain is critical to the advancement of our field. I also value outreach and informal science education, both in the classroom and while engaging with the public. I expect you to participate in this component of our lab mission while you are part of the lab group.

What I expect from you

Another part of my job as a professor is to train and advise students. I must contribute to your professional development and progress in your degree. I will help you set goals and hopefully achieve them. However, I cannot do the work for you. In general, I expect you to:

- ▶ Learn how to plan, design, and conduct high quality scientific research
- ▶ Learn how to present and document your scientific findings
- ▶ Be honest, ethical, and enthusiastic
- ▶ Be engaged within the research group and at least two programs on campus
- ▶ Treat your lab mates, lab funds, equipment, and microbes with respect
- ▶ Take advantage of professional development opportunities
- ▶ Obtain your degree
- ▶ Work hard—don't give up!

You will take ownership over your educational experience

- ✓ **Acknowledge that you have the primary responsibility for the successful completion of your degree.** This includes commitment to your work in classrooms and the laboratory. You should maintain a high level of professionalism, self-motivation, engagement, scientific curiosity, and ethical standards.
- ✓ **Ensure that you meet regularly with me and provide me with updates on the progress and results of your activities and experiments.** Make sure that you also use this time to communicate new ideas that you have about your work and challenges that you are facing. Remember: I cannot address or advise about issues that you do not bring to my attention.
- ✓ **Be knowledgeable of the policies, deadlines, and requirements of the graduate program, the graduate school, and the university.** Comply with all institutional policies, including academic program milestones, laboratory practices, and rules related to chemical safety, biosafety, and fieldwork.
- ✓ **Actively cultivate your professional development.** UW-Madison has outstanding resources in place to support professional development for students. I expect you to take full advantage of these resources, since part of becoming a successful engineer or scientist involves more than just

doing academic research. You are expected to make continued progress in your development as a teacher, as an ambassador to the general public representing the University and your discipline, with respect to your networking skills, and as an engaged member of broader professional organizations. The Graduate School has a regular seminar series related to professional development. The Delta Program offers formalized training in the integration of research, teaching, and learning. All graduate degree programs require attendance at a weekly seminar. Various organizations on campus engage in science outreach and informal education activities. Attendance at conferences and workshops will also provide professional development opportunities. When you attend a conference, I expect you to seek out these opportunities to make the most of your attendance. You should become a member of one or more professional societies such as the Water Environment Federation, the American Society for Microbiology, or the American Society for Limnology and Oceanography.

You will be a team player

- ✓ **Attend and actively participate in all group meetings, as well as seminars that are part of your educational program.** Participation in group meetings does not mean only presenting your own work, but providing support to others in the lab through shared insight. You should refrain from using your computer, Blackberry, or iPhone during research meetings. Even if you are using the device to augment the discussion, it is disrespectful to the larger group to have your attention distracted by the device. Do your part to create a climate of engagement and mutual respect.
- ✓ **Strive to be the very best lab citizen.** Take part in shared laboratory responsibilities and use laboratory resources carefully and frugally. Maintain a safe and clean laboratory space where data and research participant confidentiality are protected. Be respectful, tolerant of, and work collegially with all laboratory colleagues: respect individual differences in values, personalities, work styles, and theoretical perspectives.
- ✓ **Be a good collaborator.** Engage in collaborations within and beyond our lab group. Collaborations are more than just publishing papers together. They demand effective and frequent communication, mutual respect, trust, and shared goals. Effective collaboration is an extremely important component of the mission of our lab.
- ✓ **Leave no trace.** As part of our collaborations with the Center for Limnology and other research groups, you will often be using equipment that does not belong to our lab. I ask that you respect this equipment and treat it even more carefully than our own equipment. Always return it as soon as possible in the same condition you found it. If something breaks, tell me right away so that we can arrange to fix or replace it. Don't panic over broken equipment. Mistakes happen. But it is not acceptable to return something broken or damaged without taking the steps necessary to fix it.
- ✓ **Acknowledge the efforts of collaborators.** This includes other members of the lab as well as those outside the lab. Don't forget important individuals like Dave Harring at the CFL and Jackie Cooper at CEE.

You will develop strong research skills

- ✓ **Take advantage of your opportunity to work at a world-class university by developing and refining stellar research skills.** I expect that you will learn how to plan, design, and conduct high quality scientific research.
- ✓ **Challenge yourself by presenting your work at meetings and seminars as early as you can and by preparing scientific articles that effectively present your work to others in the field.** The

‘currency’ in science is published papers, they drive a lot of what we do and because our lab is supported by taxpayer dollars we have an obligation to complete and disseminate our findings. I will push you to publish your research as you move through your training program, not only at the end. Students pursuing a Masters degree will be expected to author or make major contributions to at least one journal paper submission. Students pursuing a doctoral degree will be expected to be lead author on at least two journal papers submissions, preferably three or four.

- ✓ **Keep up with the literature so that you can have a hand in guiding your own research.** Block at least one hour per week to peruse current tables of contents for journals or do literature searches. Participate in journal clubs. Better yet, organize one!
- ✓ **Maintain detailed, organized, and accurate laboratory records.** Be aware that your notes, records and all tangible research data are my property as the lab director. When you leave the lab, I encourage you to take copies of your data with you. But one full set of all data must stay in the lab, with appropriate and accessible documentation. Regularly backup your computer data to the Bacteriology Elizabeth McCoy server (see the wiki for more instructions).
- ✓ **Be responsive to advice and constructive criticism.** The feedback you get from me, your colleagues, your committee members, and your course instructors is intended to improve your scientific work.

You will work to meet deadlines

- ✓ **Strive to meet deadlines: this is the only way to manage your progress.** Deadlines can be managed in a number of ways, but I expect you to work your best to maintain these goals. We will establish mutually agreed upon deadlines for each phase of your work during one-on-one meetings at the beginning of each term. For graduate students, there is to be a balance between time spent in class and time spent on research and perhaps on outreach or teaching. As long as you are meeting expectations, you can largely set your own schedule. It is your responsibility to talk with me if you are having difficulty completing your work and I will consider your progress unsatisfactory if I need to follow-up with you about completion of your lab or coursework.
- ✓ **Be mindful of the constraints on my time.** When we set a deadline, I will block off time to read and respond to your work. If I do not receive your materials, I will move your project to the end of my queue. Allow a minimum of one week prior to submission deadlines for me to read and respond to short materials such as conference abstracts and three weeks for me to work on manuscripts or grant proposals. Please do not assume I can read materials within a day or two, especially when I am traveling.

You will communicate clearly

- ✓ **Remember that all of us are “new” at various points in our careers.** If you feel uncertain, overwhelmed, or want additional support, please overtly ask for it. I welcome these conversations and view them as necessary.
- ✓ **Let me know the style of communication or schedule of meetings that you prefer.** If there is something about my mentoring style that is proving difficult for you, please tell me so that you give me an opportunity to find an approach that works for you. No single style works for everyone; no one style is expected to work all the time. Do not cancel meetings with me if you feel that you have not made adequate progress on your research; these might be the most critical times to meet with a mentor.

- ✓ **Be prompt.** Respond promptly (in most cases, within 48 hours) to emails from anyone in our lab group and show up on time and prepared for meetings. If you need time to gather information in response to an email, please acknowledge receipt of the message and indicate when you will be able to provide the requested information.
- ✓ **Discuss policies on work hours, sick leave and vacation with me directly.** Consult with me and notify fellow lab members in advance of any planned absences. Graduate students can expect to work an average of 50 hours per week in the lab; post-docs and staff at least 40 hours per week. I expect that most lab members will not exceed two weeks of personal travel away from the lab in any given year. Most research participants are available during University holidays, so all travel plans, even at the major holidays, must be approved by me before any firm plans are made. I believe that work-life balance and vacation time are essential for creative thinking and good health and encourage you to take regular vacations. Be aware, however, that there will necessarily be epochs—especially early in your training—when more effort will need to be devoted to work and it may not be ideal to schedule time away. This includes the field season, for students/post-docs working on the lakes.
- ✓ **Discuss policies on authorship and attendance at professional meetings with me before beginning any projects to ensure that we are in agreement.** I expect you to submit relevant research results in a timely manner. Barring unusual circumstances, it is my policy that students are first-author on all work for which they took the lead on data collection and preparation of the initial draft of the manuscript.
- ✓ **Help other students with their projects and mentor/train other students.** This is a valuable experience! Undergraduates working in the lab should be encouraged to contribute to the writing of manuscripts. If you wish to add other individuals as authors to your papers, please discuss this with me early on and before discussing the situation with the potential co-authors.

What you should expect from me

- ✓ **I will work tirelessly** for the good of the lab group; the success of every member of our group is my top priority, no matter their personal strengths and weaknesses, or career goals.
- ✓ **I will be available for regular meeting and informal conversations.** My busy schedule requires that we plan in advance for meetings to discuss your research and any professional or personal concerns you have. Although I will try to be available as much as possible for “drop in business”, keep in mind that I am often running to teach a class or to a faculty meeting and will have limited time.
- ✓ **I will help you navigate your graduate program of study.** As stated above, you are responsible for keeping up with deadlines and being knowledgeable about requirements for your specific program. However, I am available to help interpret these requirements, select appropriate coursework, and select committee members for your oral exams.
- ✓ **I will discuss data ownership and authorship policies regarding papers with you.** These can create unnecessary conflict within the lab and among collaborators. It is important that we communicate openly and regularly about them. Do not hesitate to voice concerns when you have them.
- ✓ **I will be your advocate.** If you have a problem, come and see me. I will do my best to help you solve it.
- ✓ **I am committed to mentoring you, even after you leave my lab.** I am committed to your education and training while you are in my lab, and to advising and guiding your career development—to the degree you wish—long after you leave. I will provide honest letters of evaluation for you when you request them.

- ✓ **I will lead by example and facilitate your training in complementary skills needed to be a successful scientist, such as oral and written communication skills, grant writing, lab management, mentoring, and scientific professionalism.** I will encourage you to seek opportunities in teaching, even if not required for your degree program. I will also strongly encourage you to gain practice in mentoring undergraduate and/or high school students, and to seek formal training in this activity through the Delta program.
- ✓ **I will encourage you to attend scientific/professional meetings and will make an effort to fund such activities.** I will not be able to cover all requests but you can generally expect to attend at least one major conference per year, when you have material to present. Please use conferences as an opportunity to further your education, and not as a vacation. If you register for a conference, I expect you to attend the scientific sessions and participate in conference activities during the time you are there. Travel fellowships are available through the Environmental Engineering program, the Bacteriology Department, and the University if grant money is not available. I will help you identify and apply for these opportunities.
- ✓ **I will strive to be supportive, equitable, accessible, encouraging, and respectful. I will try my best to understand your unique situation, and mentor you accordingly.** I am mindful that each student comes from a different background and has different professional goals. It will help if you keep me informed about your experiences and remember that graduate school is a job with very high expectations. I view my role as fostering your professional confidence and encouraging your critical thinking, skepticism, and creativity. If my attempts to do this are not effective for you, I am open to talking with you about other ways to achieve these goals.

Yearly evaluation

Each year we will sit down to discuss progress and goals. At that time, you should remember to tell me if you are unhappy with any aspect of your experience as a graduate student here. Remember that I am your advocate, as well as your advisor. I will be able to help you with any problems you might have with other students, professors, or staff.

Similarly, we should discuss any concerns that you have with respect to my role as your advisor. If you feel that you need more guidance, tell me. If you feel that I am interfering too much with your work, tell me. If you would like to meet with me more often, tell me. At the same time, I will tell you if I am satisfied with your progress, and if I think you are on track to graduate by your target date. It will be my responsibility to explain to you any deficiencies, so that you can take steps to fix them. This will be a good time for us to take care of any issues before they become major problems.

Additional Activities (if time allows):***Objective 1; Activity #4***

Have mentors create a list of the things they believe their mentees expect from them and then discuss how they can determine if these expectations are reasonable and how well they are meeting them. You may want to record the ideas generated in this discussion on a white board or flip chart.

Objective 2; Activity #5

Mentors discuss how to elicit mentees' learning goals and incorporate them into individualized compacts. (See comment about Individual Development Plans on page 31.) You may want to record the ideas generated in this discussion on a white board or flip chart.

Objective 3; Activity #6

Have mentors develop strategies to identify their own expectations, those of their mentee, and align the two. You may want to record the ideas generated in this discussion on a white board or flip chart.

Objective 4; Activity #7

Have mentors discuss the challenges that mentees may face when working with multiple mentors and then brainstorm solutions to these challenges. You may want to record the ideas generated in this discussion on a white board or flip chart.

Assessing Understanding

OVERVIEW, LEARNING OBJECTIVES, AND ACTIVITIES

Introduction

Determining if someone understands the content and process of their discipline is not easy, yet critical in a productive mentoring relationship. Developing strategies to assess understanding, especially of core research concepts, is an important part of becoming an effective mentor. Moreover, it is important for mentors to be able to identify the causes for a lack of understanding and strategies to address such misunderstandings.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Assess their mentees' understanding of core concepts and processes
2. Identify various reasons for a lack of understanding, including expert-novice differences
3. Use multiple strategies to enhance mentee understanding across diverse disciplinary perspectives

Overview of Activities for the Understanding Session: Please note that a core activity is listed for each learning objective. We encourage you to engage the mentors in your group in this activity. There is a list of additional activities that can be used if you have extra time in the session or if the core activity is not working well for the mentors in your group.

	Learning Objectives	Core Activities	Additional Activities
1	Assess their mentees' understanding of core concepts and processes	Mentors read and discuss Case #1: <i>He Should Know That</i> and then create a list of ideas they expect their mentee to understand (Activity #1)	Mentors generate a list of strategies for assessing understanding in face-to-face meetings, over email, through written reports, etc. (Activity #4)
2	Identify various reasons for a lack of understanding, including expert-novice differences	Mentors brainstorm reasons behind a lack of understanding (Activity #2)	Mentors read an excerpt from an expert-novice study and discuss the implications for understanding (Activity #5)
3	Use multiple strategies to enhance mentee understanding across diverse disciplinary perspectives	Mentors share strategies to enhance understanding (Activity #3)	Mentors read and discuss Case #2: <i>Should I Know That?</i> (Activity #6)

FACILITATION GUIDE

Recommended Session on Assessing Understanding (30 minutes)

Materials Needed for the Session

- ▶ Table tents and markers
- ▶ Chalkboard, whiteboard, or flip chart
- ▶ Handouts:
 - ▷ Copies of introduction and learning objectives for *Assessing Understanding* (page 49)
 - ▷ Copies of *Understanding Case #1: He Should Know That* (page 53) and the additional case if desired (page 54)
 - ▷ Copies of “Summary & Implications for Teaching” based on *How People Learn: Brain, Mind, Experience, and School* (pages 55–57)

Overview (3 min)

- ▶ TELL: Review the introduction and learning objectives for the session. Be clear that this session is about assessing a mentee’s understanding of research concepts and processes. While understanding other factors that affect your mentor/mentee relationships is important, keep the focus on research.

Objectives 1 and 2: Assess their mentee's understanding of core concepts and processes and Identify various reasons for a lack of understanding (17 min)**► ACTIVITY #1**

- ▷ Distribute the *Understanding Case #1: He Should Know That* and let participants read the case individually for two to three minutes.
- ▷ DISCUSS (12 min) with entire group. You may want to record the ideas generated in this discussion on a whiteboard or flip chart. Use the guiding questions following the case study. Additional questions are listed below:
 1. How do you know if your mentee understands something?
 2. How can you help your mentee accurately assess his/her own understanding?
 3. How can you explain something in more detail without sounding condescending?
 4. How would you know if a mentee is in need of alternative communication modes to understand the research, e.g., written instructions to augment verbal ones? Is it the mentee's responsibility to let you know their needs in this area?
 5. Is it possible that the mentor is the one who is mistaken—that the mentee simply explained it poorly or in terms unfamiliar to the mentor? How can you tell the difference between a miscommunication and a true lack of understanding?

