The Importance of Divergent Thinking for Research in Graduate School and Beyond

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As undergraduates, we are generally encouraged to practice concrete thought. Our goal is to find the "right" answers. In the context of undergraduate education, our success is often determined by our ability to spit back the information provided in textbooks and lectures; taking new divergent approaches to problems is rarely rewarded. This unidirectional flow of information from professors to students makes sense given that we all begin our studies as novice scientists. This arrangement promotes convergent thinking (Guilford, 1967), the concept that there is one correct answer to a problem.

However, when we make the transition to graduate school we find that the relationship between students and professors becomes bidirectional. In other words, both students and professors are expected to contribute original information to courses and research projects, promoting divergent thinking. A shift from convergent to divergent thinking — the generation of thoughts and perspectives from multiple viewpoints (Guilford, 1967) — accompanies this transition from unidirectional to bidirectional flows of information.

Convergent and divergent thinking are not mutually exclusive concepts; both play an important role in our research. Convergent thought provides a foundation for us to build upon as we gain more research experience. This foundation in the current best practices of our research areas provides common ground among colleagues from which we can advance future research. However, only by moving beyond commonly accepted practices and convergent thinking to develop divergent research ideas do we truly advance our science.

For example, over the last several decades there has been a major shift in the way that social psychologists think about social attitudes (Payne & Gawronski, 2010). Influences from cognitive psychology led to the development of assessment tools, such as the Implicit Association Test (Greenwald et al., 1998), designed to measure implicit attitudes. Overall, this resulted in a big change in the way psychological scientists think about and approach the topic of attitudes. Up until that point, explicit measures were the only tools psychologists had for assessing attitudes, and there was little empirical attention given to the possibility that attitudes could exist outside conscious awareness. We are now able to consider how both explicit and implicit attitudes relate to one another and predict various behaviors. The introduction of research on implicit attitudes added a new piece to the puzzle, giving us a more complete understanding of people's attitudes.

In order to truly advance our science we need to push ourselves to engage in divergent thinking, starting in graduate school. As graduate students, we have a plethora of opportunities to improve our divergent thinking, developing the skills that will take our science to the next level.

Approaches to Improved Divergent Thinking

Diversify your course load. You can benefit from taking relevant courses outside of psychology, as they can offer new perspectives to your current approach to research. Psychology is an interdisciplinary science and has connections to biology, sociology, and psychiatry, to name just a few. I have taken classes outside psychology in Speech and Language Pathology, a department that certifies clinicians to treat patients with communication disorders resulting from stroke and traumatic brain injury. As a result, I have incorporated a treatment-focused approach which examines the long-term cognitive and neural changes associated with traumatic brain injury into my research. Viewing traumatic brain injury from this clinical perspective has inspired me to develop cognitive interventions for traumatic brain injury and prevention programs for at-risk populations. By taking courses outside of psychology, you too can expose yourself to alternative perspectives that may help shape the way you tackle research questions.

Collaboration. Collaboration with faculty and graduate students in other areas of psychology or even in other disciplines can also diversify your perspective. The unique benefit of collaboration is discourse that develops between you and your collaborator. Through this discourse, you both may gain new insights for present and future research. Take the example of the Implicit Association Test: The ways in which social psychologists studied attitudes changed as a result of influences from other scientists' work — in this case, the work of cognitive psychologists. When we are exposed to alternative perspectives, we are more likely to engage in divergent thinking. Collaboration may provide opportunities to identify alternative approaches to our research questions and alternative explanations for our findings. Collaborative experiences may also propel you to bridge other schools of thought in your future research.

Grant Writing. Writing a grant can be an opportunity to explore research from multiple disciplinary viewpoints and ask original research questions. When reviewing literature prior to designing your research proposal, challenge yourself to read research from related disciplines. This will allow you to widen the scope of the research questions that you can ask. In my first semester of graduate school, I proposed an original research project in my application for a National Science Foundation Graduate Research Fellowship. To approach my research question of age-related cognitive decline from multiple perspectives, I incorporated literature from disciplines outside of psychology, such as gerontology and neuroscience. If you continue to read research from alternative disciplines, you will be able to use more flexible thinking to develop original research questions.

Present your research. By sharing your research with a greater network, you create more opportunities for feedback and collaboration from outside schools of thought. There are several opportunities in graduate school to exhibit your work. First, you can present your research at brown-bag style colloquia that are held within your department or graduate college. Second, to enlarge your research network, present a paper or poster at a national or regional conference. Some of my most developed research questions have come from interdisciplinary conversations with conference attendees. At a conference, you surround yourself with people of varying foci in your research area, which may even open the door to collaboration. Their feedback may stimulate you to see your research differently — leading to new research hypotheses and perspectives.

I encourage you to seek out the aforementioned experiences in your academic community to guide you towards alternative perspectives in your research area. Diversifying your course load, collaborating, writing grants, and presenting your research are just a few ways you can promote divergent thinking during your graduate education. An emphasis on divergent thinking will change the way you think about

scientific literature and will help you ask original research questions. Moreover, divergent thinking will allow you to view complex problems from alternative angles, a skill which will facilitate better science and ultimately benefit you throughout your career. œ

References

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