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Wanting Doctoral Students to Be Successful Researchers (Throughout Their Academic Careers)

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It is commonly acknowledged that a number of doctoral students will never complete their dissertation work or ever begin publishing in scholarly outlets. It is also commonly accepted that many doctoral students may graduate but will never make it through either a midterm retention review or through a tenure and promotion review process. It is also common knowledge that a fair number of those individuals that eventually make tenure will cease publishing almost immediately thereafter. What motivates one to begin publishing and to continue to publish throughout their academic career? What factors might actually explain the research productivity differentials that are often observed between individuals that have otherwise relatively similar cognitive abilities, skills, time, and other necessary resources available?

The focus of this commentary is on research, considered by many to be one of the most critical and valued aspects of a successful academic life. Since failure to produce a given “number” and “type” of published scholarly articles usually spells disaster within the academia, an examination of what motivational factors drive one to conduct research begs our attention. And although in many departments there might be a so-called “list of approved journals,” in other departments any such list is either frowned on or looked upon with suspicion. Complicating matters is that while everybody seems to recognize that the “number” of published manuscripts is important, nobody seems willing to admit what this magical number is ... especially administrators! So, recently hired and

fresh doctoral students regularly end up working in a department where it is not always clear what it takes to successfully make it through the tenure and promotion process.

While working on research and writing and preparing papers for publication may be second nature to some academics, many find this endeavor quite challenging and sometimes even intimidating—perhaps because there is much uncertainty connected with this endeavor in the first place. Is my chosen topic current and interesting enough? Is the conceptual development outlined valid and well supported? Is my research design and research methodology appropriate to address the type of questions posed in the study? Is the data analysis correct and are the conclusions accurate and relevant? What is my contribution to the theoretical body of knowledge? What are my chances of getting this paper accepted in a top-tier scholarly outlet? How is publishing or failing to publish this manuscript going to affect my current and likely future employment opportunities?

It is clear that each and every research project and related manuscript in which one invests time has definite costs but not always positive outcomes. The task is challenging indeed when one also considers that acceptance rates at most top-tier or aspiring-to-be-top-tier journals generally hover around 8 to 10 percent. If one also then considers that a sizable number of the accepted/published papers are often written by people with multiple hits, there appears to be very limited space available for the “new kids on the block.”

Accordingly, it would seem that with all the potential obstacles, there must be something different or special that drives some researches to succeed and others to just give up along the way. If we suppose that admittance to a doctoral program is at least partly dependent upon cognitive ability (as exhibited either through common standardized tests and/or previous college grade point average), and we also assume that students in any given doctoral program generally receive similar kinds of training, then what sets some individuals apart? What are the driving forces toward succeeding in this academic world? Unfortunately, it would appear that there are myriad possible behavioral factors that can be considered as likely determinants. Interestingly, there are just as many theoretical perspectives that have been suggested within the literature as explanations of this aspect of human behavior. For example, some theorists have suggested that the powerful determinants are simply those related to intrinsic and extrinsic motivational factors. In contrast, social

cognitive theorists would suggest that the most powerful explanatory variable of any human behavior is simply self-efficacy (Graham & Weiner, 1996). Given this rather dogmatic perspective on human behavior, it would appear that examining the construct of self-efficacy, its consequences, its antecedents, and its correlates may indeed be quite pertinent towards understanding the propensity of individuals to engage in publishing papers, a behavioral choice. How much effort an individual puts into this behavioral choice and how persistent he/she is depends to a great extent on the sense of efficacy one holds (Bandura, 1977).

Self-Efficacy, Its Consequences and Antecedents

According to Wood and Bandura (1989), "Self-efficacy refers to beliefs in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands" (p. 408). These beliefs have powerful consequential effects on behavior (Figure 1). It is partly based on these

beliefs about capability that individuals select which courses of action they will take (*behavioral choice*), how much *effort* they put into it, and how *persistent* and resilient they will prove to be in the face of adversity and obstacles. Individuals with a strong sense of self-efficacy are more prone to approach difficult tasks in a given domain (such as going through the whole endeavor of publishing a paper) as challenges to be mastered rather than dangers to be avoided. Such individuals are more likely to recover with confidence after a failure, a failure which they are likely to attribute to lack of effort and insufficient skills rather than incompetence. Such individuals set challenging goals and maintain a strong commitment toward those goals.

