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# Reflections on a Highly Multidisciplinary Career

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**Abstract**

Reflections over the course of my 50-year career in interdisciplinary clinical-psychological science are offered. Using several examples drawn from my life's work, I highlight the importance of interdisciplinarity in developing novel insights into clinically relevant phenomena. When questions demand expertise and methods beyond those researchers possess themselves, collaboration is key. Examples of highly novel and productive collaborations from my career are provided. Finally, I conclude with six specific points of advice for the younger generation of scientists, and I advocate for a clinical-psychological science that focuses on human flourishing. Such a focus is critically needed to address the major challenges facing the world today.

**Keywords**

cognitive processes, culture and mental health, psychophysiology

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In this brief article, I recount a few of the lessons I have gleaned from a 50-year highly multidisciplinary career that has contributed to clinical-psychological science. I offer these reflections in the hopes that some of these insights may be useful to the current generation of young scientists as they embark on or continue to develop their careers. These thoughts are by no means meant to contain an exhaustive list of insights. Rather, they are focused on a few of the key themes that emerged early on and that are still vibrant today and more recent themes that have emerged in the past few years. At the end of this article, I have distilled these insights into six specific points of advice. It is my aspiration that this advice will be beneficial for researchers at earlier stages in their careers.

## Early Examples

I began my career almost 50 years ago with a simple question that still drives some of what the field does today: Why is it that some people are more vulnerable to life's slings and arrows, and why are others more resilient? I was never drawn to study a specific disorder, but rather, I found myself from the very early stages interested in what later became known as transdiagnostic predictors. I was also never drawn to identify my work with any specific methodological approach despite my tenacious pursuit of methodological rigor and my many strictly methodological publications to work out particular issues once a method was chosen. For example, because my research team and I were especially interested in individual differences, when we adopted a particular method, for example, electroencephalogram (Tomarken et al., 1992), functional-MRI connectivity measures (Schuyler et al., 2010), or startle (Larson et al., 2005), before we used that method to make inferences about individual differences, we were committed to first establishing the method's reliability and explore whether there were ways to improve that reliability. Thus, although methodological concerns were always necessary prerequisites, I had the conviction that science must begin with the questions. Only then can one identify the methods that are most well suited to answering those questions.

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During this vibrant period of searching for the causes and consequences of transdiagnostic vulnerability, my curiosity led me to many places I had not anticipated. I was drawn to read widely, from basic research in animals to qualitative clinical studies and most things in between. The methods featured in this broad diverse array of research were varied and ranged from phenomenological and behavioral methods to imaging and molecular approaches. As I reflect back on these early years, one of the important lessons I learned was to be fearless about moving into unknown territory and unfamiliar methods. And it was equally clear to me that I (or any members of my lab) could not become experts on all of these approaches. We needed collaborators!

I gave a talk on campus here at Wisconsin a few years ago, and the person who introduced me and knew me well made a list of departments that I collaborated with in my 40-year career in Madison. There were more than 15 departments and centers that spanned over all but two of the different units in the university. The units included the School of Medicine and Public Health, the College of Letters and Science, the College of Agricultural and Life Sciences, the College of Veterinary Medicine, the School of Education, the College of Engineering, the School of Human Ecology, and the School of Nursing. The only units I have not collaborated with are the School of Law and the School of Business. And a collaboration with the School of Business is now just beginning.

An example from one specific area is illustrative. I was part of a MacArthur Foundation Research Network on mind–body interaction in the late 1990s and early 2000s. One of our initiatives was to "put the brain back into biomedicine." There are many chronic medical diseases in which it is known that psychosocial stress exacerbates the symptoms of the disease. If this is true, then it requires that the brain is involved because presumably the brain is the transducer between the environmental psychological stressor and the signals to the specific organ system(s) involved in the expression of the disease. We wanted to empirically investigate the brain's involvement in such diseases in a modern way. To do this, we first had to choose a model illness. We wanted to choose an illness that was highly prevalent, that was a major public-health issue, and for which the evidence was unequivocal that stress can exacerbate the symptoms of the illness. We also wanted an illness with clear, well-characterized biological end points that were measurable. After careful search and reflection, we chose asthma.

