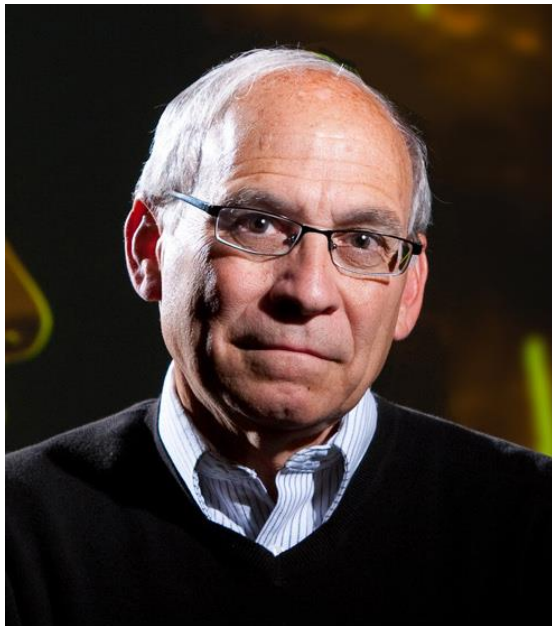




## Staying Forever Curious in a World of Ideas

Richard E. Mayer



It seems presumptuous for me to offer advice to others, so I have framed this essay as advice to my younger self, based on what I think I have learned through my 40+ years of experience in academia. Thus, the goal of this essay is to share what I have learned over the decades that I wish I would have known when I started down this journey.

### Beginnings

Let me start by providing some context about how I got started down this road of academic life. I had the good fortune to grow up in a stable home with loving parents and brothers, in a predominately Jewish enclave of Cincinnati. In that home, I learned the Midwestern values of hard work,

modesty, and honesty and the Jewish values of a love of learning and a craving for social justice. My dad was an industrial psychologist – one of the first to open a private practice in the city – and my mom focused on raising her three sons and helping out in my dad’s office. My parents supported my curiosity by allowing me to set up a science lab in the basement, a proud display of all our nation's space rockets in my bedroom, my various gardens and mini-arbors in our backyard where I investigated plant life, my outdoor digging hole where I investigated life below the earth's surface, and so on.

My neighborhood of Roselawn was a self-contained and seemingly safe world--a Jewish community with its own brand new Jewish Community Center. Roselawn seemed to have everything we needed and certainly was where I spent almost all of my childhood. We walked to school, played baseball in the street, bought candy and comics at the corner drug store, took books out of the neighborhood library, and felt free to ride our bikes all around the place. All through elementary school almost everyone I knew was Jewish, and even through high school, most of my social life involved Jewish friends. The one non-Jewish kid on my block was not allowed to play with us by his parents and was sent to a parochial school. Finally, in college, my world opened a bit more and gave me the chance to develop deep friendships with a diverse group, mainly through my interests in campus and national politics and my role as a student leader in student government. That world where I spent my childhood no longer exists, and seems quite different from the life my children experienced in California.

I am a product of public education from kindergarten through graduate school. Through this experience, I developed a strong belief in the positive role that public education can play in our society, and I have served for more than 40 years as an elected member of my local school board in Goleta, California (image of recognition pin below).



For 13 years, I attended Cincinnati Public schools--first, Roselawn School from Kindergarten through 6th grade, where almost all of the students were Jewish but almost none of the teachers were, and then I attended Woodward High School from 7th through 12th grade, where I was put in the top academic track and received a top-notch STEM-focused education. Both schools have since been torn down. Then, I traveled 35 miles north to Oxford, Ohio where I attended Miami University – the most academically demanding public university in the state as far I am concerned – where I changed majors from Business to Economics to Psychology over my four years in residence. I still remember being in awe of an entire city devoted to learning, and of being allowed into a world of ideas--as well, of course, as enjoying all the fun of living in a college town. It is there that I came to think about the purpose of a university as a place for producing, storing, and disseminating knowledge. As a child, I had assumed that all knowledge was already in books, but in my college world I could see that people can actually create new knowledge. I knew that somehow I wanted

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to be part of that effort to produce new knowledge as a way of changing the world for the better.

### What I Have Learned

I started graduate school in the Department of Psychology at the University of Michigan in the Fall of 1969, a tumultuous year in our country and a life-changing year for me. I mark this event as the formal start of my continuing quest to contribute to the science of learning (i.e., the scientific study of how people learn), the science of instruction (i.e., the scientific study of how to help people learn), and the science of assessment (i.e., the scientific study of determining learning outcomes and learning processes). Here are some of things I needed to learn to support my journey.