Self-efficacy expectations are said to vary on several dimensions, but three of them are considered central: magnitude, generality, and strength. The efficacy expectations of different individuals vary in *magnitude* in the sense that some individuals may be very confident in coping only with simple tasks, while others can

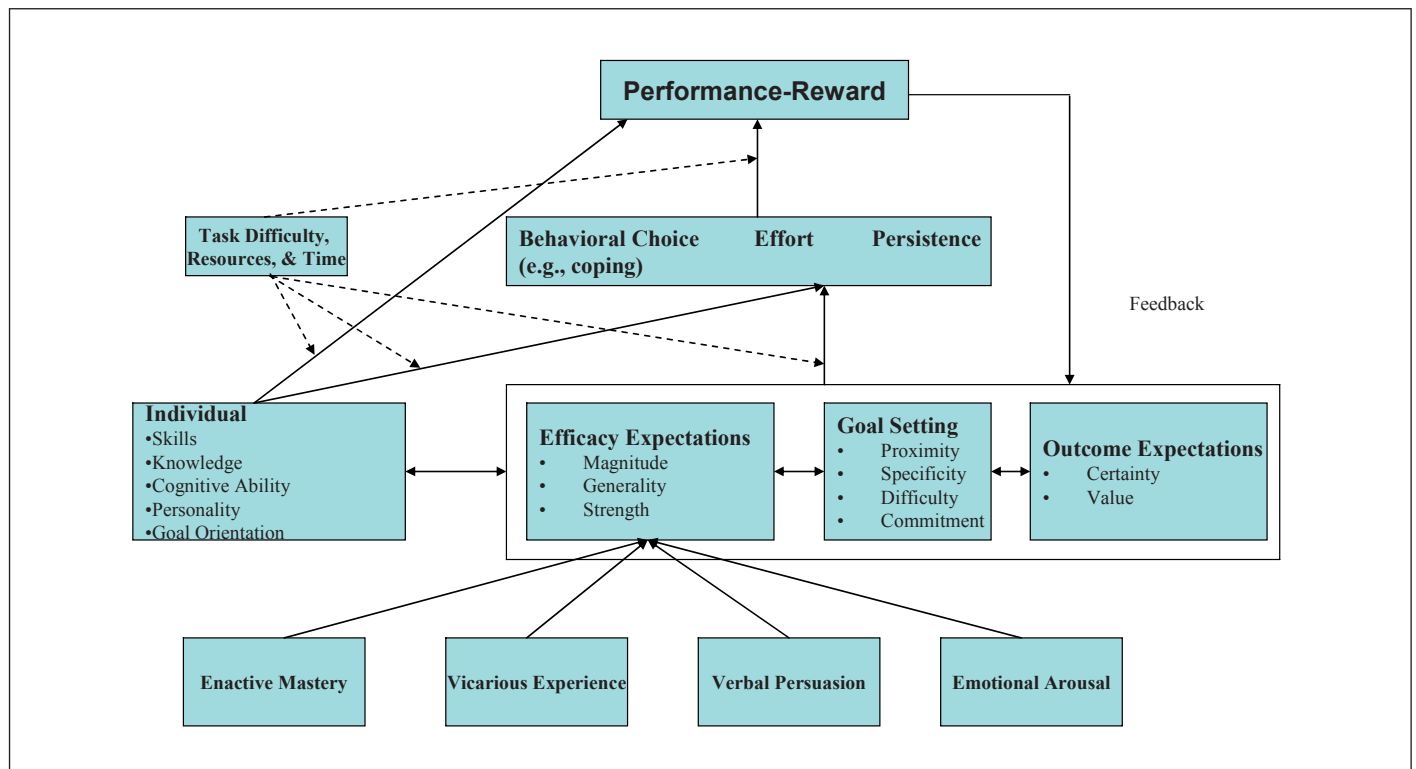


Figure 1: Academic research: A self-efficacy centered model.

