

Introduction

The ultimate goal of the research mentor-trainee relationship is the promotion and development of a productive, independent, and responsible researcher. The mentor obligation is to ensure that trainees receive the appropriate level and type of support throughout the training period. Inevitably, the nature of the relationship will evolve as the trainee progresses, requiring changes in the roles and obligations of all parties at each stage of development. While this section briefly describes the various stages/phases that trainees and mentors are expected to undergo, the emphasis will be on presenting issues involved in research trainees as they transition to independent researcher. Topics to be covered include:

- Stages of development
- Trainee becoming independent
- Mentor letting go
- Ongoing organizational support
- Continuing the cycle

Stages of Development

While a mentoring relationship has a life cycle with various phases or stages of development, there is no set period of time that is considered as the 'ideal' length for this type of association. Each mentoring relationship has its unique profile of trainee-mentor needs and the training program requirements in a specific setting (i.e., academic, private, public). Some relationships may end quickly especially when trainees and/or mentors realize that substantial conflicts make interaction all but impossible. On the other hand, a relationship may evolve into a longtime collaborative partnership with no clear separation.

The mentoring relationship, much like other aspects of life, has its own **lifecycle** framework. Developmental psychology is replete with theoretical frameworks that describe and depict the maturational process of the human being. The tacit assumption is that this process of learning and organizing the world into manageable components is amenable to observation and study.

The mentoring relationship is no less amenable to this form of investigation. The relationship, typically between younger and older adults, has been conceptualized and developed into a developmental framework and applied to a number of settings including worksite organizations (Kram, 1985) and academic environments (Otto, 1994). Regardless of the context of the relationship, the assumption is that the mentoring relationship is dynamic, continually evolving, changing the nature of the trainee-mentor interaction through time.

Kram (1985) describes the lifecycle notion as individuals having different roles, expectations, and set of behaviors at each phase of the lifecycle. Successful advancement into a phase is dependent upon the successful resolution of the previous phase. In addition, the evolution of the relationship is complementary, affecting both trainees and mentors.

Kram (1985) studied the mentoring relationship in worksite organizations and was able to discern four developmental stages/phases: initiation, **cultivation**, separation, and redefinition. Stage one, initiation/interaction, extending from 6 months to 1 year, includes the process of bonding and establishing working terms. Stage two, cultivation/investment, ranging from one to three years, is a period where the focus is toward maintaining and enriching the relationship. Stage three, maturation/facilitation, two to five years, develops interpersonal synergy. Stage four, separation/adaptation, involved a healthy competitiveness between trainee and mentor. The fifth and final stage, redefinition, involves the development of a new relationship where both parties see each other as colleagues and equals.

Within each stage, both the mentor and trainee have specific roles and behaviors each are responsible for. For example in Stage one, the mentor is responsible for listening to the trainee with engagement in order to assist in goal setting. The trainee is responsible for communicating goals and needs, be open to suggestions, and provide feedback

While a measure of a successful mentoring relationship in a business organization might be indicated by increased income for the trainee, higher education tends to focus on different outcomes including productivity in the areas of teaching, research, and writing. Otto (1994) modified Kram's approach in order to apply it to an academic setting, specifically in the area of mentoring new faculty through the tenure and promotion process. Otto's model has been adopted to include research trainees. Even though the nature of the relationship between a senior faculty and new faculty member is different than between a faculty/senior researcher and a graduate student, the similarities in the maturational process are still reflected in the delineated stages. In the adapted

version of the lifecycle, Otto (1994) collapses two stages, maturation/facilitation and cultivation/investment, into one.

During the initiation stage, the focus on the relationship is on establishing and accomplishing work-related goals. The trainee is expected to be receptive to the mentor's advice. It is critical at this stage to clarify all assumption to reduce the probability of misunderstandings and needless conflict.

The cultivation/maturation phase sees the trainee is expected to be developing competency in necessary research skills, becoming familiar and participating in professional organizations, and writing manuscripts together. According to Otto (1994), this increases the likelihood that the trainee will experience a positive sense of accomplishment. This phase concludes when the trainee completes the training period.