**Stay forever curious.** My education helped me develop the skills of scholarship, including how to keep up with the literature by carefully reading articles and books, conscientiously attending lectures, and communicating with colleagues, which I call the 3Cs, but I soon realized that was not enough. I also needed a reason to do so. For me, the solution to this problem is to embrace questions that I feel passionate about, because my curiosity is the source of the motivation I would need to fuel my journey. That motivating question formed in my mind during my first year of graduate school: I wanted to know how meaningful learning works. Specially, how can we help people learn in ways so they can take what they have learned and apply it to new situations? In sum, in my naïve approach to my graduate career, I had the audacity to think I could single-handedly solve the long-standing issue of transfer, which has been at the foundation of both psychology and education for generations, and that I could do so by the time I earned my degree. It turns out, however, that some version of

this question has been driving my career ever since I started graduate school. In academia, I found a world in which I can flourish, where I can embrace questions I care passionately about, where I get a chance to discover, to learn and to teach, and in short, where I can stay forever curious. My acquired wisdom is to hold on to and nourish that burning desire to discover.

**Believe in yourself.** Graduate school can be a humbling experience. It sure was for me. I was surrounded by people who seemed to know a lot more than I – and I am just referring to my fellow classmates. Of course, it was all the more intimidating to be in contact with brilliant professors who were internationally-respected experts in their fields. As a first-year graduate student, it was very easy for me to question my competence, but through my four years at Michigan, I found I could come up with research ideas, develop research plans, carry them out, and even get a paper accepted, albeit with the much-appreciated mentoring of my advisor, Jim Greeno. I found I could jump through each hurdle in the graduate program ahead of schedule and that I even enjoyed teaching.

**My acquired wisdom is to hold on to and nourish that burning desire to discover.**

Through a string of mini-successes, I was able to develop the self-efficacy I needed to complete my PhD. However, as I entered my first (and only) tenure-track job at the University of California, Santa Barbara (UCSB), (image below) I was again struck by the nagging question of whether I could actually become an academic. I knew I loved research and teaching, and I wanted to contribute to my field, so I decided all I could do was to give my all. I decided to come in every day and work as hard as I could. Eventually the positive feedback started trickling in: students wanted to work in my lab with me, colleagues wanted to talk with me at conferences, journals (sometimes) started accepting my papers, funding agencies (after many failed attempts) started supporting my research, I was asked to be on editorial boards, I developed new courses that students seemed to appreciate, I was asked to take on leadership roles on campus and in professional organizations, and so on.





My self-efficacy got a major boost when my very first submitted article manuscript was accepted with minor revision in the *Journal of Educational Psychology*, by then-editor Joanna Williams. I have received many rejections since then, but I will always savor that first glimmer of possible success. Another boost came in response to my first teaching assignment, which involved the daunting task of teaching two sections of a 250-student Introductory Psychology course. I discovered I could design and deliver lectures in front of all those students, feel the satisfaction of actually having an impact on students, and even achieve good teaching evaluations. This experience cured me forever of being afraid to talk in public. The road to self-efficacy is a long one, but I have found that believing in myself has been an indispensable asset. My acquired wisdom is to believe in yourself.

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**Remember who you are.** My education instilled within me the desire to contribute to our field by publishing in journals and books, presenting at conferences and colloquia, and participating in professional organizations, which I like to call the 3Ps. However, building a curriculum vitae is not enough, because I came to appreciate the need to do my work with integrity and intellectual honesty. This involves treating everyone I encounter with respect – including students, colleagues, and the stream of email inquirers – and honestly trying to understand and value their ideas. This also involves providing fair and honest reviews and evaluations when asked to do so, including being able to admit flaws in my own work. Early in my career, I drafted a research paper in which I bashed the work of a well-known leader in our field, but before submitting the paper I caught myself and decided on a lifelong policy of never

building my career through denigrating the work of others. That turned out to be a useful policy for me, when a strong and encouraging review came back for my submitted paper signed by that well-known leader in our field. My acquired wisdom is to always remember that my most important asset is my sense of personal integrity and intellectual honesty.

### **Cherish your support from home.**

Although my education prepared me with the foundations of research and statistical skills I would need, that was not enough to sustain me in academia. The solution to this problem is to cherish my support from family. I have been blessed to have the support of my family, and especially my wife, who has enabled me to have my academic career. Beverly and I have been married for 50 years, and have the joy of being the proud parents of three amazing kids and the proud grandparents of seven amazing grandkids (whom we call the Magnificent Seven, image below). Over the years, I have benefited from the comfort of family in good times and bad, starting with my parents and brothers, and continuing with Beverly and our growing family. I owe much to my support from home. My acquired wisdom is that family comes first.