► ACTIVITY #2: Follow-Up Discussion

- ▷ DISCUSS (5 min) the questions below with the entire group. You may want to record the ideas generated in this discussion on a whiteboard or flip chart.
 1. What could explain a mentee having difficulty understanding?
 2. We all unconsciously make assumptions about ability and level of understanding based on other cues and factors such as race, ethnicity, gender, English fluency, prior experience and background, types of questions someone asks, etc. How can you acknowledge those assumptions and remain open-minded?
- ▷ NOTE: Some of the reasons that may arise include differing backgrounds, e.g., clinical expertise versus research training, different modes of communication, misunderstandings regarding the level of understanding that is expected, cultural differences, disciplinary differences, etc.
- ▷ NOTE: You may want to ask mentors to consider the difference between an expert and novice perspective. As an expert, there are many steps in an explanation that you may leave out because they are second nature, or because it is hard to remember what it was like to be a novice. For example, when you see a master chef cooking, it looks easy; however, when you try the same recipe yourself, you realize that there are many steps that have been left out of the explanation. See included summary on pages 55–57 for more information.

Objective 3: Use multiple strategies to enhance mentee understanding across diverse disciplinary perspectives (10 min)**► ACTIVITY #3: Identifying Strategies to Enhance Understanding**

- ▷ DISCUSS: Ask mentors to share one strategy they use to promote understanding. You may want to record the ideas generated in this discussion on a whiteboard or flip chart.

- ▷ NOTE: Strategies you can add to the list include:
 1. Taking a minute to consider any assumptions made about what my mentee knows or does not know.
 2. Taking time to remember what it was like to not understand something before I became an expert.
 3. Writing out an explanation and asking a colleague from outside the discipline to identify all of the terms they do not understand.
 4. Asking my mentee to explain something back to me so I can assess their understanding.
 5. Asking my mentee to explain something to another scholar or trainee.
 6. Asking my mentee to organize information with a flowchart, diagram, or concept map.
 7. Asking my mentee to come up with an analogy that relates to our research.
- ▷ NOTE: How do you know when you are qualified to assess a mentee's understanding? Be sure to include a discussion of what to do if you are not an expert in all aspects of a mentee's research program, such as when you are a secondary mentor.

Assessing Understanding

Case #1: He Should Know That

Dr. Richard Smith started his mentored research in your lab after completing his MD and residency. His professional goals include performing both clinical and translational research as an independent investigator. Dr. Smith has been working in your lab for six months, performing basic science and early-stage translational research, and his research appears to be going well. In a regular meeting with him, you discover that Dr. Smith cannot answer a fundamental question regarding the background and motivation for his current work. In probing further, you find that Dr. Smith appears to be unfamiliar with some core biological concepts that drive many of the projects in the lab, including his own. You often expect such issues to arise when mentoring a graduate student, but are shocked to be in this situation when mentoring someone with Dr. Smith's education and experience. You wonder if you missed other indicators of Dr. Smith's lack of understanding in previous months. Moreover, you are not sure how to proceed to assess Dr. Smith's current understanding and identify the gaps.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now?
3. How can mentors balance promoting independence with confirming understanding?

Additional Activities (if time allows)

Objective 1; Activity #4

Have mentors generate a list of strategies that can be used to assess their mentee's understanding. Ask mentors to consider strategies that can be used in face-to-face meetings, over email, through written reports, etc. You may want to record the ideas generated in this discussion on a whiteboard or flip chart.

Objective 2; Activity #5

Have mentors read a summary of how people learn, paying particular attention to the results from expert/novice studies (see "Brief Summary & Implications for Teaching" based on *How People Learn: Brain, Mind, Experience, and School*³). Have mentors discuss how they could better help their mentee understand one aspect of their research if they considered it from a novice point of view.

Objective 3; Activity #6

Case #2: Should I Know That?

Dr. Saldaña (MD, PhD) is a new assistant professor in Population Health with a focus on pediatric asthma treatment. He has recently made contacts within the local Hmong community who would like to work with him to improve treatment adherence in Hmong children with asthma. He is very excited about the possibility of this potential partnership having a direct impact on children's health and wants to apply for a grant to pursue a community-based participatory research (CBPR) project. He approaches Dr. Hunter as a potential mentor on the award. Dr. Hunter is very reluctant to accept, letting him know that she has never done community-based participatory research and doesn't know if she could guide him adequately. Dr. Saldaña assures her that this is not necessary, that he has identified a mentor in another university with CBPR expertise who can fill that role. He further points out that there is no one in the department who has this expertise and reminds her that his community contacts will be able to help guide and mentor him in this area. Dr. Hunter is still uncertain how well she can assess his study design and progress and wonders how well this other mentor can fill that role at a distance. She is also feeling uncomfortable because she has no experience treating Hmong asthma patients.

Guiding Questions for Discussion

1. As a mentor, how do you know if you are qualified to assess a mentee's understanding? What should Dr. Hunter's next steps be?
2. What can mentors do to improve their ability to work with mentees whose professional background and research differ from their own?
3. How can you help your mentees accurately assess their own understanding?

³ Bransford, J., Brown, A., Cocking, R., Eds. (1999). *How People Learn: Brain, Mind, Experience, and School*. National Academy Press: Washington, D.C. <info from <http://www.nap.edu/openbook.php?isbn=0309065577>>

How People Learn: Brain, Mind, Experience, and School **Brief Summary & Implications for Teaching**

Developing Expertise

Experts have acquired extensive knowledge that affects what they notice and how they organize, represent, and interpret information.

Key Findings

Experts have a great deal of content knowledge that is highly organized; this organization reflects a deep understanding of the subject matter, and allows them to retrieve information quickly with relatively little attentional effort.

- ▶ Experts' knowledge is linked to contexts for applying that knowledge.
- ▶ Experts notice features and meaningful patterns that are not noticed by novices.
- ▶ Expertise in one domain does not transfer to other domains, e.g., being a chess master does not mean the master is good at solving crossword puzzles or complex math problems.
- ▶ Even experts have varying degrees of flexibility in applying their knowledge in new situations.

Implications for Teaching

- ▶ Being an expert on a topic does not imply ability to instruct others effectively on the topic.
- ▶ Equally important to teaching the content of a discipline (facts, definitions, and concepts) is helping trainees organize this knowledge and apply it flexibly across many contexts.

Transferring Knowledge Flexibly Across Different Contexts

Transferring knowledge learned in one context to another context is difficult.

Key Findings

- ▶ Skills and knowledge must be extended beyond the narrow contexts in which they are initially learned.
- ▶ Learning should be linked to conditions of applicability, i.e., learning *what* should be linked to learning *when* the *what* can be applied.
- ▶ All new learning depends on previous learning. Students come to the classroom with preconceptions, and if their preconceptions are not engaged, students may fail to grasp new concepts and information that are being taught. Engaging in this context means identifying preconceptions, and, when preconceptions are misconceptions, actively helping students construct appropriate understanding based on scientific principles.
- ▶ Learning by rote rarely transfers; learning in the context of tying material to underlying principles is more effective.
- ▶ The more you know about a topic, the easier it is to learn more about that topic.

Implications for Teaching

- ▶ Help students identify appropriate contexts and conditions for application of different concepts and strategies.
- ▶ Probe often for students' preconceptions during instruction. When misconceptions that interfere with understanding scientific concepts are identified, engage the student to help her or him reconstruct appropriate understanding. Providing the right answer does not suffice in helping students overcome misconceptions.
- ▶ Link all teaching and learning to major concepts or principles in the discipline.

Designing Learning Environments

The design of learning environments is linked to issues that are important in the processes of learning, transfer, and competent performance. Those processes, in turn, are affected by the degree to which learning environments are *learner-centered*, *knowledge-centered*, *assessment-centered*, and *community-centered*.

Learner-Centered

- ▶ Learners use their current knowledge to construct new knowledge. Thus, what they know or believe at the moment affects how they interpret new information; sometimes learners' current knowledge hampers new learning, sometimes it supports learning. Effective instruction must take into account what learners bring with them. Active engagement in learning supports the construction of knowledge.
- ▶ Learners should be assisted in developing *metacognitive* strategies. Metacognition refers to people's abilities to monitor their own level of understanding and decide when it is not adequate. Transfer can be improved by helping students become more aware of themselves as learners who actively monitor their learning and performance strategies.
- ▶ Learners learn more efficiently and effectively when they are provided with feedback to help them monitor progress. *Deliberate practice* refers to engagement in educational activities that include active monitoring of one's learning. For example, when left on their own to do homework in the physical sciences, students often practice the wrong habits (e.g., equation-finding and -manipulating), thereby reinforcing such habits. Instead, students need to be given opportunities to practice skilled problem solving and provided with both feedback and support to ensure progress.

Knowledge-Centered

- ▶ Instruction should begin with students' current knowledge and skills, rather than assuming students are blank slates ready to absorb knowledge. Emphasis on how knowledge is organized will help to promote this goal.
- ▶ Instruction should help students organize knowledge in ways that are efficient for recall and for application in solving problems.
- ▶ Instruction should focus on helping students gain deep understanding of the major concepts and principles, rather than acquisition of disconnected facts and skills.

Assessment-Centered

- ▶ Formative assessment (assessment done during the course of instruction to monitor students' progress and to help shape instruction) is pivotal for providing feedback to students so that they can revise and improve the quality of their thinking. This should be done continuously, but not intrusively, as a part of instruction.
- ▶ Formative assessment strategies should be developed to make students' thinking visible to the instructor, the learner, and classmates.
- ▶ Summative assessments (assessment performed at the end of instruction for such purposes as assigning grades or evaluating competence) should reflect the knowledge, concepts, principles, and problem-solving and lab skills of the discipline considered crucial by experts.
- ▶ Students should learn how to assess their own work and that of peers.

Community-Centered

- ▶ Learners are embedded in social contexts. If they are going to make effective use of their prior knowledge, they need to be encouraged to relate the origins of their learning to school-based concepts.
- ▶ Students spend only 14 percent of their time in school, and 53 percent of their waking hours out of school. It is important to help students see the relevance of their school-based learning to non-school contexts and problem solving.
- ▶ Communities of practice need to be encouraged. Local leaders and practitioners can facilitate community-centered learning through internships, class participation, and site visits to illustrate learning and problem solving in the workplace.

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CHAPTER 7

Addressing Equity and Inclusion

OVERVIEW, LEARNING OBJECTIVES, AND ACTIVITIES

Introduction

Diversity, along a range of dimensions, offers both challenges and opportunities to any relationship. Learning to identify, reflect upon, learn from, and engage with diverse perspectives is critical to forming and maintaining both an effective mentoring relationship as well as a vibrant learning environment.

In the last session, your group discussed the importance of assessing mentees' understanding and how to best facilitate their learning. In this session, mentors will expand upon this by considering how to foster an inclusive environment where everyone can do their best learning and create the highest quality of research, both because of and in spite of their diverse perspectives.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Improve and expand understanding of equity and inclusion and how diversity influences mentor-mentee interactions
2. Recognize the potential impact of conscious and unconscious assumptions, preconceptions, biases, and prejudices on the mentor-mentee relationship and reflect on how to manage them
3. Identify concrete strategies for learning about, recognizing, and addressing issues of equity and inclusion in order to engage in conversations about diversity with mentees and foster a sense of belonging

Overview of Activities for the Equity and Inclusion Session: Please note that a core activity is listed for each learning objective. We encourage you to engage the mentors in your group in this activity. There is a list of additional activities that can be used if you have extra time in the session or if the core activity is not working well for the mentors in your group.

	Learning Objectives	Core Activities	Additional Activities
1	Improve and expand understanding of equity and inclusion, and how diversity influences mentor-mentee interactions	Mentors consider the many ways they are and can be different from their mentees and how these differences affect the mentoring experience for both (Activity #1)	Mentors reflect and share an experience in which they felt like an outsider (Activity #5)
2	Recognize the potential impact of conscious and unconscious assumptions, preconceptions, biases, and prejudices on the mentor-mentee relationship and reflect on how to manage them	Mentors reflect on their own unconscious assumptions (Activity #2) Mentors read the results of diversity studies, discuss implications, and brainstorm strategies for reducing bias (Activity #3)	Mentors explore their own biases using an implicit assumptions test and discuss the results (Activity #6)
3	Identify concrete strategies for learning about, recognizing, and addressing issues of equity and inclusion in order to engage in conversations about diversity with mentees and foster a sense of belonging	Mentors break into two or three groups and read one of three case studies (<i>Is It Okay to Ask?</i> , <i>Language Barriers</i> , or <i>You Can't Do That</i>), then discuss reactions (Activity #4)	Mentors read and discuss Case #4: <i>Cultural Sensitivity</i> (Activity #7)

FACILITATION GUIDE

Recommended Session on Addressing Equity and Inclusion (60 minutes)

Materials Needed for the Session

- ▶ Table tents and markers
- ▶ Index cards
- ▶ Chalkboard, whiteboard or flip chart
- ▶ Handouts:
 - ▷ Copies of introduction and learning objectives for *Addressing Equity and Inclusion* (page 59)
 - ▷ Copies of the *Diversity Study Results* handout (page 65)
 - ▷ Copies of *Equity and Inclusion* case studies (*Is It Okay to Ask?*, *Language Barriers*, and *You Can't Do That*) (pages 66–67) and the additional case if desired (page 68)
 - ▷ Copies of *Benefits and Challenges of Diversity in Academic Settings* (pages 69–76)

Introduction (2 min)

- ▶ REFLECTION: Ask mentors to write down any new mentoring activities they have engaged in since the last session. If none, they should write down something they are thinking about regarding their mentoring relationship based on the previous session.
- ▶ TELL: Review the introduction and learning objectives for the session.

Objective 1: Improve and expand understanding of equity and inclusion and how diversity influences mentor-mentee interactions (13 min)

- ▶ ACTIVITY #1: Reflecting on Diversity
 - ▷ TELL: Acknowledge that, in this society, it is engrained in our subconscious to first think of diversity in terms of race and ethnicity, but remember that it is broader than that. For example, consider the impact of learning and physical disabilities, gender, age/generation, professional experience, sexual orientation, class, religion, and differences in communication, learning, and work styles. Think about the list we generated in the introductory session. Do you have any additions to the list? (If your group did an alternative activity in the introductory session and did not generate a list, you can have them do so now.)
 - ▷ NOTE: Leave this list displayed throughout the session and tell mentors that they can add to it as you move through the other activities. As you add items, you may discuss how these differences impact their mentoring relationships and how they can be capitalized upon to create high-quality, innovative research as time allows.
 - ▷ DISCUSS: How do these differences impact their mentoring relationships and how can they be capitalized on to create high quality innovative research? They may consider the concept of cognitive diversity, or diversity of thought, and how knowledge they've gained from other life experiences has influenced and enriched their thinking as a researcher. List the ideas generated in this discussion on a whiteboard or flip chart.

Objective 2: Recognize the potential impact of conscious and unconscious assumptions, preconceptions, biases, and prejudices on the mentor-mentee relationship and reflect on how to manage them (25 min)

- ▶ ACTIVITY #2: Reflect on Unconscious Assumptions
 - ▷ TELL: Think about some of your assumptions when you entered the room on the first day of this training—that there would be electricity, a table, a bathroom, etc. Let's think about some of the assumptions we make about the people we work with.
 - ▷ TELL: Read each word on the list below and ask mentors to focus on the first image that comes to their mind and quickly jot down three words that describe the person they pictured. Pacing is important; only leave about five seconds between each item on the list so that they are focused on the first image that comes to mind.
 1. Cook
 2. Pilot
 3. Mountain Climber
 4. Caretaker
 5. Politician
 6. Clinical Researcher
 7. K-scholar

- ▷ DISCUSS (10 min) with entire group: Have mentors share some of the words they noted about each prompt, with special attention given to the clinical researcher and K-scholar. For example, did their images include mention of gender, race, body shape and size, or age? Was there some uniformity in their images?
- ▷ TELL: Remind mentors that we all carry these unconscious assumptions and they need not be a source for guilt or embarrassment. We discuss them as a means of raising awareness and being intentional about how we let them influence our behavior. The following studies highlight how enculturation affects us all and how it may impact the mentoring relationship.
- ▶ **ACTIVITY #3: Implications of Diversity Research**
 - ▷ Distribute the *Diversity Study Results* handout (page 65) and let participants read it individually for two to three minutes.
 - ▷ NOTE: Many of these studies are summarized in *Benefits and Challenges of Diversity*, which is included in the materials handed out.
 - ▷ DISCUSS (5 min) in pairs your reaction to one of the studies and the implications for your mentoring practice.
 - ▷ DISCUSS (10 min) with entire group. You may want to record the ideas generated in this discussion on a whiteboard or flip chart. Guide the discussion using the following questions:
 1. What were your initial reactions to the studies?
 2. Which study captured your attention? Why?
 3. What implications do these study results have for your mentoring practice?
 4. What are two to three practical things you could do to minimize the impact of bias, prejudice, and stereotype in your mentoring relationship?
 - ▷ NOTE: Refer to the “Benefits and Challenges of Diversity” reading on pages 69–76 for specific approaches.

