

ACADEMIC CAREER MENTORING AND BEST PRACTICE FOR FORMAL MENTORING PROGRAMMES

INTRODUCTION

1. The term “mentoring” is used to cover a wide range of activities, from providing a mentee with general assistance in helping them overcome or work through a specific problem, to a long term relationship that may involve acting as a guide, role model, teacher and sponsor to a junior professional until they become full members of a particular profession¹. The first part of this document reviews mentoring practices across a range of sectors from business to academia, while the second part highlights key elements of best practice for the mentoring of postdoctoral researchers and new group leaders in academia. This document will be used to guide BBSRC’s future activities in this area.
2. Many different definitions have been used to describe the term mentor, with the Oxford English Dictionary definition including the statement that a mentor is “*a person who offers support and guidance to another*” and a widely used definition stating that mentoring is “*off-line help by one person to another in making significant transitions in knowledge, work or thinking*”². Within this context “*off-line*” is taken to mean that the line manager of a person would not also act as their mentor, and “*help*” is taken to mean that the mentor provides the mentee with advice and the opportunity to hold positive conversations that aid their thinking around a topic. It is important to note that actively providing advice is only one part of a mentor’s role, their key activity should be to aid mentees to talk through their own thoughts and decisions regarding issues they may face. It should also be noted that these definitions do not include the idea of sponsorship. Sponsors can be considered to play a different role to mentors, as while mentors will discuss a mentee’s career development and future plans, a sponsor is someone in a senior position within an individual’s company or work environment who will act as a “champion” to aid the progression of their protégé i.e. “*while mentors may be seen as career developers, sponsors are considered to be career accelerators*”³. With regards to the fellows and postdoctoral researchers that BBSRC supports, it is expected that in many instances the researcher’s group leader or head of department is likely to act in this sponsor role. However, there are some occasions where studies have suggested that to address issues of equality and inclusion schemes to encourage sponsorship may be needed in addition to formal mentoring programmes. Due to the focus of this document on the mentoring relationship, sponsorship is not discussed in detail any further.
3. Mentoring has long been used to support staff within the business community where those with mentors report greater career satisfaction, commitment and career mobility^{4,5}. More recently, and especially amongst the medical sciences where much of the research concerning academic mentoring has been carried out, the benefits of mentoring within academia in the support of junior academics who are not in permanent positions has been increasingly recognised, and mentoring can bring a variety of benefits to both

mentee and mentor^{6,7}. In particular, provision of mentoring for women and minority groups may be particularly beneficial as the loss from academia of talented researchers from these groups is especially high and mentoring may help address this issue⁸. For example mentoring has been identified as helpful in aiding career progression and as a beneficial component of diversity programmes⁹. Furthermore, within the business community there is correlation between the presence of formal cross-cultural mentoring programmes and increased promotion and retention of minority groups¹⁰. The presence of formal mentoring programmes aimed at women and minority groups is also recognised as a key activity that should be undertaken to reduce disparities that exist between such faculty members⁸. More generally, the benefits to academic mentees include increased productivity and rate of publication, increased career satisfaction, and reporting of greater self-efficacy^{11,12,13}. Positive outcomes for mentors include an increased network, which can in turn lead to elevated research productivity, and enhanced career satisfaction¹. Furthermore, as a result of acting as a mentor, senior academics may consider their own personal development more due to self-reflection of their role in the process¹⁴, and the process of mentoring can further develop the skills needed to be an effective supervisor and group leader. Mentoring programmes can also be used to help foster interdisciplinary collaborations, and have been identified by the Wellcome Trust as something that research funders can better facilitate to increase such interactions^{15,16}.