**Recognize you are part of a larger effort.** My personal view of science that I developed in graduate school was to see myself busily working in my lab, perhaps with a student or two at my side. What I have come to realize is that the science we do is a collaborative effort. It is not just an intellectual effort; it is also a social enterprise. My first grant – awarded shortly after I started a temporary faculty job at Indiana University as a newly minted PhD – was a small grant (\$5000 total) awarded to me by the National Science Foundation. It supported a project in which I was the sole researcher, and was based on my initial misguided image of myself as doing science in solitude. This was, after all, based on my experience as a graduate student in which I enjoyed working on my own, under the ever-helpful mentorship of my advisor, Jim Greeno. However, in the years to come, I found that most grants were multi-disciplinary efforts that gave me the benefits of working with colleagues in other fields such as Education, Computer Science, or Engineering.

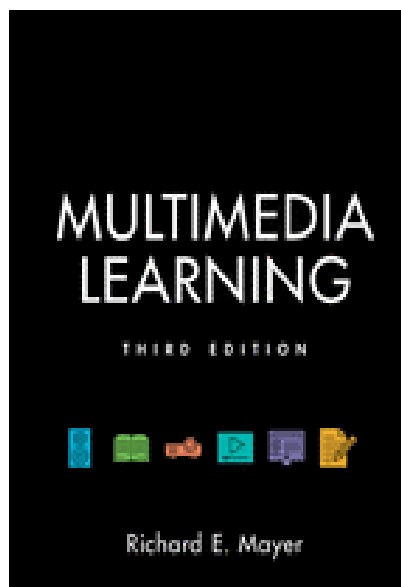
I also have enjoyed the privilege of working with colleagues from my own campus, from around the United States, and from around the world, including international visitors to my lab from Australia, Brazil, Chile, China, Denmark, Finland, Germany, Japan, Mexico, the Netherlands, South Korea, Switzerland, Turkey, and the United Kingdom. In most of my research publications, I am part of a larger group that has made the work possible and helped me expand my horizons. I have learned to see myself as part of a larger team all directed towards understanding how learning works. This effort extends beyond the confines of my lab to cover the globe and extends beyond the latest articles to include a rich past and an exciting future. Thus, I have learned to respect those who

**... I have learned to respect those who came before, support those who are in our field now, and mentor those who will be the leaders in the future.**

came before, support those who are in our field now, and mentor those who will be the leaders in the future. My acquired wisdom is that research is a team effort, so I am always on the lookout for good teammates.

**Cultivate a productive lab.** An important extension of the foregoing focus on science as a social activity is the indispensable role that students play in my research life. Over the years, I have had the privilege of working with a talented stream of over 30 PhD students. Learning to be an effective mentor has been a career-long journey, in which I tend to be somewhat heavy-handed, e.g., meeting with each student on a weekly basis, holding weekly research group meetings, providing detailed feedback on written work, and encouraging students to disseminate their work in original research articles and presentations. Spending time with my students gives me a chance to talk about and think about research ideas and theoretical questions, and helps me grow. I have come to realize that graduate students are most successful when I encourage them to pursue their own research passions, while I provide support and guidance to keep their research on track and feasible.

The opportunity to work with and publish with my students is a highlight of my research career, and the chance to see them achieve success after graduating gives me much joy. My acquired wisdom is to cultivate a corps of students who are at the heart of a productive lab.



**Don't read your own press releases.**

From time to time, my university's public information officer writes glowing press releases about me and our latest work. Although it is always nice to feel appreciated, I have learned to not spend too much time gloating over these glowing reports. Similarly, when a colleague gives a glowing introduction about me before an invited talk, I have learned to not hang on every wonderful word but rather see them as a form of kindness and collegial bridge building. I have learned that we academics can easily fall into the trap of developing a huge ego. Perhaps rooted in my Midwestern upbringing that emphasized modesty, I have tried to avoid this trap – admittedly, not with complete success. I used to think that awards were silly, but after receiving a few, I have come to appreciate them, though I try to interpret them as positive encouragement from my peers. I have learned that I live in a world of ideas and I want to stay focused on the latest ideas that fascinate me. My acquired wisdom is to stay focused on the next set of exciting questions ahead, and to interpret the kind words others have written about me as encouragement to keep going.