Objective 3: Identify concrete strategies for learning about, recognizing, and addressing issues of equity and inclusion in order to engage in conversations about diversity with mentees and foster a sense of belonging (20 min)

- ▶ **ACTIVITY #4: Case Studies**
 - ▷ Distribute the three *Equity and Inclusion* case studies (*Is It Okay to Ask?*, *Language Barriers*, and *You Can't Do That*) and give participants a couple of minutes to review them and to choose which one they would like to discuss in a small group so that there are two or three groups.
 - ▷ TELL (8 min): Discuss in small groups one of the case studies.
 - ▷ DISCUSS (10 min) with the entire group. You may want to record the ideas and specific strategies generated in this discussion on a whiteboard or flip chart.
 - ▷ NOTE: In some groups, mentors can be fairly quiet and reluctant to speak at first in this discussion, but just give them a few minutes. Once mentors get going with the discussion, it is often rich and engaging. Allowing mentors to choose which case they would like to discuss should help. Views on the impact of race, ethnicity, gender, disability, age, sexual orientation, and background on the research experience vary widely; possible responses to the cases are included below.
 - ▷ There are a few guiding questions at the end of each case (*Is It Okay to Ask?*, *Language Barriers*, and *You Can't Do That*). Some additional questions include:

1. As a mentor, would you feel comfortable asking a mentee about how their identity influences their experiences? How do you decide when asking questions about these issues is appropriate?
 2. Specifically, how would you go about engaging someone in a discussion about their race, ethnicity, gender, disability, age, sexual orientation, or background? How do you engage in such conversations based on real interest without expressing or inadvertently projecting a sense of judgment about differences? How do you ask without raising issues of tokenism?
 3. Do you think everyone should be treated the same? Does treating everyone the same mean they are being treated equally?
- ▷ Possible responses to the *Equity and Inclusion* case studies:
1. General responses to all of the cases:
 - ▷ Race, gender, ethnicity, sexual orientation, and other aspects of diversity have nothing to do with a research experience because the experience should focus on research and not on personal characteristics.
 - ▷ Race, gender, ethnicity, sexual orientation, and other aspects of diversity have everything to do with a research experience and permeate every aspect of the experience, affecting perceptions, confidence, and motivation. Ignoring the impact of diversity sends a message that those aspects of a person play no role in one's work, which may turn students off to science. The level of impact will vary across the relationship. At times it may be invisible. At other times, it may be the most important factor.
 - ▷ Individuals want to be assessed for their abilities, independent of race, gender, etc. The trick is deciding how to balance acknowledging and considering the impact of someone's background without letting it bias your interaction with them.
 - ▷ Regular conversations are important with *all* mentees to check on how they are doing and whether they are happy in their overall environment. This will build relationships that enable mentees to be comfortable sharing concerns *and* enable mentors to notice if there are issues surrounding race or other personal characteristics that need to be addressed.
 2. Possible responses to "*Is It Okay to Ask?*"
 - ▷ There is no consensus on whether and when it is okay to ask directly about race or gender. Some feel it is important to ask early, others feel it is never okay to ask, and others still feel there are special situations when it is necessary to ask.
 - ▷ It is not okay to ask because asking may call attention to the person's "group" and may activate stereotype threat and affect their performance.
 - ▷ It is not okay to ask. Some are tired of telling their story and feel that the question sometimes carries an implicit message of "Explain yourself" or "Justify yourself."
 - ▷ Establishing a sufficiently personal relationship with *all* mentees allows mentors to better understand diversity-related issues from mentees without directly asking questions about their personal characteristics and background.
 3. Possible responses to "*Language Barriers*"
 - ▷ Having a common language in the lab is important to research as well as lab cohesion.
 - ▷ Emphasizing that everyone be able to communicate in English is different from prohibiting people from speaking to each other in their native language. The issue should be discussed with the whole lab in hope that others will not be uncomfortable when lab members are speaking in a language they don't understand.

- ▷ The mentor should meet with lab members to discuss the issue and establish a policy that would be explained in writing.
 - ▷ Race, language, and ethnicity are intimately tied psychologically, and assumptions about one inform assumptions about the others. Thus even if an English-only policy has practical reasons, it could still be perceived as racism and exclusion. This can be particularly true for those who grew up in an environment in the U.S. where you were punished for speaking in another language in school and where assumptions about your abilities are tied to your language, race, and ethnicity.
4. Possible responses to “*You Can’t Do That*”
- ▷ Dr. Roust is assuming that Dr. Mandova’s research will be of no real value to them, that it is only anecdotal “soft science.” He is not considering how it could provide context to the quantitative research.
 - ▷ Dr. Roust is being realistic when noting the time involved and the risk the mentee is taking in his career. He should further discuss these risks with the mentee and allow him to make his own decision. The discussion should include a plan that will allow the mentee to meet deadlines with his fellowship project.
 - ▷ Dr. Roust is assuming that an Indo-Romanian speaking in accented English would not be well-received among a poor rural population, which could be primarily white. He could discuss his concerns with Dr. Biswas by providing some context for possible reactions Dr. Biswas might get, while being careful not to stereotype the rural white population either. He should further refer Dr. Biswas to someone, or have him seek out someone with experience in community-engaged research. (Dr. Roust may also be assuming the rural population will be white, but he may know their racial composition since he has demographic data on the population.)

FOLLOW-UP ACTIVITY: Encourage mentors to return to their compacts (if applicable) and make any changes based on their reflections on equity and inclusion.

Addressing Equity and Inclusion

Activity #3: Diversity Study Results for Discussion

Read the description of the study results and discuss your reaction and the implications for your mentoring practice. See the *Benefits and Challenges of Diversity* article on page 60–76 for more details about these and other studies.

Study 1

Blind, randomized trial: When asked to rate the quality of verbal skills indicated by a short text, evaluators rated the skills as lower if they were told an African-American wrote the text than if they were told a white person wrote it, and gave lower ratings when told a man wrote it than when told a woman wrote it.

Study 2

Real-life study: CVs of a real woman were assigned a masculine or feminine name, randomly, and sent to 238 academic psychologists to review either (1) at the time she applied for her faculty position or (2) at the time of her review for an early tenure decision. Respondents were more likely to hire the applicant if a male name was on the CV at the time of job application. Gender of applicant had no effect on respondents' likelihood of granting tenure when their CV was reviewed as part of an early tenure decision. However, there were four times the number of "cautionary comments" in the margins of the tenure packages with female names, such as, "We would have to see her job talk."

Study 3

In studies of mock juries, those that contained members of ethnic minority groups deliberated more effectively and processed information more carefully than juries that lacked ethnic diversity.

Study 4

Real-life study: Parents' estimates of math ability are higher for sons than for daughters, despite no gender differences in grades or test scores.

Study 5

If African-American or female students are asked to identify their race or gender, respectively, at the start of an exam, they will perform less well on that exam.

Many of these studies and others are summarized in Fine and Handelsman (2005). "Benefits and Challenges of Diversity in Academic Settings" (pages 71–81): Madison, WI, and Handelsman, Miller, and Pfund (2007). "Diversity" in *Scientific Teaching*. W.H. Freeman and Company: New York, NY. This activity is from the National Academies Summer Institute on Undergraduate Education in Biology (<http://www.academiessummerinstitute.org>, accessed June 2010).

Case #1: Is It Okay to Ask?

Last year I worked with a fantastic scholar who has since left to work at another institution. I think that she had a positive experience working with our research team, but a few questions still linger in my mind. This particular scholar was a young African-American woman. I wondered how she felt about being the only African-American woman in our research group. In fact, she was the only African-American woman in our entire department. I wanted to ask her how she felt, but I worried it might be insensitive or politically incorrect to do so. I never asked. I still wonder how she felt and how those feelings may have affected her experience, but I could never figure out how to broach the subject.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What might the mentor's intent have been in asking the question, and what might have been the impact on the mentee?
3. How might you react differently to this case if the mentees' difference was one of sexual orientation? How do you engage in such conversations based on interest without sounding judgmental about differences? How do you ask without raising issues of tokenism?

Case #2: Language Barriers

I am a researcher in a very crowded lab. This fall, two new K-scholars started in the lab, both of them Chinese. The scholars were great—they worked hard, got interesting results, were fun to be around, and fit into the group really well. The problem was that they spoke Chinese to each other all day long. And I mean *All day*. For eight or nine hours every day, I listened to this rapid talking that I couldn't understand. Finally, one day I blew up. I said in a not-very-friendly tone of voice that I'd really appreciate it if they would stop talking because I couldn't get any work done. Afterwards, I felt really bad and apologized to them. I brought the issue to my peers and was surprised by the length of the discussion that resulted. People were really torn about whether it is okay to require everyone to speak in English and whether asking people not to talk in the lab is a violation of their rights. We happened to be visited that day by a Norwegian faculty member and we asked her what her lab policy is. She said everyone in her lab is required to speak in Norwegian. That made us all quiet because we could imagine how hard it would be for us to only speak Norwegian all day long.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What is the intent of an English-only policy? What might the impact be on lab members and the 'lab community' as a whole?
3. How is race a factor in this case? What are the implications of the connections between race, language, and ethnicity?

Case #3: “You Can’t Do That”

Dr. Roust is a Professor of Epidemiology with a long and successful history of research funding. He is known as an expert in diabetes research. He has recently taken on a very promising new post-doctoral fellow in Epidemiology, a young Romanian of Indian descent, Dr. Biswas, with an interest in the underlying sociocultural factors affecting the prevalence and treatment of Type 2 diabetes. It was agreed that he will be using an unanalyzed data set of Dr. Roust’s to explore demographic patterns of a particular poor rural subgroup. So far things have been going quite well and Dr. Roust is excited about how this new mentee will help fill a gap in his own research. However, after several weeks of working on the secondary data analysis, Dr. Biswas comes to his office very excited about a new direction he would like to take. He has met an historian he would like to add to his mentoring committee, Dr. Mandova. She has research expertise related to cultural understandings of food and dietary patterns in poor rural populations and is participating in an oral history project in their target population. She offered to introduce Dr. Biswas to some of her contacts and would allow him to sit in on interviews with community members. Dr. Biswas believes Dr. Mandova’s research will be a perfect complement to Dr. Roust’s macro-level analysis. Dr. Roust dismisses the feasibility of the idea almost immediately. He doesn’t see how any anecdotal historical data could be used in a convincing way, is concerned by how it will impact the current project effort, and fears that it will be far too time-consuming for Dr. Biswas to stay on track with his fellowship. He also doubts that the NIH would be supportive of the endeavor. He lets Dr. Biswas know his feelings and tells Dr. Biswas not to take such risks so early in his career, especially in a tight funding environment. Dr. Roust also privately wonders how well Dr. Biswas will be received by community members and how well-equipped he is for this kind of research, especially given his own limited cultural knowledge and language barrier.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. Discuss the assumptions Dr. Roust is making about the research and about Dr. Biswas’ competency based on his ethnicity and background. How valid are his concerns? Should Dr. Roust also raise his private concerns with Dr. Biswas or Dr. Mandova, and if so, how?
3. How do our own assumptions about what is acceptable and fundable in research limit creativity and understanding? Is there a middle ground in this case?

Additional Activities (if time allows)

Objective 1; Activity #5

Ask mentors to think back to a time when they felt most conspicuous as someone who did not fit in to a situation or setting. Ask: What was the situation, what did it feel like, how did you react? Alternatively, they could share an experience in which they could see that someone else felt like they did not belong or fit in. What kinds of differences make us feel like outsiders and what differences are irrelevant? Why?

Note: Have each mentor share an experience. If a mentor cannot think of an experience to share, ask them to pass and then come back to them at the end of the activity. As a facilitator, you may need to encourage people to keep their comments relatively short so everyone has a chance to share. The amount of time each person has to talk will depend on the size of the group.

Objective 2; Activity #6

Have mentors visit “Dig Deeper” at http://www.tolerance.org/hidden_bias/index.html and select various tests to better understand their hidden biases and assumptions. At Project Implicit (<https://implicit.harvard.edu/implicit/>), mentors can find a number of tests that enable them to explore specific biases and assumptions, such as those about gender, disabilities, skin tone, etc. These are not only informative, but fun and quick to take. These sites could be explored during the session if computers are available or distributed on a handout or via email and done outside of the session.

Objective 3; Activity #7

Case #4: Cultural Sensitivity

You just finished your Master’s degree in Public Health and a residency in pediatrics. To further your research training, you join an established research team studying the impact of free clinics on public health in economically depressed urban areas. Your project will be to examine the effect of a new free pediatric clinic on children’s health in an African-American community. There are many research questions you could ask, but your mentor insists that you use the research questions used in his other studies, so he can compare the data across studies. Most of those previous studies were developed and done in Latino communities. After visiting the community you will study and noting several cultural differences, you believe that the questions for your study should be revised. Your mentor disagrees and tells you to use the standard questions.

Guiding Questions for Discussion:

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?
3. What assumptions is the mentor making about the study population and the research? What might the impact be of those assumptions?

Note: This case is taken from the mentee’s perspective, providing mentors a slightly different lens.

Benefits and Challenges of Diversity in Academic Settings

by Eve Fine and Jo Handelsman

The diversity of a university's faculty, staff, and students influences its strength, productivity, and intellectual personality. Diversity of experience, age, physical ability, religion, race, ethnicity, gender, and many other attributes contributes to the richness of the environment for teaching and research. We also need diversity in discipline, intellectual outlook, cognitive style, and personality to offer students the breadth of ideas that constitute a dynamic intellectual community.

A vast and growing body of research provides evidence that a diverse student body, faculty, and staff benefits our joint missions of teaching and research by increasing creativity, innovation, and problem-solving. Yet diversity of faculty, staff, and students also brings challenges. Increasing diversity can lead to less cohesiveness, less effective communication, increased anxiety, and greater discomfort for many members of a community.¹

Learning to respect and appreciate each other's cultural and stylistic differences and becoming aware of unconscious assumptions and behaviors that may influence our interactions will enable us to minimize the challenges and derive maximum benefits from diversity.

This booklet summarizes research on the benefits and challenges of diversity and provides suggestions for realizing the benefits. Its goal is to help create a climate in which all individuals feel "*personally safe, listened to, valued, and treated fairly and with respect.*"²

"It is time to renew the promise of American higher education in advancing social progress, end America's discomfort with race and social difference, and deal directly with many of the issues of inequality present in everyday life."

