Assessing Mentoring: Example External Resources and References

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Resources for assessing the mentoring relationship

Survey (Likert-type or checklist style)
- Mentee evaluating mentor
    - Center for Clinical and Translational Science Mentor Evaluation Form (UC Davis), https://ictr.wisc.edu/documents/uc-davis-mentor-evaluation-form/ *[Intellectual and professional development, academic guidance, personal communication, role model; includes space for open-ended comments]*
    - The Global Measure of Mentorship Practices (box 6.2, p. 137 in NASEM, 2019 (see references below) *[Assessment of 10 behaviors of career and psychosocial support specified to mentees in postsecondary STEMM]*
    - Mentoring Program: Annual Mentoring Evaluation FORM (KU School of Medicine), https://medicine.arizona.edu/form/mentor-annual-evaluation-form-ku *[partnership, personal growth, relationship; also includes an open-ended personal statement]*
- Paired mentor/mentee evaluation of the mentoring relationship
    - Mentor and mentee evaluate mentor
        - Paired Survey of Mentors-Mentees (Table 6.2, p. 144 in NASEM, 2019, (see references below)) *[mentor behaviors related to facilitating students' research and career development and science identity]*
    - Mentor and mentee self-assessment
        - Mentee Role Self-Assessment (p. 37) and Mentor Role Assessment (pp. 40), in Caddick, 2009 (see references below)) *[Parallel evaluation (mentor and mentee self-assess) of communication, trust, purpose, process, progress, feedback]*
    - Combination mentor/mentee self-evaluation and evaluation of each other - survey (scaled items and open-ended items)
        - Mentee (p. 107) and Mentor (p. 118) surveys, from Handelsman et al., 2005 (see references below). *[Mentee: Twenty-seven questions covering the mentee's research experiences and their mentor, increase in skill and knowledge areas, and career goals; Mentor: Twenty-six questions covering their mentee and their experience mentoring, increase in skill levels of both the mentee and mentor, previous mentoring experience, career goals, and experience in mentor training; Combination of scaled and open-ended items]*
- Mentor/mentee evaluation of group dynamics
    - Instrument for evaluating dimensions of group dynamics (Appendix A in Schulz et al., 2003 (see references below)) *[Group dynamics characteristics (e.g., comfort level for expressing opinions, perceived level of trust) and intermediate measures of partnership effectiveness (sense of belonging to group, group empowerment)]*

Open-ended questions
- Mentee(s) evaluate mentor (individual or focus group)
    - Key characteristics and suggested questions for five mentoring domains (Table 1 in Anderson et al., 2012 (see references below)) *[meetings and communication, expectations and feedback, career development, research support, psychosocial support]*

- Mentor self-assessment
    - How good a mentor are you? (Table on p. 797 in Lee et al., 2007 (see references below)**)** *[across 10 dimensions of good mentoring (e.g., appreciating individual differences, celebration, skill development]*
    - Mentor self-reflection template (Table 3 in Anderson et al., 2012 (see references below)) *[Mentor's self-reflection on meeting and communication, expectation and feedback, career development, research support, psychosocial support]*
- Mentor/mentee discussion
    - Periodic Mentoring Partnership Review (p. 36 in Caddick, 2009 (see references below)) *[guiding questions for mentor and mentee reflect on and discuss together]*

Resources for identifying and mitigating negative experiences
- Identifying and Resolving Challenges and Issues (Sessions 4 and 5 from Handelsman et al., 2005 (see references below). [*Excerpts on identifying and resolving challenges and issues from a compilation of mentor training seminars to facilitate effective mentoring relationships in undergraduate trainee relationships]*
- See also Limeri et al. 2019 and Straus et al. 2013 in references below

Additional / full references
1. Anderson, L., Silet, K., & Fleming, M. (2012). Evaluating and Giving Feedback to Mentors: New evidence based approaches. Clinical and Translational Science 5(1), 71-77. https://doi.org/10.1111/j.1752-8062.2011.00361.x. *[Six-component approach to mentor evaluation: training and empowerment, peer learning and mentor training, scholar advocacy, mentee–mentor expectations, mentor self-reflection, and mentee evaluation of their mentor]*
2. Berhe, A. A., & Kim, S. (2019). Avoiding racial bias in reference letters. https://sora.leekim.org/updates/letters-for-poc *[Guidance for avoiding racial bias communicated through reference letter writing]*
3. Biotechnology and Biological Sciences Research Council (BBSRC) (2016). Academic career mentoring and best practice for formal mentoring programmes. https://www.ukri.org/wp-content/uploads/2021/10/BBSRC-13102021-AcademicCareerMentoring-BestPracticeMentoringProgrammes.pdf *[Guidance on establishing mentoring relationships, including initiation, review, and closure of the mentoring relationship]*
4. Caddick, P. (2009). Who is Holding the Rope for You? Building Effective Mentoring Relationships Mentoring Workbook. https://www.brockport.edu/life/leadership/Documents/Mentor%20Resources/Full_mentoring_workbook_for_PDF_link.pdf *[Guidance, scenarios, assessment tools and techniques for mentors and mentees to help them evaluate and build their relationship]*
5. Center for Advancement of Informal Science Education (CAISE) (2018). Identity in Science and STEM: Reflections on Interviews with the Field. https://www.informalscience.org/sites/default/files/identity-in-STEM-interview-reflections-v2.pdf *[Guidance on the definition, importance, measurement, and support of STEM identity]*
6. Columbia University Office of the Provost (2016). Guide to Best Practices in Faculty Mentoring. https://provost.columbia.edu/sites/default/files/content/MentoringBestPractices.pdf *[Guidance for mentors and mentees on developing an effective mentoring relationship for mentors and mentees, with attention to mentoring diverse faculty]*
7. Handelsman, J., Pfund, C., Lauffer, S. M., & Pribbenow, C. M. (2005). Entering mentoring: A seminar to train a new generation of scientists. https://www.hhmi.org/sites/default/files/Educational%20Materials/Lab%20Management/entering_mentoring.pdf [*Compilation of mentor training seminars to facilitate effective mentoring relationships in undergraduate trainee relationships; includes guidance around identifying and*

resolving challenges and issues starting page 49; mentor/mentee surveys starting page 106]