I will never forget the looks on the faces of world-renown asthma researchers here at the University of Wisconsin-Madison when I came over to meet with them and asked them very innocently, "Did you know that that brain was involved in asthma?" They were initially incredulous, but when we explained that if psychosocial stress can modify the symptoms of asthma, including inflammation in the lung, then they understood, at least in principle, that the brain must be involved.

We embarked on a collaboration in 2003 that led to many high-profile publications, including the first article from our collaborative work that appeared in *Proceedings of the National Academy of Sciences of the United States of America* (*PNAS*; Rosenkranz et al., 2005). This work continues today through the research program of Melissa Rosenkranz, who is now one of the core faculty members at the Center for Healthy Minds. And today, this work includes studies that combine the measurement of local gene expression in the lung with brain-imaging changes in response to allergen provocation. It is especially heartening for me to see Melissa embody the same fearless openness to adopt new methods to answer new questions through collaboration.

Another example is in the realm of epigenetics. When I first read the work emerging from the laboratory of Micheal Meaney on the cross-fostering of anxious rat pups by highly nurturant dams (Meaney & Szyf, 2005), I was immediately thinking about this as a mechanism of plasticity in some of our work with meditation. Might brief but intense experiences with meditation induce a beneficial epigenetic change? At the time, we had no in-house expertise in epigenetics, and so we searched for the right collaborator and embarked on this work. We tried to secure a supplement to one of our then-funded National Institutes of Health (NIH) grants on the neuroscience of meditation to support this epigenetic work. We received very negative reviews: Reviewers were skeptical that we would see an epigenetic signal in such a short time (after 1 day of intensive meditation practice). Foundations are often more likely to support high-risk research than governmental agencies, and so we secured a small amount of private-foundation funding to do the work that NIH declined. We published our first article in this area in 2014, in which we demonstrated rapid epigenetic changes over the course of 8 hr of practice within a single day of intensive practice (Kaliman et al., 2014).

## Clinical Science Must Include Mental Health and Not Just Pathology

The vast majority of clinical science is focused on mental illness. I have no argument with this. The study and treatment of individuals with psychopathology is important and necessary. However, researchers must not neglect the positive repertoire of human emotional experience. Mental health is not simply the absence of

mental illness; the World Health Organization (WHO, 2020) definition of mental health upholds,

> Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community.

In previous theoretical and conceptual work, we have argued that humans possess an innate basic goodness and that the capacity to flourish is something humans share. These nascent capacities require training to fully develop (Dahl et al., 2020). Moreover, the development of these core skills of flourishing may be beneficial for both mental and physical health (Kubzansky et al., 2023). It is essential that clinical-psychological science elevate the positive qualities of humanity, and it is especially urgent during these challenging times of polarization and divisiveness that are eroding many of the basic foundations of society. Practices that cultivate some of these positive qualities, such as those designed to nurture kindness and compassion, alter behavioral measures of implicit bias (Hirshberg, Flook, et al., 2022) and promote generosity (Weng et al., 2013).

## Basic Research on Emotion Is Essential for Understanding Both Psychopathology and Flourishing

Throughout my career, I have intentionally woven together basic research on affective neuroscience and studies of psychopathology. It was clear to me from early on that virtually all forms of psychopathology involve some dysregulation of emotion, yet when I began my career, no one was asking questions about how emotion was dysregulated in psychopathology. This focus led me to stay abreast of basic research on the neuroscience of emotion at all levels of analysis and to reflect deeply on how this work might apply to clinical disorders. And more recently, it has also become clear that basic research on emotion is essential for understanding human flourishing. How are emotions different among people who are flourishing versus people who are suffering? It is not simply in the content of emotion, but it also has something to do with the way emotion is processed and the temporal dynamics of emotion. I wrote about these issues first in 1998 (Davidson, 1998), and recently, this work is gaining traction. One of my former students, Regina Lapate, is taking the mantle for this work and articulating the detailed neural circuitry that underlies the temporal dynamics of emotion regulation (Wang et al., 2022, 2025). In this new work, Regina and her students are measuring dynamic temporal coding mechanisms in the interactions between the amygdala and hippocampus and studying how amygdala-dependent intense emotional experiences disrupt these temporal coding mechanisms.