—Sylvia Hurtado

Benefits for Teaching and Research

Research shows that diverse working groups are more productive, creative, and innovative than homogeneous groups, and suggests that developing a diverse faculty will enhance teaching and research.³

Some findings are:

- ▶ A controlled experimental study of performance during a brainstorming session compared ideas generated by ethnically diverse groups composed of Asians, Blacks, Whites, and Latinos to those generated by ethnically homogenous groups composed of Whites only. Evaluators who were unaware of the source of the ideas found no significant difference in the number of ideas generated by the two types of groups. However, when applying measures of feasibility and effectiveness, they rated the ideas generated by diverse groups as being of higher quality.⁴
- ▶ The level of critical analysis of decisions and alternatives was higher in groups exposed to minority viewpoints than in groups that were not. Minority viewpoints stimulated discussion of multiple perspectives and previously unconsidered alternatives, whether or not the minority opinion was correct or ultimately prevailed.⁵
- ▶ A study of corporate innovation found that the most innovative companies deliberately established diverse work teams.⁶
- ▶ Data from the 1995 Faculty Survey conducted by UCLA's Higher Education Research Institute (HERI) demonstrated that scholars from minority groups have expanded and enriched scholarship

and teaching in many academic disciplines by offering new perspectives and by raising new questions, challenges, and concerns.⁷

- ▶ Several investigators found that women and faculty of color more frequently employed active learning in the classroom, encouraged student input, and included perspectives of women and minorities in their coursework.⁸

Benefits for Students

Numerous research studies have examined the impact of diversity on students and educational outcomes. Cumulatively, these studies provide extensive evidence that diversity has a positive impact on all students, minority and majority.⁹

Some examples are:

- ▶ A national longitudinal study of 25,000 undergraduates at 217 four-year colleges and universities showed that institutional policies fostering diversity of the campus community had positive effects on students' cognitive development, satisfaction with the college experience, and leadership abilities. These policies encouraged faculty to include themes relating to diversity in their research and teaching, and provided students with opportunities to confront racial and multicultural issues in the classroom and in extracurricular settings.¹⁰
- ▶ Two longitudinal studies, one conducted by HERI in 1985 and 1989 with over 11,000 students from 184 institutions and another in 1990 and 1994 on approximately 1500 students at the University of Michigan, showed that students who interacted with racially and ethnically diverse peers both informally and within the classroom showed the greatest "engagement in active thinking, growth in intellectual engagement and motivation, and growth in intellectual and academic skills."¹¹ A more recent study of 9,000 students at ten selective colleges reported that meaningful engagement rather than casual and superficial interactions led to greater benefit from interaction with racially diverse peers.¹²
- ▶ Data from the National Study of Student Learning indicated that both in-class and out-of-class interactions and involvement with diverse peers fostered critical thinking. This study also found a strong correlation between "the extent to which an institution's environment is perceived as racially nondiscriminatory" and students' willingness to accept both diversity and intellectual challenge.¹³
- ▶ A survey of 1,215 faculty members in departments granting doctoral degrees in computer science, chemistry, electrical engineering, microbiology, and physics showed that women faculty played important roles in fostering the education and success of women graduate students.¹⁴

Challenges of Diversity

Despite the benefits that a diverse faculty, staff, and student body provide to a campus, diversity also presents considerable challenges that must be addressed and overcome.

Some examples include:

- ▶ Numerous studies have reported that women and minority faculty members are considerably less satisfied with many aspects of their jobs than are majority male faculty members. These aspects include teaching and committee assignments, involvement in decision-making, professional relations with colleagues, promotion and tenure, salary inequities, and overall job satisfaction.¹⁵

- ▶ A study of minority faculty at universities and colleges in eight Midwestern states showed that faculty of color experience exclusion, isolation, alienation, and racism in predominantly white universities.¹⁶
- ▶ Multiple studies demonstrate that minority students often feel isolated and unwelcome in predominantly white institutions and that many experience discrimination and differential treatment. Minority status can result from race, ethnicity, national origin, sexual orientation, disability and other factors.¹⁷
- ▶ Women students, particularly when they are minorities in their classes, may experience unwelcoming climates that can include sexist use of language, presentation of stereotypic or disparaging views of women, differential treatment from professors, and/or sexual harassment.¹⁸
- ▶ When a negative stereotype relevant to their identity exists in a field of interest, women and members of minority groups often experience “stereotype threat”—the fear that they will confirm or be judged in accordance with the stereotype. Such stereotype threat exists for both entry into a new field and for individuals already excelling in a specific arena. Situations or behaviors that heighten awareness of one’s minority status can activate stereotype threat.¹⁹ Research demonstrates that once activated, stereotype threat leads to stress and anxiety, which decreases memory capacity, impairs performance, and reduces aspirations and motivation.²⁰ Human brain imaging, which shows that activating stereotype threat causes blood to move from the cognitive to the affective centers of the brain, indicates how situational cues reduce cognitive abilities.²¹
- ▶ Research has demonstrated that a lack of previous positive experiences with “outgroup members” (minorities) causes “ingroup members” (majority members) to feel anxious about interactions with minorities. This anxiety can cause majority members to respond with hostility or to avoid interactions with minorities.²²

Influence of Unconscious Assumptions and Biases

Research studies show that people who have strong egalitarian values and believe that they are not biased may unconsciously behave in discriminatory ways.²³ A first step towards improving climate is to recognize that unconscious biases, attitudes, and other influences unrelated to the qualifications, contributions, behaviors, and personalities of our colleagues can influence our interactions, *even if we are committed to egalitarian views*.

Although we all like to think that we are objective scholars who judge people on merit, the quality of their work, and the nature of their achievements, copious research shows that a lifetime of experience and cultural history shapes every one of us and our judgments of others.

The results from controlled research studies demonstrate that people often hold unconscious, implicit assumptions that influence their judgments and interactions with others. Examples range from expectations or assumptions about physical or social characteristics associated with race, gender, age, and ethnicity to those associated with certain job descriptions, academic institutions, and fields of study.

“People confident in their own objectivity may overestimate their invulnerability to bias.”

—Eric Luis Uhlmann and Geoffrey L. Cohen

Examples of common social assumptions or expectations:

- ▶ When shown photographs of people of the same height, evaluators overestimated the heights of male subjects and underestimated the heights of female subjects, even though a reference point, such as a doorway, was provided.²⁴
- ▶ When shown photographs of men of similar height and build, evaluators rated the athletic ability of Black men higher than that of White men.²⁵
- ▶ When asked to choose counselors from a group of equally competent applicants who were neither exceptionally qualified nor unqualified for the position, college students chose White candidates more often than African American candidates, exhibiting a tendency to give members of the majority group the benefit of the doubt.²⁶

These studies show that we often apply generalizations about groups that may or may not be valid to the evaluation of individuals.²⁷ In the study on height, evaluators applied the statistically accurate generalization that men are usually taller than women to estimate the height of individuals who did not necessarily conform to the generalization. If we can inaccurately apply generalizations to objective characteristics as easily measured as height, what happens when the qualities we are evaluating are not as objective or as easily measured? What happens when, as in the studies of athletic ability and choice of counselor, the generalizations are not valid? What happens when such generalizations unconsciously influence the ways we interact with other people?

Examples of assumptions or biases that can influence interactions:

- ▶ When rating the quality of verbal skills as indicated by vocabulary definitions, evaluators rated the skills lower if told that an African American provided the definitions than if told that a White person provided them.²⁸
- ▶ When asked to assess the contribution of skill versus luck to successful performance of a task, evaluators more frequently attributed success to skill for males and to luck for females, even though males and females performed the task identically.²⁹
- ▶ Evaluators who were busy, distracted by other tasks, and under time pressure gave women lower ratings than men for the same written evaluation of job performance. Sex bias decreased when they took their time and focused attention on their judgments, which rarely occurs in actual work settings.³⁰
- ▶ Research has shown that incongruities between perceptions of female gender roles and leadership roles can cause evaluators to assume that women will be less competent leaders. When women leaders provided clear evidence of their competence, thus violating traditional gender norms, evaluators perceived them to be less likeable and were less likely to recommend them for hiring or promotion.³¹
- ▶ A study of nonverbal communication found that White interviewers maintained higher levels of visual contact, reflecting greater attraction, intimacy, and respect, when talking with White interviewees and higher rates of blinking, indicating greater negative arousal and tension, when talking with Black interviewees.³²

Examples of assumptions or biases in academic contexts:

Several research studies conclude that implicit biases and assumptions can affect evaluation and hiring of candidates for academic positions. These studies show that the gender of the person being evaluated significantly influences the assessment of résumés and postdoctoral applications, evaluation of journal articles, and the language and structure of letters of recommendation. As we attempt

to enhance campus and department climate, the influence of such biases and assumptions may also affect selection of invited speakers, conference presenters, committee membership, interaction, and collaboration with colleagues, and promotion to tenure and full professorships.

- ▶ A study of over 300 recommendation letters for medical faculty hired by a large American medical school found that letters for female applicants differed systematically from those for males. Letters written for women were shorter, provided “minimal assurance” rather than solid recommendations, raised more doubts, and included fewer superlative adjectives.³³
- ▶ In a national study, 238 academic psychologists (118 male, 120 female) evaluated a junior-level or a senior-level curriculum vitae randomly assigned a male or a female name. These were actual vitae from an academic psychologist who successfully competed for an assistant professorship and then received tenure early. For the junior-level applicant, both male and female evaluators gave the male applicant better ratings for teaching, research, and service and were more likely to hire the male than the female applicant. Gender did not influence evaluators’ decisions to tenure the senior-level applicant, but evaluators did voice more doubts about the female applicant’s qualifications.³⁴
- ▶ A study of postdoctoral fellowships awarded by the Medical Research Council of Sweden found that women candidates needed substantially more publications to achieve the same rating as men, unless they personally knew someone on the selection panel.³⁵
- ▶ A 2008 study showed that when the journal *Behavioral Ecology* introduced a double-blind review process that concealed the identities of reviewers and authors, there was a significant increase in the publication of articles with a woman as the first author.³⁶

Reaping the Benefits and Minimizing the Challenges of Diversity

To reap the benefits and minimize the challenges of diversity, we need to overcome the powerful human tendency to feel more comfortable when surrounded by people we resemble. We need to learn how to understand, value, and appreciate difference. Below is some advice for doing so:

Become aware of unconscious biases that may undermine your conscious commitment to egalitarian principles.

One way of doing so is to take the Implicit Association Test (IAT) offered by Project Implicit (a research collaborative at the University of Virginia, Harvard University, and the University of Washington): <https://implicit.harvard.edu/implicit/demo>.

Consciously strive to minimize the influence of unintentional bias.

Question your judgments and decisions and consider whether unintentional bias may have played a role. One way to do so is to perform a thought experiment: ask yourself if your opinions or conclusions would change if the person was of a different race, sex, or religion, etc. Some questions to consider include:

- ▶ Are women or minority colleagues/students subject to higher expectations in areas such as number and quality of publications, name recognition, or personal acquaintance with influential colleagues?
- ▶ Are colleagues or students who received degrees from institutions other than major research universities under-valued? Are we missing opportunities to benefit from the innovative, diverse, and valuable perspectives and expertise of colleagues or students from other institutions such as historically black universities, four-year colleges, community colleges, government, or industry?

- ▶ Are ideas and opinions voiced by women or minorities ignored? Are their achievements and contributions under-valued or unfairly attributed to collaborators, despite evidence to the contrary in their publications or letters of reference?
- ▶ Is the ability of women or minorities to lead groups, raise funds, and/or supervise students and staff underestimated? Are such assumptions influencing committee and/or course assignments?
- ▶ Are assumptions about whether women or minorities will “fit in” to an existing environment influencing decisions?
- ▶ Are assumptions about family obligations inappropriately influencing appointments and other decisions?

Seek out opportunities for greater interaction with women and minority colleagues.

Get to know women and minority colleagues in your department, your campus, and your professional associations. Pursue meaningful discussions with them about research, teaching methodologies, and ideas about the direction of your department, college, and profession. Listen actively to any concerns they express and try to understand and learn from their perspectives and experiences.

Focus on the individual and on his/her personality, qualifications, merit, interests, etc.

Consciously avoid the tendency to make assumptions about an individual based on the characteristics (accurate or not) of his/her group membership. Likewise, avoid the tendency to make assumptions about groups based on the behavior, personality, qualifications, etc. of an individual group member. Instead, concentrate on the individual and his/her qualities.

Treat all individuals—regardless of race, sex, or status—with respect, consideration, and politeness.

- ▶ Greet faculty, staff, and students pleasantly in hallways or in other chance encounters.
- ▶ Make requests to faculty, staff, and students politely—even when the work you are asking for is part of their obligations.
- ▶ Acknowledge and appreciate the work, assistance, and contributions of faculty colleagues, staff, and students. Do so in public forums as well as privately.
- ▶ Address individuals by their appropriate titles or by their preferred forms of address.

Actively promote inclusive communities.

- ▶ In classroom, committee, laboratory, and departmental settings, work to ensure that everyone has a chance to voice opinions, concerns, or questions. Acknowledge and attribute ideas, suggestions, and comments accurately. Women and minorities often report that their remarks or contributions are ignored or unheard.
- ▶ Support efforts to ensure that leadership and membership of departmental and professional committees are diverse with respect to age, gender, nationality, race, ethnicity, etc.
- ▶ Support efforts to ensure that departmental events such as seminar series and sponsored conferences include presenters of various ages, genders, nationalities, races, and ethnicities.
- ▶ Promote inclusive language by example. Avoid using only male pronouns when referring to groups of both sexes. Avoid language that makes assumptions about marital status and or/sexual orientation, i.e., consider using “partner” rather than “spouse.”
- ▶ Welcome new departmental members by initiating conversations or meetings with them. Attend social events hosted by your department and make efforts to interact with new members and others who are not part of your usual social circle.

Avoid activating stereotype threat.

In addition to the advice provided above for actively promoting inclusive communities, the following suggestions can prevent the activation of stereotype threat or counteract its effects:

- ▶ Teach students and colleagues about stereotype threat.³⁷
- ▶ Counter common stereotypes by increasing the visibility of successful women and minority members of your discipline. Ensure that the posters and/or photographs of members of your department or discipline displayed in hallways, conference rooms, and classrooms reflect the diversity you wish to achieve. Choose textbooks that include the contributions and images of diverse members of your discipline.³⁸
- ▶ Support and encourage your students by providing positive feedback as well as constructive criticism to ensure that they know their strengths and develop confidence in their abilities. Save your harshest criticism for private settings so that you do not humiliate or embarrass students in front of either their peers or more senior colleagues. Such respectful practices are important for all students, but are likely to be more important for women and members of minority groups, who may have received less encouragement and may be at greater risk of being discouraged due to the influence of stereotype threat. Demonstrate similar respect and encouragement for your colleagues.
- ▶ For more suggestions, see: <http://reducingstereotypethreat.org/reduce.html>.

Conclusion*Diversity is not an end in itself.*

Diversity is a means of achieving our educational and institutional goals. As such, merely adding diverse people to a homogeneous environment does not automatically create a more welcoming and intellectually stimulating campus.

Long-term efforts, engagement, and substantial attention are essential for realizing the benefits that diversity has to offer and for ensuring that all members of the academic community are respected, listened to, and valued.

References

Complete references, including links to articles, are available online:

http://wiseli.engr.wisc.edu/docs/benefits_references2012.pdf

1. Manzoni, Strelbel, and Barsoux, 2010; Herring, 2009; Page, 2007; Putnam, 2007; van Knippenberg and Schippers, 2007; Mannix and Neale, 2005; Cox, 1993.
2. University of Wisconsin–Madison, Office of the Provost, 2004.
3. Herring, 2009; Chang et al., 2003; ACE and AAUP, 2000.
4. McLeod, Lobel and Cox, 1996.
5. Nemeth, 1995; 1986; 1985. See also: Schulz-Hardt, et al., 2006; Sommers, 2006; Antonio, et al., 2004.
6. Kanter, 1983.
7. Antonio, 2002. See also: Turner, 2000; Nelson and Pellet, 1997.
8. Milem in Chang et al., 2003.
9. Smith et al., 1997. See also: Beck, 2009.
10. Astin, A.W., “Diversity and Multiculturalism on Campus.” 1993; Astin, A.W., *What Matters in College?* 1993.
11. Gurin et al., 2002; Gurin, 1999.
12. Espenshade and Radford, 2009.
13. Pascarella et al., 1996.