4. The effectiveness of mentoring in addressing issues surrounding equality and inclusion is being increasingly recognised, with BBSRC recently suggesting that a lack of effective mentoring is a contributor to the situation whereby although women make up 33% of applicants who are eligible for BBSRC support, they lead only 21% of grant applications^{17,18}. Furthermore, as discussed within the business community, mentoring has been shown to play an important role for equality and inclusion of a number of other groups and it has also been recommended by the Equality Challenge Unit (ECU) that academic Research Organisations review their mentoring programmes and consider issues of race and ethnicity to ensure that there is good take up of the programmes by black and minority ethnic (BME) academics¹⁹. Research by the ECU also indicates that the allocation of development opportunities and collaborations tends to occur informally in a way that can disadvantage BME academics due to in-group preferences; the existence of formal mentoring and sponsoring programmes may help to address this and ensure a diverse range of academics have the same opportunities. Related to this, a lack of formal mentoring is thought to be a contributing factor to BME academics leaving or considering leaving the UK¹⁹.
5. Although there is widespread use of formal mentoring programmes in North American institutions, and recognition of the many beneficial effects of mentoring, its encouragement and the provision of mentoring programmes by UK Research Organisations remains variable, particularly with regards to the provision of specific programmes for women and minority groups^{18,19,20}. To help address this the Wellcome Trust includes assessment of a Principal Investigator's "*success in training and mentoring others*" as part of their review of Investigator Award proposals and BBSRC has formal mentoring programmes in place for its postdoctoral (Future Leader) and new group leader level (David Phillips) fellowships. This review of how academic staff are

most effectively mentored will inform recommendations that BBSRC intends to make to ROs regarding the use of mentoring as a tool for the professional development of postdoctoral and other early career researchers, and will help ensure that BBSRC mentoring schemes align with best practice and are carried out in the most beneficial way.

REVIEW OF MENTORING ACTIVITIES WITHIN IN ACADEMIA

Types of mentoring relationship

6. When considering mentoring in academic environments it is recommended that researchers have a range of different mentors to which they can turn to discuss a variety of career-development topics, and it is unlikely that a single mentor will be sufficient to meet all the needs of an early career researcher²¹. This is especially true given that the mentoring relationship with a mentor who works outside of academia is likely to differ from that with a mentor within the academic system. As such mentoring programmes can benefit from having a range of mentors available with a variety of experiences from both within and outside of academia. Broadly speaking the types of mentor that make up a mentoring team may be classed as either “Career Mentors” who are primarily responsible for providing career guidance and support and who do not need expertise in the mentee’s research area, or “Scholarly Mentors” who need to be an expert in the mentee’s field of research and who are able to guide the mentee in areas such as their research, academic skill development, networking, and the development of funding proposals^{22,23}. Best practice around the establishment and running of formal mentoring programmes is applicable to relationships involving both types of mentor.

7. Mentoring may be informal or formal. An informal relationship occurs organically as a result of shared interest and appeal, while formal arrangements tend to be arranged institutionally and within some organisations are mandated. The more spontaneous way that informal relationships form means they tend to be more successful than those arranged through formal programmes²⁴. However, the absence of formal programmes and a reliance on such informal relationships arising organically can lead to not all those who want or require a mentor to have one. This is an occurrence that is more common amongst minority groups²⁵, which is particularly problematic given that it has been stated that “*specific mentoring is required at all levels of academia to ensure the success of women and minorities in their careers*”²⁶. Furthermore, where the mentoring relationship is being maintained over a long distance, formal approaches may be preferable²⁴.

Existing academic mentoring programmes

8. Due to the range of associated benefits, BBSRC runs formal mentoring programmes for the fellows it supports. Although it is expected fellows will also have mentors within their host organisation, the programmes arranged by BBSRC guarantee that all fellows have at least one mentor who is independent of their Research Organisation. Mentors involved with BBSRC programmes typically act as Career Mentors and are expected to focus primarily on helping fellows to think about their career development and scientific strategy, rather than the specifics of the fellow’s research.