Otto describes the separation stage as occurring when there is a significant change in the structural relationship. In this case, the individual, no longer a trainee, now a competent researcher might have been advanced within the current institution or even left the institution to take on a research position elsewhere. Kram (1985) notes that the former trainee loses the sense of security provided by the mentor and the mentor loses direct influence over the trainee's career.

In the redefinition stage, the relationship may evolve from mentorship to friendship, collaboration. If the trainee's experience was less than positive, the result may be that the two parties grow apart and may even endure alienation.

Trainee becoming independent

Trainees, who successfully negotiate their training, acquire the necessary skills to conduct research in a competent and responsible manner. Indicators of trainees becoming independent include recognition by a mentor of a trainee's increased competence, taking on increasing responsibilities, making presentations before professional organizations, submitting researcher proposals, taking a larger role initiating new research projects or participating in established research collaborative efforts, and writing for publication as a first author, and assuming more leadership roles in the mentors' projects.

In addition to being knowledgeable about the various aspects of research theory, design, analysis, and interpretation, these newly independent researchers are keenly aware of conditions that increase the likelihood of scientific misconduct occurring and ultimately compromise research integrity.

Mentor letting go

Given the mentor's investment of time and talent in a trainee, a mentor may experience some conflict when encouraging the trainee to move on to new challenges. The trainee is likely to have developed important and useful skills for engaging in the research process. If there has been substantial collaboration between the trainee and the mentor, the mentor may have come to rely on a competent and reliable trainee who may have been bearing an increasing burden of managing the day to day responsibilities of research projects. The dependence on the now accomplished trainee may occasionally raise a conflict of interest issue between the needs of the mentor and the best interest of the trainee. While letting go may be at times costly to the mentor, honoring the obligation to the trainee is an excellent example of behaving in a responsible manner.

Ongoing organizational support

While the goal of research trainees is to become independent, productive, and responsible researchers, the immediate career destination following successful completion of training will vary by the context of the training program. For example, in an academic environment, many times the expectation of the comprehensively trained researcher is that they will practice their research skills in a new research setting, either another academic research institution, or a public/private research laboratory. The rationale among academics is that trainees should have the opportunity to benefit from the perspectives of outside researchers, and thus avoid the pitfalls of **academic inbreeding**. In addition, the newly trained researchers can promote the ideas and techniques of the mentor and institution in different settings.

This approach to handling trainees completing training contrast with those trainees receiving training in private research institution where the emphasis is on **retention of talent**. Given the investment of resources for training, it is in the best interest of non-academic research institutions to retain trained personnel to be in position to competently assist and eventually replace their trainers and mentors.

Continuing the cycle

The cycle of the trainee-mentor relationship continues in two important ways. First, the mentor continues the practice of taking on new trainees, following a successful strategy of training and support to a new cohort of future researchers. Second, former trainees who have had a positive experience undergoing research mentoring and are now competent researchers in their own right might consider becoming mentors to a new generation of future researchers. In this way, trainees can continue to benefit from lessons learned from knowledgeable researchers rather than having the experiences lost or forgotten.

Summary

The lifecycle of growth and development was described for the research trainee. The benefits gained from a mentoring relationship can have a lasting positive impact to trainee, mentor, institution, and the research community. As the trainee matures by undergoing instruction, supervision, and socialization, navigating one research challenge after another, trainee capabilities and expectations continue to advance and expand. As the demand and complexity of research continues to intensify, the relevance of mentoring relationship in research training will only grow.

References

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Otto, M.L. (1994). Mentoring: an adult developmental perspective. In M.A. Wunsch (Ed.), *Mentoring Revisited: Making an Impact on Individuals and Institutions* (PP. 15-24). San Francisco : Jossey-Bass.

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Source: U.S. Dept. of Health & Human Services, The Office of Research Integrity,
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