14. Fox in Hornig, 2003. See also: Carbonell and Castro, 2008; Kutob, Senf, and Campos-Outcalt, 2006; Bakken, 2005.
15. Sheridan and Winchell, 2006; 2003; Harvard University Task Force on Women Faculty, 2005; Astin, H.S. and Cress in Hornig, 2003; Zakian et al., 2003; Allen et al. in Smith, Altbach and Lomotey, 2002; Trower and Chait, 2002; Turner, 2002; Aguirre, 2000; Foster, S.W. et al., 2000; Turner and Myers, 2000; MIT Committee on Women Faculty, 1999; Blackburn and Hollenshead, 1999; Riger et al., 1997.
16. Turner and Myers, 2000. See also: Turner, 2002.
17. Rankin, 2003; Suarez-Balcazar et al., 2003; Hurtado, Carter and Kardia, 1998; Cress and Sax, 1998; Nora and Cabrera, 1996; Smedley, Myers and Harrell, 1993; Hurtado, 1992.
18. Salter and Persaud, 2003; Crombie et al., 2003; Swim et al., 2001; Whitt, 1999; Sands, 1998; Foster, T., 1994; Hall and Sandler, 1982.
19. Spencer, Steele, and Quinn, 1999; Steele, 1997; Steele and Aronson, 1995.
20. Burgess, Joseph, van Ryn, Carnes, 2012; Brodish and Devine, 2009; Davies, Spencer, and Steele, 2005; Croizet et al., 2004; Keller and Dauheimer, 2003; Schmader and Johns 2003; Steele, 1997.
21. Krendl et al., 2008.
22. Plant and Devine, 2003.
23. Dovidio, 2001.
24. Biernat, Manis and Nelson, 1991.
25. Biernat and Manis, 1994.
26. Dovidio and Gaertner, 2000.
27. Bielby and Baron, 1986.
28. Biernat and Manis, 1994.
29. Deaux and Emswiller, 1974.
30. Martell, 1991.
31. Eagly and Sczesny in Barreto, Ryan and Schmitt, 2009; Eagly and Koenig in Borgida and Fiske, 2008; Heilman et al., 2004; Ridgeway, 2001.
32. Dovidio et al., 1997.
33. Trix and Psenka, 2003.
34. Steinpreis, Anders and Ritzke, 1999.
35. Wennerås and Wold, 1997.
36. Budden et al., 2008.
37. Johns, Schmader, and Martens, 2005.
38. Good, Woodzicka, and Wingfield, 2010.

Pullout Quotes:

Hurtado, 2007.

Uhlman and Cohen, 2007.

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Second Edition

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Fostering Independence

OVERVIEW, LEARNING OBJECTIVES, AND ACTIVITIES

Introduction

An important goal in any mentoring relationship is helping the mentee become independent, yet defining what an independent mentee knows and can do is often not articulated by the mentor or the mentee. Defining what independence looks like and developing skills to foster independence is important to becoming an effective mentor. Defining independence becomes increasingly complex in the context of team science.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Define independence, its core elements, and how those elements change over the course of a mentoring relationship
2. Employ various strategies to build mentee confidence, establish trust, and foster independence
3. Identify the benefits and challenges of fostering independence, including the sometimes conflicting goals of fostering independence and achieving grant-funded research objectives

Overview of Activities for the Independence Session: Please note that a core activity is listed for each learning objective. We strongly encourage you to engage the mentors in your group in this activity. There is a list of additional activities that can be used if you have extra time in the session or if the core activity is not working well for the mentors in your group.

	Learning Objectives	Core Activities	Additional Activities
1	Define independence, its core elements, and how those elements change over the course of a mentoring relationship	Mentors share ideas on the core elements of independence and then organize the list based on career stage (Activity #1)	Mentors read and discuss Case #3: <i>How Much to Help?</i> (Activity #4)
2	Employ various strategies to build their mentees' confidence, establish trust, and foster independence	Mentors read and discuss Case #1: <i>Independent Research?</i> or Case #2: <i>Forced Guidance</i> (Activity #2)	Mentors share strategies they have used to foster independence (Activity #5)
3	Identify the benefits and challenges of fostering independence	Mentors list the benefits of an independent mentee, as well as the challenges (Activity #3)	Mentors read and discuss Case #4: <i>The Slow Writer</i> (Activity #6)

FACILITATION GUIDE

Recommended Session on Fostering Independence (60 minutes)

Materials Needed for the Session

- ▶ Table tents and markers
- ▶ Chalkboard, whiteboard, or flip chart
- ▶ Handouts:
 - ▷ Copies of introduction and learning objectives for *Fostering Independence* (page 77)
 - ▷ Copies of *Independence* case studies (*Independent Research?* and *Forced Guidance*) (page 81) and the additional cases if desired (pages 82–83)

Overview (5 min)

- ▶ TELL: Review the introduction and learning objectives for the session.

Objective 1: Define independence, its core elements, and how those elements change over the course of a mentoring relationship (25 min)

- ▶ ACTIVITY #1: Defining Independence
 - ▷ ASK: Please describe your definition of independence. What does independence look like?
 - ▷ TELL (15 min): We recognize that independence looks different at various stages of a researcher's career. As we list the elements of independence, let's also note the most appropriate career stage for each element.

- ▷ You may want to record the ideas generated in this discussion on a whiteboard or flip chart, writing elements of independence along a continuum based on the discussion. The continuum should stretch from MD or PhD student to post-doc, early K-scholar, late K-scholar, and tenured faculty member.
- ▷ NOTE: Some elements of independence include:
 1. Advanced knowledge of discipline, including expertise in their sub-area
 2. Ability to critically read the literature and find answers to questions through extended literature searches and consulting experts
 3. Ability to write a grant proposal for an entire research project
 4. Ability to design and give an oral presentation on their work at a national meeting
 5. Ability to design experiments for an entire grant proposal and conduct them
- ▶ DISCUSS (10 min) in a large group the following questions:
 1. How can you tell if a certain level of independence is achieved? For example, what does independent thinking look like?
 2. Do mentees know what level of independence is expected of them?
 3. Do you think your mentee's estimations of their level of independence are aligned with yours?
 4. Is there ever a point in the mentoring relationship at which the mentee is so independent that they no longer need the mentor?
 5. How can a mentee work as both an independent researcher and a team scientist?
- ▶ FOLLOW-UP ACTIVITY: Draw your own timeline for establishing independence and discuss it with your mentee to see whether it aligns with their expectations. You may consider adding this timeline to your compact (if applicable).

Objective 2: Employ various strategies to build mentee confidence, establish trust, and foster independence (20 min)

- ▶ ACTIVITY #2: Case Study
 - ▷ Distribute either *Independence Case #1: Independent Research?* or *Case #2: Forced Guidance*, and let participants read the case individually for two to three minutes.
 - ▷ DISCUSS (17 min) in a large group. You may want to record the ideas generated in this discussion on a whiteboard or flip chart. Use the guiding questions following the case study. Additional questions are listed below:
 1. What is independent research?
 2. How does a mentor come to understand a mentee's decision-making ability so that the mentor can trust the mentee's decisions?
 3. How can you foster collegial sharing or partnership within an existing power dynamic between a mentor and mentee?
 4. How can you determine what level of independence a mentee is ready for? How do you account for your mentee's strengths and weaknesses in this decision?
 5. A consequence of fostering early independence can be a reduced quality and quantity of data produced. Is this a worthwhile sacrifice?
 6. How do you convey the level of independence you expect from your mentee?
 7. How can team mentoring help or hinder in this case study?
 8. How can you create an environment where a mentee feels confident to ask questions without fear that it may reflect poorly on their competence?

Objective 3: Identify the benefits and challenges of fostering independence (10 min)

- ▶ **ACTIVITY #3: Identifying Benefits and Challenges of Fostering Independence**
 - ▷ **ASK:** Please share one benefit or one challenge of a mentee achieving independence. You may want to record the ideas generated in this discussion on a whiteboard or flip chart.
 - ▷ **NOTE:** Benefits and challenges that may be included are:
 1. Benefits
 - Affirmation of your ability to train another researcher
 - Increased capacity in your research field
 - Increased creativity and research in translational research related to your field
 - Authorship on joint publications
 - Increased capacity and skill in your research group
 - Broadening diversity within your research group
 2. Challenges
 - Expense
 - Competing demands on time and need to get research done
 - Slower progress toward achieving grant-funded objectives
 - Greater risk of new ideas not panning out
 - Issues of intellectual property
 - Time needed to mentor effectively
 - Misalignment of expectations and goals
 - Addressing the challenges of interdisciplinary work
 - Overlapping research interests
 - Ending the relationship once independence is achieved

Fostering Independence

Case #1: Independent Research?

Dr. Klein is very excited about the grant proposal she is writing to NIH. The proposal builds upon research she has been conducting as a K-scholar in the laboratory of Dr. Janco. Dr. Klein feels strongly that the proposal clearly describes the logical next steps in the project as well as relates the research to her previous clinical work. When Dr. Klein meets with Dr. Janco to discuss the grant proposal, she is surprised to discover that Dr. Janco is less than enthusiastic about the proposal. Dr. Janco informs Dr. Klein that the proposal is too closely aligned with Dr. Janco's current work and its future direction. She says that the proposal needs to be reworked, focused on a different, more independent direction of research. Dr. Klein leaves the meeting frustrated, disappointed, and unsure how to proceed.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do?
3. How is independence redefined in a restricted funding climate and an era of collaborative research?

Note: This case is taken from the mentee's perspective, providing mentors a slightly different lens.

Case #2: Forced Guidance

I started working with a new scholar this semester and I just can't seem to communicate effectively with her. I told her at the beginning of the semester that I thought we should have weekly meetings to talk about her progress, and she agreed. At our next meeting, I asked her to run through a list of the things she'd accomplished that week. She had no notes and seemed pretty unprepared for talking about her work in the level of detail that I expected. She's been canceling most of our meetings at the last minute—either she doesn't feel well or she suddenly remembers an assignment for class that's due the next day. I know that she's doing the work—at the few meetings she keeps, she has a lot to say—but her progress on this project is very uneven, both in time taken and in quality, and I'm often forced to suggest that she redo crucial pieces. I fear these critical meetings leave her demoralized and less interested in accepting guidance from me, but I don't know how else to get her to understand that she needs my help.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What other issues might be at play in this case? What should the mentor's next steps be?
3. How can you determine if you are making assumptions about a mentee's ability based on their productivity or work style, especially if they differ from yours?

Additional Activities (if time allows)

Objective 1; Activity #4

Case #3: How Much to Help?

Dr. Richardson is a research scholar who is nearing the end of his post-doctoral fellowship, but wishes to continue his training in his mentor's lab. Thus, he is independently applying for a KL2 award from the NIH. His mentor believes that Dr. Richardson is a very valuable asset to the lab and is highly supportive of Dr. Richardson continuing his training in this lab, but does not have any other funding to support Dr. Richardson's salary. The mentor has agreed to advise Dr. Richardson in the preparation of the application, although noting that it should represent Dr. Richardson's independent work. When Dr. Richardson provides his mentor with a draft of the application, his mentor becomes concerned about the quality of the writing. The research ideas are fairly solid, but the research plan has some minor flaws and the proposal is very poorly written.

Dr. Richardson's mentor believes that the KL2 proposal in its current form would not be a strong candidate for funding. Although the application should reflect Dr. Richardson's work, the mentor has a vested interest in the proposal succeeding so that he can keep one of his most productive researchers. The mentor is unsure how to improve Dr. Richardson's proposal while still retaining it as Dr. Richardson's independent work. Moreover, Dr. Richardson has invested more than a month in preparing this application and is not accustomed to criticism of his writing, so the mentor is concerned that Dr. Richardson's defensiveness may create a further obstacle to improving the proposal.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now?
3. How would independent research be defined in this case?

Objective 2; Activity #5

Have mentors generate a list of strategies that can be used to foster independence. Ask mentors to consider strategies that can be used in face-to-face meetings, over email, through written reports, etc. You may want to record the ideas generated in this discussion on a whiteboard or flip chart.

Objective 3; Activity #6

Case #4: The Slow Writer

The K-scholar in my group is adept at performing experiments, but is a very slow writer. Last fall, I set multiple deadlines that this scholar missed, while another post-doc in my group wrote a grant proposal, submitted a paper, and did experiments. Over the holidays, the slow writer had a breakthrough and produced an outline of a manuscript. To avoid delays in publications, I have now taken the lead in writing the manuscript based on her work. However, to become an independent PI, I know the scholar must be able to write her own manuscripts and grant proposals. Setting deadlines for detailed outlines, manuscript sections, figures, etc. hasn't worked. Trying to communicate the importance of manuscripts to the scientific endeavor hasn't worked either. Neither has encouragement. Veiled threats don't seem professional. Other than being patient, what should I do?

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. How do you convey the level of independence you expect from your mentee?
3. What is the mentor's responsibility in this case?

Promoting Professional Development

OVERVIEW, LEARNING OBJECTIVES, AND ACTIVITIES

Introduction

The ultimate goal of most mentoring situations is to enable the mentee to identify and achieve some academic and professional outcomes after the training period. Along the way, there are many objectives to be achieved, all of which must be consciously considered so they do not get lost or forgotten. Non-research professional development activities are sometimes seen as distractions from the core business of doing research, but are often critically important to identifying and successfully meeting the mentee's long-term career objectives.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Identify the roles mentors play in the overall professional development of their mentees
2. Develop a strategy for guiding professional development using a written document
3. Initiate and sustain periodic conversations with mentees on professional goals and career development objectives and strategies
4. Engage in open dialogue on balancing the competing demands, needs, and interests of mentors and mentees (e.g., research productivity, grant funding, creativity and independence, career preference decisions, non-research activities, personal development, work-family balance, etc.)

Overview of Activities for the Professional Development Session: Please note that a core activity is listed for each learning objective. We strongly encourage you to engage mentors in your group in this activity. There is a list of additional activities that can be used if you have extra time in the session or if the core activity is not working well for the mentors in your group.

	Learning Objectives	Core Activities	Additional Activities
1	Identify the roles mentors play in the overall professional development of their mentees	Mentors brainstorm a list of the roles mentors play in the professional development of their mentees beyond research, then rank them in order of importance (Activity #1)	Mentors discuss the ways in which their own mentors supported and promoted their professional development in the past (Activity #5) Mentors review and discuss Case #2: <i>Mum's the Word</i> (Activity #6)
2	Develop a strategy for guiding professional development using a written document	Mentors review and discuss three different documents that could be used as guides to create Individual Development Plans (IDPs) (Activity #2)	Mentors revise the draft compact they created in the <i>Expectations</i> session to include more specific expectations for professional development (Activity #7)
3	Initiate and sustain periodic conversations with mentees on professional goals and career development objectives and strategies	Mentors use the written professional development plan created in Activity #2 as a guide for a conversation with their mentee about career development (Activity #3)	Mentors use the revised expectations compact created in the <i>Expectations</i> session to guide a conversation with their mentee about career development (Activity #8)
4	Engage in open dialogue on balancing competing demands, needs, and interests of mentors and mentees (e.g., research productivity, grant funding, creativity and independence, career preference decisions, non-research activities, personal development, work-family balance, etc.)	Mentors read and discuss Case #1: <i>To Be or Not to Be a PI</i> (Activity #4)	Mentors read and discuss Case #3: <i>Life Changes</i> (Activity #9) Mentors read and discuss Case #4: <i>Looking for Balance</i> (Activity #10)

FACILITATION GUIDE

Recommended Session on Promoting Professional Development (90 minutes)

Materials Needed for the Session

- ▶ Table tents and markers
- ▶ Index cards
- ▶ Chalkboard, whiteboard, or flip chart
- ▶ Handouts:
 - ▷ Copies of introduction and learning objectives for *Professional Development* (page 83)
 - ▷ Copies of the three example *Individual Development Plans* (pages 89–98)
 - ▷ Copies of the *Professional Development Case #1: To Be or Not to Be a PI* (page 88) and the additional cases if desired (pages 99–100)
 - ▷ Copies of the annotated bibliography *References for Navigating the Work-Family Interface* (pages 101–103)

Introduction (10 min)

- ▶ REFLECTION: Ask mentors to write down any new mentoring activities they have engaged in since the last session. If none, they should write down something they are thinking about regarding their mentoring relationship based on the previous session.
- ▶ TELL: Review the introduction and learning objectives for the session.