## Digital Mental Health

As many commentators have noted, the magnitude and prevalence of psychological distress far exceeds the current capacity to treat these problems in the United States and in many other places in the world today. Moreover, many who suffer from various forms of psychopathology cannot afford treatments that might otherwise be available. These factors combine to elevate the potential opportunities for the use of digital technology to both better diagnose and treat various mental-health problems. Although there have been many excellent recent reviews of this space (Lattie et al., 2022), there still remains so much more to investigate. Digital devices can be used for both assessment and to disseminate treatments and can be configured for a high degree of personalization and just-in-time, brief interventions (van Genugten et al., 2025). Moreover, the most popular type of digital mental-health mobile applications are meditation apps (Creswell & Goldberg, 2025). The proliferation of such apps, although concerning in some respects, also presents an opportunity for large-scale studies of brief interventions that focus on cultivating well-being in diverse populations (e.g., Hirshberg, Frye, et al., 2022). And with wearable biosensors, such opportunities also include the assessment of biological variables both for diagnosis and as potential treatment outcomes.

## Activist Scientist

A major donor to our center said to me about 15 years ago, “Richie, if you received all the funding for the best, most innovative research you could imagine, would the world change in the ways in which we aspire?” That was a wake-up for me that eventually led to the establishment of a nonprofit organization affiliated with our center, Humin (humin.org), formerly, Healthy Minds Innovations. I became a scientist to help relieve suffering in as many humans as possible. I was getting increasingly uncomfortable with the perfunctory concluding comments in our publications that said something like “This research may help to develop new targets for therapeutic intervention” or some similar statement. I reflected that if researchers really believe their data that well-being can be cultivated, they have

a moral obligation to help disseminate scientifically grounded, evidence-based practices that cultivate well-being, especially in the world today, in which global well-being is in precipitous decline. This led to my founding of our nonprofit in 2014. One of the products we offer is the Healthy Minds Program (https://www.humin.org/wellbeing-tools/app). This app is offered freely and was named by *The New York Times/Wirecutter* as one of the three best meditation apps available for several consecutive years. Moreover, it has become a serious research tool, and there are several randomized controlled trials establishing the efficacy of this program in reducing distress and improving well-being (e.g., Goldberg et al., 2020; Hirshberg, Frye, et al., 2022).

## Six Key Takeaways From a Life of Interdisciplinary Science

### *Read widely*

As a graduate student, my assigned readings were quite narrowly focused on the immediate topics of the coursework. I was a graduate student in the days before the internet, when people actually went to libraries. I fondly remember spending hours in the Countway Library at Harvard Medical School. I would wander among the journals and pick up random issues in fields way outside of my main field and would relish these moments! I am not sure how to recreate this in the digital age, but I would encourage young scientists to scan the literature beyond your immediate major professional journals. Researchers now have excellent tools to help them find things, and I would encourage you to read broadly, especially the basic behavioral and neurobiological research on emotion. Although I have some ethical qualms about some animal research (this will be saved for another occasion), nevertheless, given that there are relevant data that bear on the questions in which researchers are interested, I would encourage you to read the relevant literature.

On the other side of this broad continuum, the contemplative traditions are vast repositories of useful insights on virtuous qualities of the mind and body, and for individuals with interests in these topics, I would encourage you to reach beyond the traditional scientific literature on these topics. In our Center for Healthy Minds at the University of Wisconsin-Madison, one of our core faculty is an eminent Buddhist scholar who is deeply familiar with these traditions and has coauthored various articles on the integration of modern science and contemplative wisdom (e.g., Lutz et al., 2008).

### *The brain is embodied: Do not be neurocentric*

Having suggested that virtually all forms of psychopathology involve some abnormality or dysregulation in emotion, it is critical to recognize that emotions are embodied and that they involve alterations in both the brain and the body. We were one of the first groups to systemically measure both the brain and body together. We pioneered in the measurement of both cardiac function (Dalton et al., 2005; Lutz et al., 2009) and electromyography (Heller et al., 2011, 2014) in the scanner and related these measures to ongoing blood-oxygen-level-dependent signals derived from functional MRI. We also conducted many studies in which we examined the peripheral physiological correlates of individual differences in neural activity related to affective style (Burghy et al., 2012; Urry et al., 2006). This has helped to characterize the full range of biological change that accompanies emotion.