be confident with the most challenging tasks that require taxing performances. Some individuals develop a sense of efficacy that extends beyond the boundaries of situations they faced in the past and thus can *generalize* their mastery capabilities. For example, a doctoral student who received statistical training using the Statistical Analysis System (SAS) may feel confident that he/she can handle any of the other available general statistical packages. Other individuals, however, hold a more restricted sense of efficacy. Perhaps a student may be confident to only deal with SAS routines and cannot generalize his/her knowledge to other available software packages. Self-efficacy expectations vary also in *strength*. Individuals who hold strong expectations of mastery are more inclined to persevere and exert extended effort even in the face of adversity, while individuals with weak expectations often simply succumb to disconfirming experiences.

How do individuals actually build their sense of self-efficacy? What are the primary informational sources of self-efficacy? The extant self-efficacy literature generally describes four such sources (Bandura, 1977; Schunk, 1991; Pajares, 2002): enactive mastery, vicarious experience, verbal persuasion, and emotional arousal. The literature is very consistent in positing that *enactive mastery* is the most influential source of efficacy beliefs (e.g., Bandura, 1986). Individuals assess the effects of their own actions and interpretations of these effects can assist them to create their sense of efficacy. When behavioral outcomes are positive, the individual feels more confident about his/her ability to handle tasks (especially if the individual attributes particular success to his/her behavior). On the contrary, when outcomes are negative this may lead to lower levels of self-efficacy (Bandura, 1977). Enactive mastery suggests that individuals learn best from their own experiences. It is of utmost importance then that doctoral students engage in research activities and publication efforts from the early stages of their development. This is of course predicated on receiving appropriate re-

search skills, exposure to literature, and availability of appropriate and necessary resources. Mentorship and guidance are also critical success factors, but to derive the strongest sense of efficacy one has to try it on his/her own. Nothing short of a personal engagement will do it—in this case, lead to academic success. “Nothing short of riding a bike will teach one to ride a bike.” Similarly, if one is to feel confident about research activities and publishing, one has to actually engage in research, not just read about research. What is also critical is the active involvement of doctoral students across all phases of a research endeavor.

Doctoral students need to play an active participatory role as it pertains to conceptualizing an idea for a paper, conducting a literature review, building a theory section, working on a research design and methodology, collecting data, analyzing data, and interpreting findings. Typically, most doctoral students work with faculty on research projects before they begin their dissertation work. However, such involvement tends to be fragmented and thus incomplete. A student may be asked to carry out a literature review or conduct some of the statistical analysis but does not specifically see how everything fits together. Rarely is a student fully engaged in all aspects of doing research until he/she is called to do his/her dissertation. Immersing students in all aspects of research at an early stage provides not only invaluable lessons that can be generalized but also it gives them a feeling that they are capable of doing research on their own. Assuming that a doctoral student has a mentor he/she can rely on for guidance and inspiration, enactive mastery can communicate feelings of confidence and capability. The process of engaging students across all aspects of research at an early stage also generates valuable collateral feedback for both the student and the respective faculty. The student can see what it takes to do research and he/she may just decide that research is not what he/she would want to do in their professional life. Doing research consumes a significant portion of an

individual’s academic life, and one does not want to commit to something that they do not particularly enjoy. Waiting until dissertation time to find out that a student does not have the drive and interest to do research is not only costly, but potentially perilous.