Objective 1: Identify the roles mentors play in the overall professional development of their mentees (30 min)

- ▶ ACTIVITY #1: Brainstorming Mentor Roles in Professional Development
 - ▷ ASK (10 min): In pairs, list all of the roles mentors can or should play in the professional development of their mentee, beyond research training.
 - ▷ DISCUSS (15 min) in a large group the roles each pair listed. You may want to record the ideas generated in this discussion on a whiteboard or flip chart.
 - ▷ NOTE: Some elements of professional development include:
 1. Networking—social and professional
 2. Finding funding
 3. Managing staff
 4. Time management
 5. Writing
 6. IRB protocol development
 7. Career path guidance
 8. Leadership skills
 9. Work-life balance
 10. Public speaking
 11. Research Ethics

- ▷ DISCUSS (5 min) in a large group the following questions:
 - ▷ Which of the roles on the list are the most important? Why?
 - ▷ Are there some roles on the list that should not be the mentor's concern? Why?

Objective 2: Develop a strategy for guiding professional development using a written document (15 min)

- ▶ ACTIVITY #2: Reviewing Individual Development Plans and Mentoring Plans
 - ▷ REVIEW (15 min) individually: Mentors review example plans individually and make notes on them to indicate which aspects of the plans they would like to adopt for use with their own mentees. Some mentors may already use such plans and may wish to share their own versions.

Objective 3: Initiate and sustain periodic conversations with mentees on professional goals and career development objectives and strategies (15 min)

- ▶ ACTIVITY #3: Using the Individual Development Plans and Mentoring Plans
 - ▷ ACTIVITY (15 min) in pairs: Mentors share specific ways they could introduce the idea of an individual development plan to their mentee and how the completed plan can be used to navigate the mentoring relationship.
 - ▷ FOLLOW-UP ACTIVITY: Mentors should choose or adapt one formal one an individual development plan and ask their mentee to complete it annually (at a minimum). The completed plan should be used to guide a conversation between mentor and mentee about professional development needs and expectations.
 - ▷ NOTE: These plans are an important step towards creating some form of expectations document that can be used to initiate a discussion on goals and expectations with mentees, Mentoring compacts, like those included in the "Aligning Expectations" session can be utilized in concert with these IDPs to tailor a holistic plan for each mentee. An additional resource mentors may consider are learning compacts:
 - <https://www.msu.edu/user/coddejos/contract.htm>
 - <http://www-distance.syr.edu/contract.html>
 - http://cte.uwaterloo.ca/teaching_resources/tips/self-directed_learning_learning_contracts.html

Objective 4: Engage in open dialogue on balancing the competing demands, needs, and interests of mentors and mentees (20 min)

- ▶ ACTIVITY #4: Case Study
 - ▷ Distribute *Professional Development Case #1: To Be or Not to Be a PI* and let participants read the case individually for two to three minutes.
 - ▷ DISCUSS (17 min) in a large group. You may want to record the ideas generated in this discussion on a whiteboard or flip chart. Use the guiding questions following the case study. Additional questions are listed below:
 1. What are the responsibilities of the mentor to every mentee, regardless of career path?
 2. To what extent are the differing value systems of the mentor and mentee a factor in their relationship?
 3. Do the genders of the mentee and mentor affect your assessment of this case?

4. How do issues of socialization arise in this case study? What does it look like to belong to the academic enterprise?
 5. How might non-research interests and personal goals or obligations play into a mentee's decision of career path? How might the mentor draw these factors out in discussion?
 6. How can the concept of workforce flexibility be translated for scientists in clinical and translational research?
 7. How could issues of the dual-career family play into this mentee's decision and thus influence the discussion?
- ▷ NOTE: Encourage mentors to return to their compact (if applicable) and include text on how both they and the mentee are expected to communicate a sudden change in the work plan due to health issues, family issues, etc., and how they will move forward.

Promoting Professional Development

Case #1: To Be or Not to Be a PI

You are currently mentoring two post-doctoral scholars in your research group. Both are very talented and hard-working; however, one has made it clear that his career goals do not include becoming a PI. The other scholar has her heart set on being a PI in the future. Lately, you find yourself spending more time giving professional development advice to the post-doc who intends to become a PI. You rationalize this by saying that you are more familiar with this career path and thus have more to offer. Secretly you worry that you are writing off the other scholar, believing that he is not worth your time and advice if he is leaving the PI track.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What should the mentor do now? What value judgments are being made by the mentor?
3. How might non-research interests and personal goals or obligations play into a mentee's decision of career path? How might the mentor draw these factors out in discussion? What has driven the mentee away from this career path? Does he feel he belongs?

Example #1: Individual Development Plan (IDP)

1. Name _____

2. Date _____

3. Academic Series and Rank

Ladder Rank	Assistant
In-Residence	Associate
Adjunct	Professor
Clinical	
Health Science Clinical	

4. Primary Mentor _____

Additional Mentor(s) _____

5. Identify Personal and Institutional Long-Term Goals

Why did you decide to work at a medical school?

What do you personally hope to accomplish in your career?

List your Academic Series requirements (see Academic Criteria for Series).

List other goals discussed with Chair/Division head.

6. Areas of Focus: Definition and Distribution of Effort

The following five areas of focus generally describe the areas where faculty direct their efforts to successfully accomplish their personal, institutional, and academic series goals.

▶ **Teaching—Excellence in Education**

Teaching, student advising, continuing medical education (CME), new course development

▶ **Research/Creative Activity—Leadership in Innovative Research**

Conducting basic science and/or clinical research, presentations, publications, application for and receipt of grant support, copyrights and patents, editing, peer review

▶ **Clinical Care—State-of-the-Art Clinical Care**

Direct patient care, chart review, related clinical activities, clinical budget performance

▶ **Service—Leadership in Governance**

Participation or leadership in governance, committee membership, collegial activities (Suggested service priority: Department, SOM, UCDHS, University, Professional, Community)

▶ **Self-Development—Networking, Work-Life Balance, and Additional Mentors**

Faculty Development activities, leadership programs, CME training, earning advanced degrees, participation in professional academic associations or societies, developing professional contacts, consulting in one's field, expanding network contacts, balancing work and personal life, utilizing additional mentors in specific areas of focus

Distribution of Effort

Estimate the hours per week spent in each focus area, then list the percentage of total duties.

Focus Area	# Hrs/Week	% of Total Duties
Teaching		
Research		
Clinical Care		
Service		
Self-Development		
Total		

7. Specific Goals in Focus Areas

Complete the focus areas that specifically apply to the criteria for your academic series that will help you accomplish your personal and institutional long-term goals.

Teaching

Year in Review: Please list last year's goal(s) and significant accomplishments (teaching appointments, invitations, course or program improvements, etc.). If the goals were not met, explain and identify barriers.

Upcoming year's teaching goal(s):

Identify resources, collaborators, and time commitment needed to achieve goal(s):

Identify barriers to achieving new goal(s):

Research/Creative Activities

Year in Review: Please list last year's goal(s) and significant accomplishments (major publications, grants, presentations, invitations, etc.). If the goals were not met, explain and identify barriers.

Identify in a single sentence the focus of your scholarly activity:

Upcoming year's research goal(s):

Identify resources, collaborators, and time commitment needed to achieve goal(s):

Identify barriers to achieving new goal(s):

Clinical Care

Year in Review: Please list last year's goal(s) and significant accomplishments (exceptional patient care, development of new techniques, clinical programs, etc.). If the goals were not met, explain and identify barriers.

Upcoming year's patient care goal(s):

Identify resources, collaborators, and time commitment needed to achieve goal:

Identify barriers to achieving new goals:

Service

Recommended service priority: Department, School, University, Professional, and Community.

Year in Review: Please list last year's goal(s) and significant accomplishments. If the goals were not met, explain and identify barriers.

Upcoming year's administration goal(s):

Identify resources, collaborators, and time commitment needed to achieve goal:

Identify barriers to achieving new goal(s):

Self-Development (Networking, Work-Life Balance, Additional Mentors)

Year in Review: Please list year's goal(s) and significant accomplishments. If the goal were not met, explain and identify barriers.

Upcoming year's self-development goal(s):

Identify resources, collaborators, and time commitment needed to achieve goal(s):

Identify barriers to achieving new goal(s):

8. Optimal Distribution of Effort

Revisit the table, "Distribution of Effort," in step 6. Create a new Optimal Distribution of Effort table, taking into account your specific goals listed in step 7.

Focus Area	# Hrs/Week	% of Total Duties
Teaching		
Research		
Clinical Care		
Service		
Self-Development		
Total		

9. We have met and discussed this annual Individual Development Plan (IDP).

Mentee _____

Date _____

Mentor _____

Date _____

Adapted from IDP form presented by Russell G. Robertson, MD, Medical College of Wisconsin. 2004 AAMC Faculty Affairs Professional Development Conference. www.ucdmc.ucdavis.edu/facultydev/docs/NewCareerMntrgIDP.rtf (accessed May 15, 2010)

Example #2: Mentoring Plan Worksheet

Your Goals

Prior to meeting with your mentor, take some time to think about and write down your research and professional goals. You may want to articulate one- and five-year goals. For example, a short-term goal might be “to submit an NIH career development grant application” and a long-term goal might be “to have enough publications for promotion to Associate Professor.”

Short-Term Goals (next year)	Long-Term Goals (next 5 years)
1.	1.
2.	2.
3.	3.

Potential Mentors

Identify people who can assist you in meeting your goals. These can be mentors internally or at other institutions. For each potential mentor, identify objectives, develop a list of what you can offer, and propose outcomes. *A blank grid is included to help you organize your thoughts.* Put your initial thoughts down on paper before you approach a mentor, and then revise it as your relationship changes.

Approaching Mentors

We suggest that you first approach mentors by sending an email that includes a request for a meeting, a brief summary of your goals, and why you think there would be a good fit between you and the mentor. Let potential mentors know how you are hoping to work with them, such as one-on-one, as one of many mentors, or as part of a mentoring team or committee. You might want to let them know how you think they would be able to contribute.

Identify Mentorship Needs

Identify competencies that you will need to gain expertise in (see below for examples). Identify people who can assist you in achieving these competencies and in meeting your goals. These can be mentors internally at your institution, or at other institutions. *A blank grid is included on page 119 to help you organize your thoughts.* Put your initial thoughts down on paper before you approach a mentor, and then revise it as your relationship changes.

Designing research	Establishing goals
Writing grants	Finding funding
Managing career	Managing staff
Leading teams	Preparing for promotion
Cultural competence	Navigating institution

Managing care	Managing conflict
Speaking before groups	Knowing career paths
Teaching effectively	Hiring personnel
Collaborating effectively	Managing budgets
Managing data	Mentoring others
Giving feedback	Evaluating literature
Assessing students	Medical informatics
Organizational dynamics	

Managing Relationships with Your Mentors

Relationships should be nurtured and respected. If you and your proposed mentor develop a working relationship, have some guidelines for how you will work together. Here are some tips:

- ▶ Schedule standing meetings ahead of time and keep them
- ▶ Give your mentor(s) plenty of time to review drafts of grants and manuscripts
- ▶ Don't be a black hole of need – limit the number of requests you make of any given mentor
- ▶ Develop authorship protocols so that expectations are clear
- ▶ Saying thank you is priceless

Mentoring Plan			
Mentor Name	Objectives (e.g., understand how to manage multi-site research projects)	What I can offer (e.g., grant writing, publications)	Outcomes (e.g., submit multi-center research grant proposal)

Adapted from Ann J. Brown, MD MHS, Vice Dean for Faculty, Duke University School of Medicine. www.hr.duke.edu/training/resources/mentoring/templates.php (accessed February 25, 2012)

Example #3: Mentoring Worksheet

Mentor: _____ Mentee: _____

Date of Meeting: _____

Goal: Teaching Goal Met Making Progress No Progress

Accomplishments: _____

Obstacles: _____

New goal or strategy to overcome obstacles (if needed): _____

Goal: Clinical Care Goal Met Making Progress No Progress

Accomplishments: _____

Obstacles: _____

New goal or strategy to overcome obstacles (if needed): _____

Goal: Research Goal Met Making Progress No Progress

Accomplishments: _____

Obstacles: _____

New goal or strategy to overcome obstacles (if needed): _____

Goal: Service Goal Met Making Progress No Progress

Accomplishments: _____

Obstacles: _____

New goal or strategy to overcome obstacles (if needed): _____

Goal: Self-Development Goal Met Making Progress No Progress

Accomplishments: _____

Obstacles: _____

New goal or strategy to overcome obstacles (if needed): _____

Goal: Networking Goal Met Making Progress No Progress

Accomplishments: _____

Obstacles: _____

New goal or strategy to overcome obstacles (if needed): _____

Goal: Work-Life Balance Goal Met Making Progress No Progress

Accomplishments: _____

Obstacles: _____

New goal or strategy to overcome obstacles (if needed): _____

Goal: Additional Mentors Goal met Making Progress No Progress

Accomplishments: _____

Obstacles: _____

New goal or strategy to overcome obstacles (if needed): _____

University of California, Davis
www.ucdmc.ucdavis.edu/facultydev/pdfs/NewCareerMtrgMentoringUpdateWkst.doc
(accessed May 15, 2010)

Name _____

Lab Planning Document for Post-Doctoral Scholars

Annual Planning Document

1. Current research activities

Project title	Central hypothesis	Key experiments	Collaborators

2. Publications

Paper title	Authors	Target journal	Main point	Target submission date

3. Grants

Agency/ Program	Project goal	Specific aims	Target submission date

3. Career goals and training

Ideal job description to attain	Training to attain ideal job	Needs to attain goals

4. Training plan for the next year

Created by Dr. Jo Handelsman, Professor of Molecular, Cellular and Developmental Biology, Yale University

Additional Activities (if time allows)

Objective 1; Activity #5

Have mentors discuss the ways in which their own mentors supported and promoted their professional development in the past (or that they wish their mentors had done). You may want to record the ideas generated in this discussion on a whiteboard or flip chart.

Activity #6

Case #2: Mum's the Word

Jack and Jill are graduate students in Biology, working at the same university but in different labs. They are friends and frequently discuss their projects, which are often along similar lines. One day, Jill tells Jack about her progress and discloses a lot of details about her experimental design and data. However, she mentions to Jack that she has gotten stuck and can't move forward because her lab doesn't have the resources to move her work along. Jack, as it turns out, is not only very interested in Jill's work, but his lab is well supported, and his mentor likes him and would support Jack's ideas. Without telling Jill, Jack spends the next few months working out his own version of Jill's experiment with great support from his mentor. He then publishes an important paper which Jill had no idea about until she sees it appear in a high-impact journal. Jill proceeds to share this information with Jack's mentor.

Adapted from CTSPedia.org, Clinical Research Ethics Educational Materials (John Banja, PhD, Emory University)

Guiding Questions for Discussion

1. What are the responsibilities of mentors to educate their trainees about the ethics of research collaboration and authorship?
2. How can a mentor model these behaviors?
3. As Jack's mentor, how would you follow-up with Jack? Should there also be follow-up with Jill and her mentor?

Objective 2; Activity #7

Ask mentors to revise the draft compact they created in the *Expectations* session to include more specifics about professional development expectations.

Objective 3; Activity #8

Have mentors use the revised expectations compact created in the *Expectations* session as a guide to conversation with their mentee about professional development. Ask mentors to make certain their expectations are in alignment with those of their mentee after this conversation.

Objective 4; Activity #9

Case #3: Life Changes

Your mentee had been productive with manuscripts and pilot grants, but over the last year your mentee's mother was diagnosed with and recently died from pancreatic cancer. Prior to her diagnosis and illness, the mentee's mother provided substantial support for the mentee's family including

childcare, cooking, and general support. This life event has put the mentee's productivity on a slower course, and your mentee needs support to complete a pilot project for future funding from the NIH. What is your advice?

Adapted from the University of California, San Francisco, Clinical Translational Science Institute (CTSI), Mentor Development Program. <http://ctsi.ucsf.edu/training/mdp-cases> (accessed May 14, 2010)

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. To what extent should mentors have a role in helping mentees with work-life balance?
3. How have you as a mentor dealt with similar situations?

