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Panel II. Models for Collaboration

The Role of Postdocs in Teaching and Research
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The UGA postdoc association (PDA) was created when the postdoc subcommittee of graduate students and postdocs in science (GSPS) separated from the rest of the organization in 2009 to focus more on the issues that postdocs were facing. These issues fall into three categories: Policy issues such as the former lack of insurance for postdoctoral fellows and postdocs that were being paid less than graduate students, resource issues like the limited number and scope of journals at UGA when the PDA was created, and training issues such as the lack of assistance in transitioning to and from UGA as a postdoc.

Our bylaws state that the mission of the postdoc association is serve the postdoctoral community and thereby promote the universities research and teaching missions – the two things that we are trying to blend during this symposium. Now, when trying to help postdocs, I have found that it is sometimes better to reverse this mission and help postdocs by first serving the UGA community. That was the case when the PDA took on the challenge of improving the quality and breadth of journals available to the university. We would never have been able to have such an impact on this need without the combined requests of graduate students, faculty, and postdocs.

It is with this in mind that I would like to discuss how we can address the last two issues I have listed, lack of training in communication and mentoring, and how accomplishing the goal of this symposium can resolve these postdoc problems.

So, if you asked me what makes a good teacher or mentor, I would say that it is someone that has the ability to guide and inspire learning through effective communication. This is something that most researchers lack, as evidenced by Alan Alda's recent Flame Challenge in Science. He describes how when he was an eleven year old boy he asked his teacher what happens in a flame and she responded "oxidation", which, of course, meant absolutely nothing to him. So, he issued the Flame Challenge in an effort to encourage scientists to communicate on a level that even an eleven year old can understand without having to dumb down what they are talking about. Thinking about this and the goal of this symposium made me wonder if there is a way that we can bring teaching into research so that UGA scientists can communicate more effectively with each other and non-scientists, while becoming better teachers and mentors in the process? If so, how can we accomplish this?

I have some ideas how we might do this, but even if we do not implement them, they allow us to look at some of the obstacles that we might have to face when trying to accomplish these goals. For instance, if we created a course that teaches graduate students and postdocs how to prepare and then present presentations more effectively, a class that I found very valuable as a graduate student at Vanderbilt, there are several obstacles that I can see to implementing this. First, convincing people that they should take the class, most people do not think they need to

improve their presentation skills. Second, and very important to myself and other postdocs, how do we convince PIs to give postdocs the time outside of the lab that they would need to take such a class? Then there are of course the small issues of paying for the class and finding the right people to teach it.

Now, a major part of the class that I took was practicing the skills that we had been taught – both as a part of the class and after we had completed it. As with most things, without practice, presentation skills cannot be improved. Unfortunately, many people still have a dislike of speaking in front of others and the number of opportunities to speak, even with the number of seminars we have on campus, is still relatively small for graduate students and postdocs compared to the amount of practice that they need to hone their presentation skills. We, again, face the problem of how to get the postdocs out of their labs to allow them to take advantage of multiple speaking opportunities and the ever daunting task of getting a decent sized audience to show up for the talk.

My final idea deals with bringing non-traditional methods of communication training to UGA researchers. There are many such methods being championed at the moment, but how do we determine which are actually worth employing in our efforts to improve communication in research? Again, of course, we still face the problem of getting postdocs out of the labs.

Now, let's switch back to the original question of how to bring research into teaching and what roles postdocs can play in doing this. I have listed four of the many reasons that I think postdocs would be a good resource to tap in this endeavor. For example, one of the crucial things that I think postdocs can teach undergraduate and graduate students is that failing to do something is only bad if you don't learn from it. Think about how much you learn from failing to do something in the lab, or in life in general. I can't tell you how much more we learn from failing in the lab than succeeding. Unfortunately, many of today's undergraduates and younger graduate students have been taught that failure can only be bad and I think that is something that postdocs can change.

Now, you may be saying to yourself that this sounds like a good idea, but can postdocs successfully bring research into teaching? There was a recent study published in Science where a postdoc who had been properly trained in active learning techniques taught a section of a physics class, while a skilled and highly motivated professor taught the same section of a different physics class using traditional lecture techniques. When the scores for the exam covering the section of the classes involved in the study were compared, the scores for the postdoc instructed class were substantially higher. While this can be attributed to the different teaching styles that were employed, it also indicates that postdocs can be effective instructors using active learning techniques.

So, how can we bring postdocs into the classroom? Well, the PDA has actually already been discussing this with one of the other participants here today, Erin Dolan. We came up with this idea. First, we provide some kind of instruction for postdocs in active learning and how to teach a class with it. Second, we give postdocs the chance to hone the skills they have been taught by allowing them to teach a section of a class for a week or two, just enough time for them to cover a single major topic in the class using what they have learned. Third, we provide some sort of feedback mechanism that will allow the postdocs to identify areas in their teaching approach that they need improvement in and allow them to teach the same section of the next class covering the same material. Now, as you can see, most of the obstacles that I have identified to doing this

are the same as those that I identified for the improvement in communication skills that I discussed earlier. The only new obstacle is determining what would be the best feedback mechanism to evaluate postdoc performance. So, if we can address these obstacles, I think we will have gone a long way into blending research and teaching.

Now, some of you may be asking yourselves why we should train postdocs instead of just retraining the faculty that we already have? While I agree that we need to provide training to current instructors in how to use active learning techniques, current postdocs represent some of the future instructors that UGA will have. If we look at the current PDA Executive Committee for instance, these three people Krisztian Magori, Monika Gulia-Nuss, and Manjinder Singh have all recently been promoted or will soon be promoted to research assistant scientists. So, if we train postdocs now in active learning techniques, they will have time to hone these skills before they become the professors teaching classes on a regular basis at UGA.

I would like to take a moment to recognize the other members of the PDA Executive Committee. I would also like to thank the members of OVPR that have made our efforts to improve the postdoc experience here at UGA so successful: Dr. David Lee, Dr. Robert Scott, Dr. Terry Hastings, Jessica Hawks, Krysia Haag, and Lynda Abernathy.

Thank you and now I will turn it over to the other Chuck.