8. Lee, A., Dennis, C., & Campbell, P. (2007). Nature's guide for mentors. Nature*, 447(7146), 791-797. https://doi.org/10.1038/447791a *[Mentor and mentee reflections on "good" mentoring. Includes a mentor self-assessment]*

9. Limeri, L. B., Asif, M. Z., Bridges, B. H. T., Esparza, D., Tuma, T. T., Sanders, D., Morrison, A. J., Rao, P., Harsh, J. A., Maltese, A. V., & Dolan, E. E. (2019). "Where's My Mentor?!" Characterizing Negative Mentoring Experiences in Undergraduate Life Science Research. CBE—Life Sciences Education, 18:ar61, 1-14. https://doi.org/10.1187/cbe.19-02-0036 *[Assistance for reflecting on ways mentor behaviors might be perceived as harmful or unhelpful]*

10. National Academies of Sciences, Engineering, and Medicine (NASEM) (2017). The role of mentoring. Chapter 5 in: Undergraduate Research Experiences for STEM Students: Successes, Challenges, and Opportunities. National Academies Press (pp 129-145). https://doi.org/10.17226/24622 *[Supportive data for mentoring effectiveness on academic success and persistence in STEM]*

11. National Academies of Sciences, Engineering, and Medicine (NASEM) (2019). Mentorship Behaviors and Education: How Can Effective Mentorship Develop? Chapter 5 in: The Science for Effective Mentorship in STEMM. National Academies Press (pp. 103-125). https://doi.org/10.17226/25568 *[Guidance on mentor/mentee behaviors and education guidance for training mentors/mentees. Interactive version: https://www.nap.edu/resource/25568/interactive/mentorship-defined.html]*

12. Nganga, C., Bowne, M., & Stremmel, A. (2020). Mentoring as a developmental identity process. Mentoring & Tutoring: Partnership in Learning, 28:3, 259-277. https://doi.org/10.1080/13611267.2020.1783498 *[Describes a developmental mentoring framework, including narrative perspectives on mentoring from a junior faculty member, a tenured faculty member, and a department chair]*

13. Nick, J. M., Delahoyde, T. M., Del Prato, D., Mitchell, C., Ortiz, J., Ottley, C., Young, P., Cannon, S. B., Lasater, K., Reising, D., & Siktberg, L. (2012). Best Practices in Academic Mentoring: A Model for Excellence. https://doi.org/10.1155/2012/937906 *[Guidance on establishing a formal mentoring program with attention to institutional culture and career attainment]*

14. Regents of the University of Michigan (RUM) (2015). How to Get the Mentoring You Want: A Guide for Graduate Students. https://www.colorado.edu/graduateschool/sites/default/files/attached-files/mentoring.pdf *[Resource for graduate students to improve the quality of their relationships with faculty. Includes discussion for underrepresented students]*

15. Schulz, A. J., Israel, B. A., & Lantz, P. (2003). Instrument for evaluating dimensions of group dynamics within community-based participatory research partnerships. Evaluation and Program Planning 26, 249-262. https://doi.org/10.1016/S0149-7189(03)00029-6 *[Development of an evaluation tool to assess group dynamics. Sample items from the survey are included in Appendix A]*

16. Sorcinelli, M. D. (2000). Principles of Good Practice: Supporting Early-Career Faculty. Guidance for Deans, Department Chairs, and Other Academic Leaders. AAHE, Forum on Faculty Roles & Rewards, Washington, DC. https://eric.ed.gov/?id=ED450634 *[Concise guide that provides content on leadership encouraging positive relationships with colleagues and students as well as easing time/balance stresses]*

17. Straus, S. E., Johnson, M. O., Marquez, C., & Feldman, M. D. (2013). Characteristics of successful and failed mentoring relationships: a qualitative study across two academic health centers. Academic medicine: journal of the Association of American Medical Colleges, 88(1), 82. https://doi.org/10.1097/ACM.0b013e31827647a0 *[Characteristics of effective mentors and failed mentor relationships]*

18. Tonso, K. (2014). Engineering Identity. In A. Johri & B. Olds (Eds.), Cambridge Handbook of

Engineering Education Research (pp. 267-282). Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781139013451.019 *[Synthesis of literature on the development of an engineering identity and the role of engineering identity in fostering a sense of belonging as an engineer]*

19. University of Arizona (2016). Avoiding Gender Bias in Reference Letters. https://tinyurl.com/y8vub7nd *[Guidance for avoiding gender bias communicated through reference letter writing]*

20. University of Colorado Boulder Graduate School Advising Agreement *[From the Graduate School website on mentoring resources: "This document is a supplemental strategy created to support the graduate student advisees' short and long-term goals, while also giving advisors tools to clarify expectations. This document serves as an agreement between the graduate student and their advisor. The agreement should be reviewed once a semester and/or once significant educational milestones have been met. This agreement should be modified and developed collaboratively throughout the advisee/advisor working relationship."]*