

Vivian Weil's Commentary on "Related Research"

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A synthetic research lab at A-1 University includes Dr. Jacobs, department chair; Swen, a post-doc; and Beverly, a graduate student and advisee of Dr. Jacobs. Jacobs allows this student considerable freedom, making only casual suggestions. It appears that he is so remote that the group of which Swen and Beverly are members has come to rely heavily on the post-doc for providing research direction. Perhaps Jacobs has adopted this approach because his time is taken up with other duties. It may be that he remains in the background because he believes that is a desirable mode of management. Whatever his reasons, he stands back from engagement with his students and post-doc and seems to have provided only weekly meetings for regular communication and feedback.

There is merit in a policy of giving graduate students freedom and allowing post-docs to assume some responsibility, but only within a framework of clear understandings about how research is managed in the group. This framework should include policies covering the allocation of research problems, measuring and providing feedback on graduate students' progress, sharing data and assigning credit and authorship. In a situation featuring greater freedom than usual for students and post-docs, greater care is needed to set forth the limits. All advisers and research group leaders must bear in mind that the interests of post-docs and graduate students can diverge and lead to conflicts.

In Case 1, Beverly, now in her third year, has managed to get some interesting results. It seems to her that by following up and making derivatives of the complex she has discovered, she will be able to complete the requirements for the degree. She communicates her findings to Swen, who is impressed. He thinks enough of the discovery to consider using it as the basis for the work to be assigned to Jeremy, a new student. Given that Beverly and Swen have a close professional relationship, we can assume that Swen let Beverly know that he thought her discovery was

promising and that she understood him. Confirmation from Swen should have made Beverly more confident of her own assessment.

At this point Beverly must communicate with Dr. Jacobs about her discovery. She would have behaved appropriately if she had gone to Dr. Jacobs even before talking to Swen. However, after getting confirmation from Swen's reaction, she should realize that she has reached a milestone. Dr. Jacobs should hear about it directly from her. Graduate students must take responsibility for moving through the program to completion; they should not remain passive. Of course, Beverly runs some risk that Dr. Jacobs will not be impressed. That is a risk she must take if she is to move forward. It is difficult to account for Beverly's failure to take the initiative in seeking out Dr. Jacobs at this point. (Jeremy, the new student, is not reticent about discussing his findings with Dr. Jacobs.)

Not long after Beverly's discovery, Jacobs gives Swen the task of helping Jeremy get started in the lab. Swen interprets his instructions to mean that he is to assign a research problem to Jeremy. Apparently without consulting Dr. Jacobs, Swen considers several options for Jeremy. On his own, he decides to give Jeremy the problem of synthesizing a new derivative of the complex Beverly had discovered.

It is usually both a prerogative and duty of the principal investigator (PI) or research group leader to allocate research problems to graduate students. There are good reasons for such a convention. At a minimum, central authority and control are needed for coordinating work on a grant that supports graduate students. The research group leader or PI is usually in the best position to make good matches between students and projects. Graduate students have much at stake in the allocation of projects. Someone with authority should be answerable and be seen to be answerable for assigning portions of the research to students.

If Dr. Jacobs makes it a practice to allow Swen or other post-docs to allocate research problems, he cannot relinquish all responsibility. There remains a need for coordination and oversight on his part to ensure that post-docs are properly trained in this task and that graduate students' interests are properly protected. Advisers have responsibility for attending to these needs as part of the duties of advising graduate students and post-docs. This kind of attention is necessary to manage funded projects well.

Dr. Jacobs seems to be at fault for neglecting to manage or clarify the process of assigning research problems to graduate students. Swen's conduct should be looked at in that light. If Dr. Jacobs has made no suggestions about what projects might be suitable for Jeremy, then it would seem to be up to Swen to come up with options. To address this task responsibly, Swen must consider Beverly's interests as well as Jeremy's and his own. He must bear in mind that Beverly has reached an important point, having made a discovery after three years of graduate study.

If Swen includes follow-up work on Beverly's discovery among the options to be considered for Jeremy, he must inform Beverly, as a matter of courtesy and respect. It also serves the interest of open communication in the research group (and the benefits that flow from it) to keep her informed. Swen should make no assignment before discussing with Dr. Jacobs the pros and cons of the options under consideration. If the option of assisting Beverly in making derivatives is among them, she should be included in the discussion with Dr. Jacobs or arrange to talk with him separately, whether or not she likes the idea of being given Jeremy's assistance. In the event that Jacobs judges that there is over-all benefit in Jeremy's assisting Beverly, he should explain the reasons for his judgment and the terms of credit to Beverly and Jeremy, assuming Jeremy's work is successful.

Case 2 arises because, without obtaining Beverly's agreement or discussing the matter with Jacobs, Swen gives Jeremy the project of making a derivative from the complex Beverly discovered. When Jeremy succeeds, after several months of work, Beverly is upset and angry at Swen because, as she sees it, she faces six more months of work. Swen's defense is that publishing ahead of other groups benefits the group and that if Dr. Jacobs can publish a major paper from this work, Swen will be able to get a job that frees him from his post-doc position. Putting his interests in completion ahead of Beverly's, he assures her that she will in time have enough results for her thesis. Jeremy is happy because Jacobs has encouraged him, saying that if Jeremy makes complex C, they should be able to publish in a good journal.

Beverly is the person who feels deprived and frustrated. However, she bears some responsibility for this outcome. That is because she did not inform Dr. Jacobs at the appropriate time about her discovery and so failed to talk with him about credit for her achievement and a plan for completing her work. That said, both Dr. Jacobs and Swen also are at fault. Dr. Jacobs neglected management responsibilities, apparently counting on the students and post-doc to figure out how to work well together in spite of competitive pressures dividing them. As chair of the department and adviser

to graduate students, he has the obligation to make operating assumptions and ground rules clear. Appropriate policies help to avoid misunderstandings, conflicts, and harms to graduate students and post-docs.

A clear framework of ground rules might have helped Swen avoid the damaging failure to discuss Jeremy's assignment with Beverly and Jacobs. If procedures and decision making were more predictable and open, Swen might not have taken it upon himself to assign research to Jeremy without any consultation. Nevertheless, Swen is at fault for making a decision directly affecting Beverly's interests without consulting her.

In clashes of this kind, individuals can seem excessively protective of their work and results, and the professor's power and control over data and results can seem unfair or arbitrary. In view of the salience of property interests in so many contexts, it is perhaps not surprising that many are tempted to describe these clashes in terms of ownership or theft of ideas. Property law protects material embodiments of ideas, not ideas as such. In research groups when people argue or complain about ownership of ideas, the real issue frequently is the absence of clear and reasonable policies about allocation of research problems, tracking the progress of graduate students and post-docs, control of data and assignment of credit and authorship. Careful attention to those policies should forestall conflicts about ownership of ideas and help to promote trust and cooperation within research groups.