9. Other organisations including the Royal Society and the Academy of Medical Sciences also run formal mentoring for academics. The Royal Society programme for first year University Research, Dorothy Hodgkin and Sir Henry Dale Fellows aims to share the career progression, research and funding experience and advice of a mentor who is a Fellow of the Royal Society, Royal Society Research Fellow alumni or a Wolfson Research Merit Award Holder. As part of this process, mentees are matched to a mentor based on mentee feedback, and training is available to those involved to provide information on how to make the most of mentoring relationships²⁷. Similarly, fellows of the Academy of Medical Sciences can be called on to act as mentors to postdoctoral clinicians working in academic medicine, MRC clinical fellows, and, on a two year trial basis that lasted until April 2016, non-clinical MRC fellows²⁸. This programme matches researchers who are looking for mentoring with an appropriate mentor, and provides a template mentoring contract and advice about how to establish an effective relationship. Most pairs in this programme involve individuals at different institutions who meet face-to-face one to three times per year. Evaluation of this process in 2010 found that 81% of mentees felt that the relationship justified the time and effort they put into it and 59% felt that the relationship had a positive impact on their career progression²⁹.
10. The widespread use of mentoring programmes that are run in a variety of different ways to address a range of needs, combined with the positive impact that taking part in such programmes can have, both for the mentee and the mentor, means that many studies have been undertaken to identify mentoring programme best practice.

MENTORING PROGRAMME MECHANISMS AND BEST PRACTICE

11. Although needing to recognise that the goals of mentees will be unique, and different ways of mentee-mentor pairing will work best in different situations, there is consensus that relationships should always be mentee driven and there are clear areas where best practice can be established for the setting up and running of formal mentoring programmes³⁰.

Roles of the mentor and the mentee

12. Key to a successful mentoring relationship is strong buy-in from those involved and a sense of ownership of the process from the mentee. In addition to the mentee and mentor, this buy-in is needed from both the mentor's employer, to recognise the benefits that mentoring can bring to the mentor and their organisation, and from the line-manager of the mentee. For postdoctoral researchers this is particularly important as a lack of group leader support can result in mentees not taking advantage of the mentoring opportunities available to them. As such group leaders need to be clear of the nature of the mentoring interaction, in particular recognising the need for confidentiality and understanding that the relationship is not replicating their own group leader - postdoc relationship³¹.
13. To ensure the mentoring relationship is mentee driven it should be up to the mentee to determine what is needed from the relationship and to ensure their mentor is aware of these needs. Mentees should therefore be responsible for driving the mentoring relationship forward and should prepare prior to mentoring meetings by approaching

them with an agenda of key topics that they wish to discuss¹³. Furthermore, when requesting feedback on items such as research papers or proposals, mentees should agree with their mentor in advance the timescale on which feedback is needed to allow the mentor to plan their time effectively and not feel overburdened by mentee requests¹³.

14. In addition to being approachable and making the time commitment to be available to their mentee¹³, on the side of the mentor it is important that they act as a confidant and listen to the concerns and thoughts of the mentee, and when necessary be willing to offer advice and express their own thoughts and opinions²⁴. The ability to act as a confidant and for the relationship to be confidential is particularly important, and as such means that the role of mentor should be separate from any role that involves evaluation or assessment. Combining these roles can alter the dynamic of the relationship and make it less free flowing, less transparent, more guarded, and so less likely to be of use^{22,24,32}. Furthermore, the presence of a conflict of interest between a mentor and their mentee has been identified as a common characteristic of failed mentoring relationships¹³. These factors mean that a mentee should not therefore have a mentor who is involved in any aspect of their line management or assessment, and ideally the mentor should be outside of the mentee's department. This minimises the risk of any conflict of interest arising and has the benefit of ensuring the mentee has access to mentors that they may not otherwise have had.