It would be equally dangerous for doctoral students to be commissioned to work on research alone without a record of several vicarious experiences. Although research may come easy for some, observing how a productive and well-respected professor conducts research provides an excellent learning opportunity. Through *vicarious experiences* (Bandura, 1977), individuals acquire information about their capabilities by observing how others perform. This is usually achieved through modeling. Being a result of social comparison, vicarious experiences tend to be however less dependable sources of information of one’s capabilities (Bandura, 1977). Observing others succeed (especially in challenging situations) conveys positive information and may lead one to adopt similar behaviors (Schunk, 1991). “If others can do it, I can do it.” On the other hand, observing others fail lowers the sense of efficacy and may lead one to abandon efforts to work on research-related activities. “If the model (professor or peer) fails, then how is it possible for me to succeed?” Vicarious experiences can be influential but they can be short lived once personal experiences are derived. In fact, vicarious effects can be reinforced or negated through personal experience. If an individual tries to work on a manuscript and is successful in these efforts, vicarious effects can be reinforced. If the individual fails, then any increases in self efficacy through vicarious learning can be negated. Vicarious experiences are invaluable when individuals are uncertain about their own capabilities and they have limited or no prior experience.

Doctoral students also need to repeatedly hear words of encouragement. *Verbal persuasion* (Bandura, 1977) is one of the most common approaches that can influence human behavior. It owes

its relative popularity to its ease, availability, and is, of course, devoid of cost. Through suggestion, individuals are led to believe that they too can successfully cope with challenging tasks. Obviously, an individual coping with a task will have to possess commensurable skills and resources for the task if they are to succeed. Verbal persuasion and encouragement can influence an individual to mobilize the skills and resources they have at their disposal. Persuaders, however, have to assure that success is attainable in accordance with given skills, resources, available time, and individual capabilities. Encouraging students to first submit papers to regional and national conferences and then on to journals builds their self-efficacy and resolve. However, just as positive persuasions can boost an individual's confidence level, negative appraisals can also inevitably quash self-efficacy (Bandura, 1986). For this reason it is important that any feedback provided to doctoral students be related in a constructive manner.

Emotional arousal (Bandura, 1977) is the last of the four sources of information that can affect self-efficacy perceptions. Individuals can gauge their confidence by observing their physiological state when they engage or contemplate engaging in a given behavior. For example, anxiety, agitation, and stress may communicate lower levels of ability to cope with a given task. These cues can sometimes be strong and rather influential to behavioral choices. Emotional arousal derives from many sources, some of which can be personal while others may be environmental. For example, an individual lacking sufficient skills, knowledge, time, and other necessary resources to cope with a given behavior and its demands may experience elevated levels of anxiety and stress, which can then have debilitating effects on the beliefs of adequacy one holds of himself or herself. Mentors and the faculty at large have to ensure that doctoral students are given the resources and skills necessary for completing the job. If necessary, doctoral students may have to be more proactive and ask for help.

Correlates—Outcome Expectations and Goal-Setting

Accomplishing challenging tasks requires more than a strong sense of capability. Individuals perceiving themselves as being capable cannot always accomplish every task attempted (especially difficult ones), particularly when it requires the presence of domain specific skills and knowledge. However, self-perceptions can help an individual decide what to do with the knowledge and skills he/she already possesses.

Behavioral choice is also predicated on outcome expectancies (Bandura, 1977) and in particular, the *certainty* with which a given outcome can indeed be obtained and the *value* that the individual attaches to this prospective outcome. Expectancy-value theories suggest that individuals are not motivated to attempt the impossible or unattainable. A challenging but yet attractive goal (how much do they value the goal?) is what inspires and motivates people. So, what is the role of faculty in this scenario? First and foremost, professors have to communicate to doctoral students the value of doing research. Professors also have to instill in doctoral students the importance and value of publishing research in academic outlets that can inevitably prove to be instrumental to their academic career. Clearly, not all published papers count the same. Experienced professors can also assess the likelihood of successfully submitting a particular manuscript with a specific journal.

Bandura (1988) suggests that *goal-setting* (and the self-evaluative reactions that follow) can stimulate motivation and subsequent behavioral choices. A doctoral student who sets a goal or is given a target to try and publish a manuscript in a given journal may experience an initial sense of self-efficacy for attaining the goal. Setting a goal, however, demands more than just a certain level of commitment and subsequent behavior (such as reviewing additional literature and learning a new statistical methodology). Self-efficacy is substantiated when progress is made toward the goal, which

conveys that an individual is actually mastering the task.