Objective 4; Activity #10

Case #4: Looking for Balance

Dr. Feinstein is a 32-year-old Assistant Professor on the tenure track who joined the faculty five years ago and became a KL2 scholar two years ago. Dr. Feinstein's wife is expecting their first child and he would like to request a three-month parental leave. However, Dr. Feinstein has not raised this issue with his mentor, a 60-year-old Professor, whom he senses is already growing frustrated that he does not put in the number of hours that his generation did when they were coming up. Additionally, Dr. Feinstein has heard a rumor that his mentor is considering mentoring a new K-scholar this spring. Dr. Feinstein has heard that this new scholar is a real "go-getter" working 70–80 hours a week. Dr. Feinstein fears this new scholar will make him look as if he is not serious about his research career.

Adapted from the University of California, San Francisco, Clinical Translational Science Institute (CTSI), Mentor Development Program. <http://ctsi.ucsf.edu/training/mdp-cases> (accessed May 14, 2010)

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. Discuss the role of the mentee's gender. How is maternity leave treated differently than paternity leave?
3. How can the concept of workforce flexibility be translated for scientists in clinical and translational research?

Note: This case is taken from the mentee's perspective, providing mentors a slightly different lens.

References for Navigating the Work-Family Interface

Below is a list of articles on the work-family and work-life interface. This list is intended to be a contemporary perspective on themes in the literature, not an exhaustive review.

Barnett, R.C. and J.S. Hyde. 2001. Women, men, work, and family: An expansionist theory. *American Psychologist* 56:781–796.

The authors describe and evaluate traditional theories of gender, work, and family and then proposed a broader contemporary expansionist theory that challenges classical assumptions. Included are four empirically derived and testable principles that contribute to benefits for individuals. Multiple roles, in general, improve one's mental health, physical health, and relationship health. Several processes, including buffering, income, social support, and expanded frame of reference. Conditions such as role quality and time demand. Psychological gender differences are not large or absolute, are a product of cultural norms, and continue to change over time.

Chen, Z., Powell, G.N. Powell, and J.H. Greenhaus. 2009. Work-to-family conflict, positive spillover, and boundary management: a person-environment fit approach. *Journal of Vocational Behavior* 74:82–93.

Using a “person-environment fit approach,” this study examined employees' and employers' perspectives on preferences for segmenting one's work and home life. Using a sample of 528 management employees, the authors asked if greater congruence between roles resulted in decreased work-to-family conflict and greater positive spillover. They found that individuals who experience a work environment that is congruent with their preferences for keeping work at work had lower stress related to time with work or family and less conflict at home due to work; but less carryover of positive emotion from work to home. The authors offer several considerations for employers to facilitate congruence. For instance, if employees prefer greater segmentation between work and home life and are experiencing time-based conflict, employers should reconsider the number of interruptions and how they are handled (e.g., expectation for quick response to email messages, no matter when they are sent or where they are received). Work-to-family spillover may be augmented by offering programs such as seminars for employees who are parents of pre-college-age children or are caring for aging relatives. Instrumental positive spillover may in turn increase employees' positive family affect.

Grzywacz, J. G. and D.S. Carlson. 2007. Conceptualizing work-family balance: Implications for Practice and Research. *Advances in Developing Human Resources* 9:455–471.

This article offers a new conceptual understanding of work-family balance. The authors define work-family balance as “accomplishment of role-related expectations that are negotiated and shared between an individual and his or her role-related partners in the work and family domains,” emphasizing a system of interdependent relationships rather than a single working individual. Thus, what may work well for one person in a social unit cannot be considered without evaluating the impact on the other individuals in the work and family systems. Moreover, multiple levels of systems must be engaged appropriately when planning interventions to meet the needs of the individual, work unit, and larger organizations. Strategic ways to employ this definition in management practice are explored.

van Steenbergen, E. F. and N. Ellemers. 2009. Is managing the work-family interface worthwhile? Benefits for employee health and performance. *Journal of Organizational Behavior* 30:617–642.

This study examined the relationship between subjective observations of work-family conflict and objective measures of employees' health and well-being. Work-family facilitation predicted better health one year later as measured in terms of cholesterol level, body mass index, and physical stamina, even after controlling for baseline health markers. This is all the more striking given that physical health indicators often largely depend on genetic predispositions, acquired food preferences, and living circumstances. They further found that conflict experiences negatively affected health markers. Employer-sponsored programs that promote ways for employees to combine work and family roles not only enhance subjective well-being of employees but also objectively benefit the organization they work in.

Westman, M. and P. Brough. 2009. Expert commentary on work-life balance and crossover of emotions and experience: Theoretical and practice advancements. *Journal of Organizational Behavior* 30:587–595.

In this interview Mina Westman, head of the Organisational Behaviour Program in Tel Aviv and a leading international expert on the crossover of emotions and experiences in the family and the workplace, she discussed the difference between the interrelated constructs of work-life balance and crossover. The former focuses on the congruence between work and non-work activities while the latter focuses on how an individual's stress affects family members and coworkers. She further discussed the mechanisms underlying crossover, the significance for organizations, gender differences, and underlying assumptions and implications for these concepts with many illustrative examples throughout.

Additional References

- Gareis, K. C., R.C. Barnett, K.A. Ertel, and L.F. Berkman. 2009. Work-family enrichment and conflict: Additive effects, buffering, or balance? *Journal of Marriage and Family* 71:696–707.
- Grzywacz, J. G. and B.L. Bass. 2003. Work, family, and mental health: Testing different models of work-family fit. *Journal of Marriage and Family* 65:248–262.
- Grzywacz, J. G. and N.F. Marks. 2000. Family, work, work-family spillover, and problem drinking during midlife. *Journal of Marriage and Family* 62(2):336–348.
- Powell, G. N., A.M. Francesco, and Y. Ling. 2009. Toward culture-sensitive theories of the work-family interface. *Journal of Organizational Behavior* 30:597–616.

The Obama administration held a forum on workplace flexibility to discuss the importance of adopting workplace policies that improve flexibility. Individuals including small business owners, corporate leaders, policy experts, employees, labor leaders, and senior administration share ideas and strategies for improving flexibility for America's workers and families (first link). The Council of Economic Advisors prepared a report that highlights changes in American society over the past half-century, and the consequent increased need for workforce flexibility (second link below). The Council for Economic Advisors suggests :it is critical for the 21st century U.S. workplace to be organized for the 21st century worksores. Specifically, they suggest meeting this need for flexibility in terms of when one works, where one works, or how much one works, including time off after childbirth or

other life events. The benefits include improved organizational performance, higher retention of high-performing individuals, increased productivity, improvements in morale, and overall benefits to the U.S. economy (second link).

<http://www.whitehouse.gov/photos-and-video/video/forum-workplace-flexibility-opening-session>

<http://www.whitehouse.gov/blog/2010/03/31/economics-workplace-flexibility>

Bibliography compiled by Nicole L. Schmidt, MS, CLC, Research Program Manager, Waisman Center, UW–Madison

CHAPTER 10

Articulating Your Mentoring Philosophy and Plan

OVERVIEW, LEARNING OBJECTIVES, AND ACTIVITIES

Introduction

Reflecting upon your mentoring relationships is a vital part of becoming a more effective mentor. This is especially important immediately following a mentor-training session so that you can consider how to implement changes in your mentoring practice based on the training. Reflection on your mentoring practice at regular intervals is strongly encouraged.

Learning Objectives

Mentors will:

1. Reflect on the mentor-training experience
2. Reflect on any intended behavioral or philosophical changes across the mentoring competencies
3. Articulate an approach for working with mentees in the future

Overview of Activities for the Mentoring Philosophy and Plan: Please note that only core activities are included for this final training session.

	Learning Objectives	Core Activities
1	Reflect on the mentor-training experience	Mentors engage in a open discussion of the knowledge and skills they have learned from the mentor-training sessions (Activity #1)
2	Reflect on any intended behavioral or philosophical changes across the mentoring competencies	Mentors reflect on each of the mentoring competencies and write about their mentoring practices before and after the mentor-training sessions (Activity #2)
3	Articulate an approach for working with mentees in the future	Mentors discuss approaches for working with a new mentee (Activity #3)

FACILITATION GUIDE

Recommended Session for Articulating Your Mentoring Philosophy and Plan (30 minutes)

Materials Needed for the Session

- ▶ Table tents and markers
- ▶ Chalkboard, whiteboard, or flip chart
- ▶ Handouts:
 - ▷ Copies of description and learning objectives for *Articulating Your Mentoring Philosophy and Plan* (page 105)
 - ▷ Copies of the *Mentoring Competencies Reflection Worksheet* (page 108)
 - ▷ Copies of the *Mentor Self-Reflection Template* (page 109)

Objective 1: Reflect on the mentor-training experience (10 min)

- ▶ ACTIVITY #1: Group Discussion of Lessons Learned from Mentor Training
 - ▷ ASK: Please share with the group one or two ideas that stand out from the mentor-training sessions. These can include lessons learned, ideas that did or did not resonate with you, etc. Once everyone has had a chance to contribute, we can all follow up with additional comments.

Objective 2: Reflect on any intended behavioral or philosophical changes across the mentoring competencies (10 min)

- ▶ ACTIVITY #2: Individual Written Reflection Across the Competencies
 - ▷ Have each participant individually complete the *Mentoring Competencies Reflection Worksheet*.
 - ▷ If there is not enough time to complete the writing activity, they may finish later.

- ▷ NOTE: Encourage mentors to edit their compact (if applicable) with these ideas. They can use the *Mentor Self-Reflection Template* to aid in this process as well. Another similar tool can be found in “Nature’s Guide for Mentors.”⁴

Objective 3: Articulate an approach for working with new mentees in the future (10 min)

- ▶ ACTIVITY #3: Discussion of Ways to Begin a New Mentoring Relationship
 - ▷ TELL: You will soon begin formally mentoring a new junior faculty member in your department. The two of you have talked by phone several times over the past year to discuss project ideas, and you have met a few times since her arrival at your institution.
 - ▷ DISCUSS (8 min) in a large group. You may want to record the ideas generated in this discussion on a whiteboard or flip chart. Guide the discussion using the following questions:
 1. Specifically, what steps would you take to prepare for meeting with the new mentee in three weeks?
 2. What will you do before the mentee arrives?
 3. What will you do within the first month of the mentee’s arrival?
 4. What do you think is the most important thing you can do to start this new mentoring relationship off on the right foot?

⁴ Lee, Adrian, Carina Dennis, and Philip Campbell. 2007. Nature’s Guide for Mentors. *Nature* 447: 791–797.

Mentoring Competencies Reflection Worksheet

For each mentoring competency, please list one or two specific approaches you have taken in the past and plan to take in the future.

Competency	Approaches you have used in the past	Approaches you intend to try in the future
Maintaining Effective Communication		
Aligning Expectations		
Assessing Understanding		
Addressing Equity and Inclusion		
Fostering Independence		
Promoting Professional Development		

Mentor Self-Reflection Template				
	What were the unique challenges and opportunities from the past year?	What was your role?	What happened? What were the results?	Was there any further action?
Meetings & Communication + –				
Expectations & Feedback + –				
Career Development + –				
Research Support + –				
Psychosocial Support + –				
Upcoming Year				
<ul style="list-style-type: none"> ▶ What do you want to keep doing? ▶ What would you like to try differently with your mentee in the upcoming year? ▶ What different resources or training would be helpful to you as the mentor? 				

From Anderson L., Silet K., Fleming M. "Evaluating and Giving Feedback to Mentors: New Evidence-Based Approaches." *Clinical and Translational Science* 2011. Article first published online: 28 NOV 2011 | DOI: 10.1111/j.1752-8062.2011.00361.x

Case Study Appendix

Below are all the case studies included in the curriculum, listed by mentoring competency.

Maintaining Effective Communication

Case #1: Giving Constructive Feedback

As he leaves the crowded conference room, Dr. Tariq tells Dr. Timms he'll see her in a few minutes. Dr. Timms was the last presenter in the practice session. Back in his office Dr. Tariq sits looking distractedly out the window and releases a heavy sigh. He shifts his attention back to his notes for a last review: reading slides . . . too fast . . . too long . . . print too small . . . too much print . . . color contrast . . . meandering . . . A few moments later he hears a knock on the door and beckons Dr. Timms to come in. She plops in a chair across from him and looks up expectantly. He meets her gaze and smiles. "Thanks for coming by. I wanted to make sure we could review your talk since the conference is in a week and I know you're in clinic all day tomorrow—and then I'm out of town," he says with a heavy accent. Dr. Timms continues to stare without comment, a blank expression on her face. "Well, as you know I think your research is really important and I'm glad that we have this opportunity to share it. I think this conference will be a great opportunity for you to meet some key colleagues in this field." She nods slightly, and shifts in her seat. "I do think there are a few things that could tighten your presentation." She continues to stare and Dr. Tariq keeps his focus on his notes as he continues. "For example you had some long sentences, and even whole paragraphs on your slides. While they were well written"—his computer chimes as a new email arrives and he glances over to see who it's from. *Oh, not again . . .* "As I was saying, while they were well written—I mean you know your writing is strong—it is really too much text for a slide. You could try to shorten some to bullet points. Then you can still make those points without just reading your slides to the audience." He looks up and sees that she is now looking at the floor. "It would also allow you to increase the font size a bit. I think it might have been hard to read from the back of the room." He looks up again and sees she is taking some notes. "To cut back on the time, I think you could cut the four slides on the background and just briefly summarize those." He waits for comment and the silence drags on a few moments. "What do you think?"

"I can look at it." Her face remains expressionless as she glances up and briefly meets his eye.

"That might allow you to slow down a bit," he continues. "Of course it's natural to get nervous and then one tends to talk faster. Perhaps you could practice it a bit at home and focus on slowing the pace and not looking at your notes as much. Have you tried practicing out loud to yourself at home?"

"Yes."

The phone rings. He checks caller ID. *I'll have to call her back when this is over.* "Okay then. I can send you a link to some tips on slide composition and oral presentation and hopefully that will be helpful." There is another long moment of silence. "Well, do you have any questions for me?"

“No, not right now.”

“Okay then, well, good luck!” He forces another smile and reaches out to shake her hand as she rises to leave. She takes it and feebly smiles back.

“Thanks.”

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. How could this situation have been handled differently? What should the mentor do now?
3. Does a lack of response constitute feedback? When you get no response, how do you interpret that?

Case #2: Saying No

Dr. Yin is a first-year K-scholar and clinical faculty member in the Department of Medicine. Dr. Yin found his first year as a K-scholar very challenging. In particular, Dr. Yin struggled to balance his clinical responsibilities with his research productivity. However, in just the last few months, Dr. Yin has figured out a schedule and an organizational system that is working well for him. He is finally feeling that his research program is moving forward and he is meeting his clinical goal. Last week, Dr. Yin's department chair asked Dr. Yin to take on an additional project. While the project is interesting and has great publication potential, Dr. Yin cannot imagine fitting it in without his current research or clinical work suffering. Dr. Yin feels he must say no to his department chair, but fears the repercussions both in terms of their relationship and his chair's opinion of him.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?
3. What strategies have you used to assure that your mentee's time is adequately protected?

Note: This case is taken from the mentee's perspective, providing mentors a slightly different lens.

Aligning Expectations

Case #1: The Second-Year Blues

Dr. Bento is beginning the second year of her appointment as a research scholar in clinical and translational research at BIG U Academic Health Center. To date, she has enjoyed working on her mentor's research project but is becoming anxious that she has not yet started an independent research project. She wants to bring up her concerns, but it seems her mentor never has enough time to have a discussion focused on Dr Bento's research goals. This situation is becoming frustrating for her, as she likes her mentor and she understands that the past few months have been extremely busy for her mentor due to a host of factors, e.g., economic budget constraints, preparing applications for the NIH funds, adoption of a new family member, etc. Being a politically astute assistant professor, Dr. Bento is reluctant to make a misstep with her well-established, senior mentor, yet she knows the clock is ticking. Dr. Bento is also concerned that her strong interests in translational research are too divergent from her mentor's basic research program. She wants to stop feeling stuck.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?
3. How do you find out your mentee's expectations of you and for the research experience?