### *Mechanisms can be studied in the context of intervention research*

A lot of clinical-psychological science is focused on cross-sectional studies of psychopathology. It is essential both for the mental health of society and to advance clinical-psychological science that more intervention studies be conducted. Suffering is ubiquitous, and new solutions for mental-health challenges are desperately needed. Moreover, virtually all empirically supported forms of psychological treatment were developed before neuroscience, before any real understanding of the brain, for example, cognitive-behavioral therapy. New interventions that harness the understanding of the brain are critically needed. I have called for the development of neurally inspired behavioral interventions: behavioral interventions informed by the understanding of the brain. There are not very many examples of such developments, although the work of Liz Phelps on memory reconsolidation stands out as an important exception (Phelps & Hofmann, 2019).

### *Do not be deterred when you are told "No, it is too ambitious"*

I have received this feedback at several points in my career, and I have also observed my trainees getting this same kind of feedback. In our work on asthma mentioned above, Melissa Rosenkranz submitted an F31 predoctoral-fellowship application on this asthma work, and the major feedback she received was that although it was highly innovative work, it was way too ambitious for a graduate student. We obtained foundation funding to procure the

necessary support to begin this work without NIH support, and this led to our first *PNAS* article (Rosenkranz et al., 2005). Melissa is now the principal investigator on an NIH R01 to continue this work. So the important message here is to be tenacious, to not be detracted by skeptics, but obviously pursue rigorous science.

There are many other instances in which we received an initial "no" in response to a request or proposal. This has often occurred in the institutional context, in which we are told that we simply cannot do something a certain way. This has always been an invitation to explore alternative routes to getting whatever we need accomplished. This leads to the next recommendation.

### *Do not put a lot of energy into pushing against obstacles; find ways around them*

This is really a key form of administrative advice. There are often reasonable work-arounds that allow you to accomplish what is needed with much less resistance if you can skillfully navigate and find ways around an initial obstacle. My career has been replete with these obstacles and opportunities. One of the important corollaries here is to work with staff who believe in your mission and are deeply knowledgeable of the administrative systems in your institution. Such knowledge and dedication is essential in navigating academic environments.

### *Good collaborators are precious: Treat them well*

When you find a good collaborator with whom you are well aligned and compatible, celebrate! It is rare to find such a collaborator, and such collaborations can often result in highly novel and productive science. Over the course of my career, I have been blessed with a series of amazing collaborators that continues to this day. These collaborations are what enables the work to be highly interdisciplinary and allows the research to include measures and approaches that might have seemed unimaginable earlier in my career. Some of the key collaborators were Ned Kalin, Carol Ryff, Giulio Tononi, Bill Busse, Jo Handelsman, Andy Alexander, and Doug Dean, all at Wisconsin, and many others outside Wisconsin, including Jerome Kagan, Ken Hugdahl, Paul Ekman, Stephen Kosslyn, Antoine Lutz, Perla Kaliman, Bruce McEwen, Tor Wager, Greg Miller, Tom McDade, Roz Picard, John Gabrieli, Elissa Epel, Laura Kubzansky, Cliff Saron, and many others. And finally, the graduate students and postdocs who I had the privilege of mentoring, many of whom are now leaders in affective and clinical neuroscience, are a true blessing. They are an extraordinary group, and it has been an honor to work with these trainees and to observe their careers flourishing.

## Conclusion

Highly interdisciplinary clinical-psychological science is what I would argue is a necessity to make genuine progress in advancing the science of mental health. I believe that radical interdisciplinarity is required at this stage in the field's work, especially as researchers begin to focus more on mental health in addition to mental illness and develop strategies to promote flourishing and not simply to relieve symptoms. It is my genuine hope that the short reflections above be of some value to younger scientists as their careers evolve. With the advent and massive dissemination of digital technologies, which are, in part, responsible for the challenging times in which people find themselves, researchers can also harness their potential for the good. The opportunity to scale human flourishing is more available and more necessary today than at any other time in human history.

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