Four major properties characterize goal-setting (Schunk, 1991): proximity, specificity, difficulty, and commitment. Because progress for close (i.e., proximal) and specific goals is comparatively easier to evaluate, proximal and specific goals promote self-efficacy and motivation (Schunk, 1991). Reaching relatively easy goals may reflect some sense of capability, but meeting or exceeding challenging goals may be illustrative of more effective mastery of skills and elevated perception of self-efficacy, which ultimately may affect behavioral choices (e.g., it may lead one to attempt working on even more challenging projects). As is true in most kinds of settings, a lack of commitment can prove disastrous in an academic setting. An individual who is not committed is likely not to exert requisite effort and perseverance, even when he/she thinks that the goal is noble and critical to professional success.

Feedback

Feedback is necessary to communicate whether goals have been met (Schunk, 1991). Providing timely and constructive feedback raises a student's self-efficacy and perhaps even leads to more effort. Individuals go through a self-evaluative process, which involves necessarily a comparison between actual performance and goals. Positive discrepancies may lead individuals to exert more effort, while negative discrepancies create dissatisfaction that can conceivably motivate corrective behavioral changes. Students make behavioral choices and exert various levels of effort towards these choices. Some choices will prove to be successful and rewarding, while others will likely fail. Some rewards will ultimately be deemed valuable, while others may be considered paltry. Individuals learn that valuable rewards are correlated with certain past choices and this may subsequently affect their future behavioral choices (Bandura, 1977). Bandura (1986) also notes that attributional factors such as the amount

of effort expended and judgments of task difficulty influence performance through self-efficacy. Other things being equal, a doctoral student who succeeds in publishing through massive effort is likely to consider him/herself somewhat less capable than one who can publish with relative ease. Thus attributional feedback is posited to affect self-efficacy, motivation, and performance. The timing of feedback is equally important as early success may reflect high learning ability, which can ultimately affect efficacy and subsequent behavioral choices.

Other Individual and Environmental Factors

Self-efficacy was discussed above as an important explanatory variable of human behavior. Such a perspective, however, certainly does not imply that self-efficacy is the sole predictor of a particular behavior. As stated earlier and shown in Figure 1, goal setting and outcome expectations can also play a central role. Indeed, there can be quite a plethora of individual characteristics that can prove to be also quite influential. For example, characteristics such as skills, knowledge, cognitive ability, personality, and goal orientation are just a few amongst a number of other important predictors of behavior. In addition, contextual factors such as task difficulty, resources, and time may have a significant moderating impact.

Conclusion

Mitchell (2007) provides an excellent essay on the requirements of academic life and the general changes that are needed in business schools to improve doctoral education. The path is not easy and it takes a collaborative effort by multiple stakeholders to effect positive change. Doctoral students should do their part and examine early enough whether the life of an academician really suits them. Research is what many academicians

do most of the time. One must clearly enjoy doing research in order to do good research. It is also important that doctoral students do not simply judge their efficacy to conduct research based solely on the few "snapshots" obtained while assisting their mentor or other professors. Observing faculty conduct research and helping out is necessary, especially when doctoral students first enter a doctoral program. But as discussed above, enactive mastery (in other words, actually doing research yourself) has been the most instrumental factor for self-efficacy beliefs across a variety of situations. One has to do research themselves in order to find out whether they like it. To get a more complete picture as to what research entails, one really needs a "video camera" and not just a "still camera." Doctoral students need to see and experience, as much as possible, the life of a research endeavor from conception to completion. Of course, doctoral students cannot do it alone. They must have a supportive mentor who can serve as a role model guiding them through all the hurdles that lie ahead. There are plenty.

Acknowledgements

We are grateful to Professor Murray Barrick, Dept Head (Management) and Paul M. & Rosalie Robertson Chair in Business at Texas A&M University for his valuable suggestions.

Web Resources

Extensive resources on Self-Efficacy reside at Emory University:

<http://www.emory.edu/EDUCATION/mfp/self-efficacy.html>

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