Case #2: Misaligned Expectations

Dr. Chris Lumen is a fellowship-trained cardiovascular surgeon and has been on the clinical faculty for three years. Dr. Lumen is highly motivated to develop a new translational basic science line of inquiry. He discussed this exciting new line of research with his mentor, Dr. Pat Stent, a senior research faculty member in the department with a large and well-funded research laboratory. Dr. Stent was very enthusiastic about these new sets of experiments. After a few discussions, Dr. Stent invited Dr. Lumen to join the laboratory, then introduced Dr. Lumen to the lab manager, Dr. Gene Plaque and instructed them to develop the research together. The laboratory manager, Dr. Plaque had previously experienced a great deal of frustration with rotating medical students and residents, having been "assigned" to assist such individuals with their work, and had concerns regarding the competing demands Dr. Lumen would experience between clinical practice and basic research. However, Dr. Plaque did not feel comfortable expressing any of these concerns directly to Dr. Stent or Dr. Lumen because of the hierarchy of a physician-led surgical department. After about two months, Dr. Plaque did finally express his concerns and frustration to Dr. Stent. Dr. Plaque indicated that Dr. Lumen frequently leaves the laboratory in the middle of experiments to attend to clinical cases. Dr. Lumen leaves much of the work incomplete and typically asks Dr. Plaque and other laboratory staff to continue the experiments in his absence, placing an unexpected extra workload on Dr. Plaque and other members of the laboratory. Moreover, Dr. Lumen frequently expresses frustration to Dr. Plaque about how much time experiments take to complete.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now?
3. What are the differences to consider when clinicians work with basic scientists?

Assessing Understanding

Case #1: He Should Know That

Dr. Richard Smith started his mentored research in your lab after completing his MD and residency. His professional goals include performing both clinical and translational research as an independent investigator. Dr. Smith has been working in your lab for six months, performing basic science and early-stage translational research, and his research appears to be going well. In a regular meeting with him, you discover that Dr. Smith cannot answer a fundamental question regarding the background and motivation for his current work. In probing further, you find that Dr. Smith appears to be unfamiliar with some core biological concepts that drive many of the projects in the lab, including his own. You often expect such issues to arise when mentoring a graduate student, but are shocked to be in this situation when mentoring someone with Dr. Smith's education and experience. You wonder if you missed other indicators of Dr. Smith's lack of understanding in previous months. Moreover, you are not sure how to proceed to assess Dr. Smith's current understanding and identify the gaps in his understanding.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now?
3. How can mentors balance promoting independence with confirming understanding?

Case #2: Should I Know That?

Dr. Saldaña (MD, PhD) is a new assistant professor in Population Health with a focus on pediatric asthma treatment. He has recently made contacts within the local Hmong community who would like to work with him to improve treatment adherence in Hmong children with asthma. He is very excited about the possibility of this potential partnership having a direct impact on children's health and wants to apply for a KL2 award to pursue a community-based participatory research (CBPR) project. He approaches Dr. Hunter, a senior member of his department who is an asthma expert and has examined treatment adherence, as a potential mentor on the award. Dr. Hunter is very reluctant to accept, letting him know that she has never done community-based participatory research and doesn't know if she could guide him adequately. Dr. Saldaña assures her that this is not necessary, that he has identified a mentor in another university with CBPR expertise who can fill that role. He further points out that there is no one in the department who does have this expertise and reminds her that his community contacts will be able to help guide and mentor him as well. Dr. Hunter is still uncertain how well she can assess his study design and progress and wonders how well this other mentor can fill that role at a distance. She is also feeling uncomfortable because she has no experience treating Hmong asthma patients.

Guiding Questions for Discussion

1. As a mentor, how do you know if you are qualified to assess a mentee's understanding? What should Dr. Hunter's next steps be?
2. What can mentors do to improve their ability to work with mentees whose professional background and research differ from their own?
3. How can you help your mentees accurately assess their own understanding?

Addressing Equity and Inclusion

Case #1: Is It Okay to Ask?

Last year I worked with a fantastic scholar who has since left to work at another institution. She was very intelligent and generated a fair amount of data. I think that she had a positive experience working with our research team, but a few questions still linger in my mind. This particular scholar was a young African-American woman. I wondered how she felt about being the only African-American woman in our research group. In fact, she was the only African-American woman in our entire department. I wanted to ask her how she felt, but I worried it might be insensitive or politically incorrect to do so. I never asked. I still wonder how she felt and how those feelings may have affected her experience, but I could never figure out how to broach the subject.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What might the mentor's intent have been in asking the question, and what might the impact be on the mentee?
3. How might you react to this case differently if the mentees' difference was one of sexual orientation? How do you engage in such conversations based on interest without sounding judgmental about differences? How do you ask without raising issues of tokenism?

Case #2: Language Barriers

I am a researcher in a very crowded lab. This fall, two new K-scholars started in the lab, both of them Chinese. The scholars were great—they worked hard, got interesting results, were fun to be around, and fit into the group really well. The problem was that they spoke Chinese to each other all day long. And I mean *all day*. For eight or nine hours every day, I listened to this rapid talking that I couldn't understand. Finally, one day I blew up. I said in a not-very-friendly tone of voice that I'd really appreciate it if they would stop talking because I couldn't get any work done. Afterwards, I felt really bad and apologized to them. I brought the issue to my peers and was surprised by the length of the discussion that resulted. People were really torn about whether it is okay to require everyone to speak in English and whether asking people not to talk in the lab is a violation of their rights. We happened to be visited that day by a Norwegian faculty member and we asked her what her lab policy is. She said everyone in her lab is required to speak in Norwegian. That made us all quiet because we could imagine how hard it would be for us to only speak Norwegian all day long.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What is the intent of an English-only policy? What might the impact be on lab members and the "lab community" as a whole?
3. How is race a factor in this case? What are the implications of the connections between race, language, and ethnicity?

Case #3: “You Can’t Do That”

Dr. Roust is a Professor of Epidemiology with a long and successful history of research funding. He is known as an expert in diabetes research. He has recently taken on a very promising new post-doctoral fellow in Epidemiology, a young Romanian of Indian descent, Dr. Biswas, with an interest in the underlying sociocultural factors affecting the prevalence and treatment of Type 2 diabetes. It was agreed that he will be using an unanalyzed data set of Dr. Roust’s to explore demographic patterns of a particular poor rural subgroup. So far things have been going quite well and Dr. Roust is excited about how this new mentee will help fill a gap in his own research. However, after several weeks of working on the secondary data analysis, Dr. Biswas comes to his office very excited about a new direction he would like to take. He has met an historian he would like to add to his mentoring committee, Dr. Mandova. She has research expertise related to cultural understandings of food and dietary patterns in poor rural populations and is participating in an oral history project in their target population. She offered to introduce Dr. Biswas to some of her contacts and would allow him to sit in on interviews with community members. Dr. Biswas believes Dr. Mandova’s research will be a perfect complement to Dr. Roust’s macro-level analysis. Dr. Roust dismisses the feasibility of the idea almost immediately. He doesn’t see how any anecdotal historical data could be used in a convincing way, is concerned about how it will impact the current project effort, and fears that it will be far too time-consuming for Dr. Biswas to stay on track with his fellowship. He also doubts that the NIH would be supportive of the endeavor. He lets Dr. Biswas know his feelings and tells Dr. Biswas not to take such risks so early in his career, especially in a tight funding environment. Dr. Roust also privately wonders how well Dr. Biswas will be received by community members and how well-equipped he is for this kind of research, especially given his own limited cultural knowledge and language barrier.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. Discuss the assumptions Dr. Roust is making about the research and about Dr. Biswas’ competency based on his ethnicity and background. How valid are his concerns? Should Dr. Roust also raise his private concerns with Dr. Biswas, and if so, how?
3. How do our own assumptions about what is acceptable and fundable in research limit creativity and understanding? Is there a middle ground in this case?

Case #4: Cultural Sensitivity

You just finished your Master’s degree in Public Health and a residency in pediatrics. To further your research training, you join an established research team studying the impact of free clinics on public health in economically depressed urban areas. Your project will be to examine the effect of a new free pediatric clinic on children’s health in an African-American community. There are many research questions you could ask, but your mentor insists that you use the research questions used in their other studies, so he can compare the data across studies. Most of those previous studies were developed and done in Latino communities. After visiting the community you will study and noting several cultural differences, you believe that the questions should be revised. Your mentor disagrees and tells you to use the standard questions.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?

2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?
3. What assumptions is the mentor making about the study population and the research? What might the impact be of those assumptions?

Note: This case is taken from the mentee's perspective, providing mentors a slightly different lens.

Fostering Independence

Case #1: Independent Research?

Dr. Klein is very excited about the grant proposal she is writing to NIH. The proposal builds upon research she has been conducting as a K-scholar in the laboratory of Dr. Janco. Dr. Klein feels strongly that the proposal clearly describes the logical next steps in the project as well as relates the research to her previous clinical work. When Dr. Klein meets with Dr. Janco to discuss the grant proposal, she is surprised to discover that Dr. Janco is less than enthusiastic about the proposal. Dr. Janco informs Dr. Klein that the proposal is too closely aligned with Dr. Janco's current work and its future direction. She says that the proposal needs to be reworked, focused on a different, more independent direction of research. Dr. Klein leaves the meeting frustrated, disappointed, and unsure how to proceed.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do?
3. How is independence redefined in a restricted funding climate and an era of collaborative research?

Note: This case is taken from the mentee's perspective, providing mentors a slightly different lens.

Case #2: Forced Guidance

I started working with a new scholar this semester and I just can't seem to communicate effectively with her. I told her at the beginning of the semester that I thought we should have weekly meetings to talk about her progress, and she agreed. At our next meeting, I asked her to run through a list of the things she'd accomplished that week. She had no notes and seemed pretty unprepared for talking about her work in the level of detail that I expected. She's been canceling most of our meetings at the last minute—either she doesn't feel well or she suddenly remembers an assignment for a class that's due the next day. I know that she's doing the work—at the few meetings she keeps, she has a lot to say—but her progress on this project is very uneven, both in time taken and in quality, and I'm often forced to suggest that she redo crucial pieces. I fear these critical meetings leave her demoralized and less interested in accepting guidance from me, but I don't know how else to get her to understand that she needs my help.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What other issues might be at play in this case? What should the mentor's next steps be?
3. How can you determine if you are making assumptions about a mentee's ability based on their productivity or work style, especially if they differ from yours?

Case #3: How Much to Help?

Dr. Richardson is a research scholar who is nearing the end of his post-doctoral fellowship, but wishes to continue his training in his mentor's lab. Thus, he is independently applying for a KL2 award from the NIH. His mentor believes that Dr. Richardson is a very valuable asset to the lab and is highly supportive of Dr. Richardson continuing his training in this lab, but does not have any other funding to support Dr. Richardson's salary. The mentor has agreed to advise Dr. Richardson in the preparation of the application, but notes that it should represent Dr. Richardson's independent work. When Dr. Richardson provides his mentor with a draft of the application, his mentor becomes concerned about the quality of the writing. The research ideas are fairly solid, but the research plan has some minor flaws and the proposal is very poorly written.

Dr. Richardson's mentor believes that the KL2 proposal in its current form would not be a strong candidate for funding. Although the application should reflect Dr. Richardson's work, the mentor has a vested interest in the proposal succeeding so that he can keep one of his most productive researchers. The mentor is unsure how to improve Dr. Richardson's proposal while still retaining it as Dr. Richardson's independent work. Moreover, Dr. Richardson has invested more than a month in preparing this application and is not accustomed to criticism of his writing, so the mentor is concerned that Dr. Richardson's defensiveness may create a further obstacle to improving the proposal.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now?
3. How would independent research be defined in this case?

Case #4: The Slow Writer

The K-scholar in my group is adept at performing experiments but is a very slow writer. Last fall, I set multiple deadlines that this scholar missed, while another post-doc in my group wrote a grant proposal, submitted a paper, and did experiments. Over the holidays, the slow writer had a breakthrough and produced an outline of a manuscript. To avoid delays in publications, I have now taken the lead in writing the manuscript based on her work. However, to become an independent PI, I know the scholar must be able to write her own manuscripts and grant proposals. Setting deadlines for detailed outlines, manuscript sections, figures, etc. hasn't worked. Trying to communicate the importance of manuscripts to the scientific endeavor hasn't worked either. Neither has encouragement. Veiled threats don't seem professional. Other than being patient, what should I do?

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. How do you convey the level of independence you expect from your mentee?
3. What is the mentor's responsibility in this case?

Promoting Professional Development

Case #1: To Be or Not to Be a PI

You are currently mentoring two post-doctoral scholars in your research group. Both are very talented and hard-working; however one has made it clear that his career goals do not include becoming a PI. The other scholar has her heart set on being a PI in the future. Lately, you find yourself spending more time giving professional development advice to the post-doc who intends to become a PI. You rationalize this by saying that you are more familiar with this career path and thus have more to offer. Secretly you worry that you are writing off the other scholar, believing that he is not worth your time and advice if he is leaving the PI track.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What should the mentor do now? What value judgments are being made by the mentor?
3. How might non-research interests and personal goals or obligations play into a mentee's decision of career path? How might the mentor draw these factors out in discussion? What has driven the mentee away from this career path? Does he feel he belongs?

Case #2: Mum's the Word

Jack and Jill are graduate students in Biology, working at the same university but in different labs. They are friends and frequently discuss their projects, which are often along similar lines. One day, Jill tells Jack about her progress and discloses a lot of details about her experimental design and data. However, she mentions to Jack that she has gotten stuck and can't move forward because her lab doesn't have the resources to move her work along. Jack, as it turns out, is not only very interested in Jill's work, but his lab is well supported, and his mentor likes him and would support Jack's ideas. Without telling Jill, Jack spends the next few months working out his own version of Jill's experiment with great support from his mentor. He then publishes an important paper which Jill had no idea about until she sees it appear in a high-impact journal. Jill proceeds to share this information with Jack's mentor.

Adapted from CTSPedia.org, Clinical Research Ethics Educational Materials (John Banja, PhD, Emory University)

Guiding Questions for Discussion

1. What are the responsibilities of mentors to educate their trainees about the ethics of research collaboration and authorship?
2. How can a mentor model these behaviors?
3. As Jack's mentor, how would you follow-up with Jack? Should there also be follow-up with Jill and her mentor?

Case #3: Life Changes

Your mentee had been productive with manuscripts and pilot grants, but over the last year your mentee's mother was diagnosed with and recently died from pancreatic cancer. Prior to her diagnosis

and illness, the mentee's mother provided substantial support for the mentee's family including childcare, cooking, and general support. This life event has put the mentee's productivity on a slower course, and your mentee needs support to complete a pilot project for future funding from the NIH. What is your advice?

Adapted from the University of California, San Francisco, Clinical Translational Science Institute (CTSI), Mentor Development Program. <http://accelerate.ucsf.edu/training/mdp-cases> (accessed February 18, 2012)

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. To what extent should mentors have a role in helping mentees with work-life balance?
3. How have you as a mentor dealt with similar situations?

Case #4: Looking for Balance

Dr. Feinstein is a 32-year-old Assistant Professor on the tenure track who joined the faculty five years ago and became a KL2 scholar two years ago. Dr. Feinstein's wife is expecting their first child and he would like to request a three-month parental leave. However, Dr. Feinstein has not raised this issue with his mentor, a 60-year-old Professor, whom he senses is already growing frustrated that he does not put in the number of hours that his generation did when they were coming up. Additionally, Dr. Feinstein has heard a rumor that his mentor is considering mentoring a new K-scholar this spring. Dr. Feinstein has heard that this new scholar is a real "go-getter" working 70–80 hours a week. Dr. Feinstein fears this new scholar will make him look as if he is not serious about his research career.

Adapted from the University of California, San Francisco, Clinical Translational Science Institute (CTSI), Mentor Development Program. <http://accelerate.ucsf.edu/training/mdp-cases> (accessed February 18, 2012)

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. Discuss the role of the mentee's gender. How is maternity leave treated differently from paternity leave?
3. How can the concept of workforce flexibility be translated for scientists in clinical and translational research?

Note: This case is taken from the mentee's perspective, providing mentors a slightly different lens.