Setting up the mentoring relationship

15. Many mechanisms have been used to establish mentee-mentor pairs as part of a formal mentoring relationship. The way in which these relationships are established can have a large influence on how the subsequent mentoring proceeds and the mismatch of mentee-mentor pairs is a common problem in formal mentoring programmes³⁰. To ensure an open, two-way relationship of maximum benefit to the mentee there are some key characteristics to the mentoring process that should be followed wherever possible.
16. Firstly, it needs to be ensured that both mentors and mentees are fully engaged and have bought into the mentoring programme. Maximising the chances that mentees are fully engaged is a particular issue for mandatory formal mentoring programmes where there is the risk of mentees feeling forced into a relationship³³. In such programmes it is particularly important that mentees take an active role in the formation of the relationship, for example by playing a role in the selection of their mentors. This has the effect of reducing potential mentee-mentor mismatches and places more power in the hands of the mentee, reducing the chances of the power balance feeling overly weighted towards the mentor²⁵.
17. Although active engagement is a necessity, having mentees specifically choose their mentors is not always perceived to be required for a successful relationship and random allocation can also work⁴. However, there is evidence that having the mentees and mentors provide at least some input to the process results in better match outcomes³⁰, and it seems likely that giving mentees some choice over who will mentor them will increase their engagement in instances where participation in a mentoring programme is mandatory. Furthermore, studies have indicated that the level of mentee satisfaction is

reduced when they have had no input into the pairing process, and guidance tends to state that, where possible, mentors and mentees should be matched with regards to skills, interests and goals^{12,25}. There are some negative effects associated with mentee choice, and these need to be managed. For example, mentees may lack the confidence to approach mentors and establish the mentoring relationship, and there is the risk that some of those willing to act as mentors will not be selected²⁵. Therefore, some form of “facilitated pairing” may be the best way to approach the pairing process. For this mentors are first asked about the type of support they would like to provide and who their ideal mentee would be, and mentees are asked what they would like from their mentor and the mentoring relationship. Based on this information the mentee can then be given a choice of appropriate mentors for them to contact²⁵. Facilitated pairing can also help ensure that mentors are matched to a suitable number of people, and ensure that the demands being asked of them are not too great.

18. For successful mentoring the purpose and goals of the relationship as well as the expectations of both the mentee and the mentor should be established from the start of the process³⁰. For example, it is recommended that at the first mentoring meeting the relationship goals of both the mentee and the mentor should be discussed, along with how they will collaborate to achieve these goals¹². In addition to broader topics such as the overall aims of the relationship, practical aspects of the relationship should also be established early on so that those involved know how frequently they will meet in person and how much contact via email and telephone can be expected²². Such initial discussions can be formalised through the use of template mentoring contracts that ensure those involved are clear as to how to progress the relationship, and the boundaries governing how to act within it²⁹. For example, problems that can occur as a result of mentees feeling they are creating an unnecessary burden and are bothering their mentor unduly can be avoided if at the start of the relationship it is established how much time the mentor is willing to commit³⁴.
19. One activity shown to bring benefits to the mentoring process is to provide training for mentors, covering topics such as how the mentoring relationship can be established and how it should proceed to be of maximum benefit to those involved^{23,35}. The outputs of mentor training have been shown to include learning gains across a range of mentoring competencies and include associated behaviour changes such as increases in the effectiveness of mentee-mentor communication, and a better mentee experience³⁶. This training does not need to be extensive and training programmes of less than six hours have been found to be effective³⁷. The usefulness of training is supported by a lack of mentor experience being given as key part of failed relationships¹³.
20. Although there is a risk that the need for mentors to undergo some form of training may put potential mentors off from volunteering²⁰, it should be expected that if a mentor is willing to commit to taking part in a mentoring programme, then they will also be willing to spend time taking part in associated training. As a minimum it should be expected that light-touch training should be provided to manage the expectations of those involved and help set the mentoring relationship up and get it off to an effective start. Such light-touch training could include the provision of template mentoring agreements, guidance books, and frequently asked questions documents²⁵.

Review of the mentoring process

21. Once a mentoring relationship has been established and is running it is important that relationships that are not working can be ended and potential problems identified before they become serious⁹. Regular review helps ensure the mentoring relationship is effective and allows the aims of the relationship to be periodically refreshed so that they stay relevant to the needs of those involved.
22. Such mentoring relationship review can be achieved by periodic assessment from the points of view of both the mentee and mentor, and this information should then be used to identify issues that can be addressed during the following period of the relationship²⁴. Combined with this is the need to ensure that mentees feel suitably empowered to be able to bring a mentoring relationship that is not working for them to an end without fear of upsetting their mentor, or the decision reflecting badly on either of those involved. Such a process has been compared to a “no-fault divorce”¹³, and mentees may not always feel this way. For example a survey of 147 mentees who had taken part in the Academy of Medical Sciences mentoring scheme found that 28% of the mentees would feel uncomfortable ending an unproductive relationship²⁰. In instances where a mentoring relationship has been brought to an end by the mentee, it should be easy for them to subsequently establish a new relationship so that they suffer no disadvantage. This is particularly important if the mentee is seeking mentorship around a time limited goal such as a fellowship or job application.

Closure of the formal mentoring relationship

23. When first established many formal mentoring relationships are time limited or set up to address a particular issue related to the mentee’s development²⁴. This helps ensure the relationship has clear direction and purpose from the start³⁰, but can later limit the usefulness of the relationship if the participants think the formal mentoring period is nearing an end¹². However, despite any limits on the duration of the formal relationship, some successful mentoring relationships will result in longer term interactions that can last many years, despite changes in occupation or institution¹¹. The formation of long-term relationships is entirely dependent upon those involved but can be very beneficial³⁸.
24. At the end of a mentoring relationship or of the formal mentoring period it is vital that a review is carried out to determine the effectiveness of the process, and to identify improvements that can be made. Measures to look at depend upon the nature of the relationship, but could include aspects such as the quality of the relationship (e.g. how freely mentees felt they could discuss issues, if the mentor felt burdened by the role etc.), mentee self-efficacy of research, and job satisfaction²⁴.
25. A mechanism for formal feedback that allows participants to influence future mentoring programmes is also important to help develop a culture of support within an organisation²⁵. Feedback from both mentees and mentors can be particularly useful at an institutional level as anonymised data relating to the impacts of participating in a mentoring programme, along with the groups of people who take part in the programme and why, can be used to inform strategic decision making and a range of other work within a Research Organisation. For example, information regarding mentoring

attendance and impact is likely to be of relevance to the REF research environment and Athena SWAN proposals, and can be used by institutions to inform their people development strategy by helping to identify areas of strength and weakness in the overall workforce.

26. It should also be recognised that the presence of a successful formal mentoring programme within an institution can lead to development of a “legacy of mentoring” with those mentees who have been in a successful mentoring relationship going on to be more likely to act as effective mentors themselves later in their careers. This legacy is beneficial to all those involved and can help a culture of effective mentoring develop¹¹. As such it is essential that mentors playing this important role within their organisations receive appropriate reward and recognition for their activities³⁹.

CONCLUSIONS

27. It is recognised that many Research Organisations have good mentoring programmes in place for their postdoctoral researchers and new group leaders. However, this is not universal and efforts should be made so that all those supported by BBSRC have access to mentoring opportunities such as those identified here, irrespective of where they are based.
28. This paper reviews best practice for formal mentoring schemes, with a particular focus on career mentoring in which the mentor may not be working within the same research area as the mentee and where the mentoring relationship focuses on career development guidance. Career mentoring is the type provided by members of BBSRC Committee E to new group leaders with David Phillips Fellowships⁴⁰, and by past and present David Phillips or Institute Career Path Fellows to postdoctoral Future Leader Fellows⁴¹. As such this review will be used to guide development of both BBSRC’s expectations for the provision of postdoctoral researcher mentoring by the Research Organisations invested in, and of BBSRC’s own mentoring programmes.

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