**Learn how take criticism.** The flip side of not taking kind words too seriously, is to not take mean words too seriously either. Learning to take criticism is a tough lesson. We academics live in a world full of criticism and rejection in which rejection rates for top journals and funding agencies can reach 90% and reviewer's nonconstructive comments can reach new lows. When I receive a nasty review or an editorial decision I deem as unfair – which occurs on a somewhat regular basis – I try to put the offending communication aside for at least 24 hours. I try to tell myself that reviewers and editors are human beings who are trying to do a job – which sometimes involves protecting the scientific world from being exposed to our less-than-best work. Sometimes, I have to admit that a devastating comment is actually warranted, and that I need to change course in my research. Other times, I see that I need to communicate more clearly or find a better

outlet for our work. I have learned to try to extract any useful information I can from the reviews and to not take the hurtful words to heart. My acquired wisdom is to stay focused on answering the research question at hand, while making use of constructive criticism along the way.

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Before I stop, let me give myself a couple of more practical pieces of acquired wisdom for my academic career, concerning the classic issues of time management and goal setting. In school we are taught new facts and concepts, we are taught new procedures and strategies, and we are taught the standards and rules of school life. However, I have found that I also needed to learn how to be a successful scholar, including the core issues of how to set achievable goals and how to use time efficiently.

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**Set realistic goals.** A practical aspect of academic life is how to set and manage realistic goals. Over the years, I have come to rely on hand-written to-do lists that I keep in a prominent spot on my desk and update on a regular basis. My list has three sections: scholarly tasks (e.g., the names of papers being prepared or ongoing experiments), professional tasks (e.g., letters of recommendation or journal reviews), and personal tasks (e.g., home projects or correspondence). This master list – all on a lined sheet of yellow paper – is my external long-term memory. I end each work day by constructing a shorter rank-ordered list for the next day, with must-do items circled. This one-day list – usually written on a small piece of scratch paper – is my external short-term memory.

I love the thrill of crossing off lines on my list, and when there are many cross-offs, I create a new, clean long-term list. I also enjoy adding new items to my list that represent new challenges for me. I hope these occasional new challenges will expand my competence, but I understand that they might not end as planned. Finally, as a sort of cross-cutting reminder for my external long-term memory, I write all my appointments and due dates in an old-fashioned pocket-sized monthly calendar book (currently my trusty *At-A-Glance 2021-22 Monthly Planner*). This allows me to see everything for each month on a single 6-inch by 7-inch calendar, including my class meetings marked in yellow highlight. These devices help me plan to close out certain tagged projects by the end of the day or the end of the week or by a marked date on my calendar. When I have my tasks written on these external media, my real working memory can work on the task at hand. A new project usually starts life as handwritten notes on sheets that clutter my desk, then moves on to earning its own labelled file folder in an expanding file for ongoing projects; and when it becomes complex enough, the project may get its own expanding file with multiple file folders for component tasks.

I have learned to set realistic goals – such as trying to write just a few pages per day when I am working on a writing project – and to prioritize tasks based on their importance and deadlines. My most hard-learned lesson is to know when to cut my losses, that is, to know when to move on to a new project when I realize the one I am working on is not going anywhere. In short, my acquired wisdom is to develop a system for setting and managing worthwhile achievable goals for myself – both on a daily basis and a long-term basis – and to not rest until I meet them.

**Use time efficiently.** My graduate training prepared me with a lot of academic knowledge, but did not give me much guidance in how to manage my academic life. It is fine to have a list of things to do,

but I also needed to be able to actually get things done. I soon found there are many demands on my time – including fundamental aspects of my job such as research, teaching, professional activities, and service, as well as ever-present basic tasks such as replying to emails, working with students and mentees, and communicating with colleagues.

I have learned that time is a precious resource and I need to spend it wisely – especially giving people I am working with the time they deserve. For me, using time efficiently involves segmenting my day into targeted periods – usually using the morning for writing, reading, and thinking; lunchtime for talking with lunch buddies or attending lunch seminars or just spending time outdoors; the afternoon for meetings, teaching duties, administrative duties, and professional duties as well finishing up short-term tasks; and the evening for dinner with my wife, dog walks, and relaxation. I try to use weekends for keeping up with family, journal reviewing (as I am on more than dozen journal editorial boards), book reading, and outdoor recreation. I try to have a firm work-home boundary, so that time at home is not just a continuation of my work day. In short, my acquired wisdom is to segment the time of the day (and week) into distinct periods for different activities.

**I try to have a firm work-home boundary, so that time at home is not just a continuation of my work day.**

## Conclusion

I certainly entered academic life with an underdeveloped and naïve view of what was to come. In this essay I have tried to give my younger self 10 nuggets of acquired wisdom for how to live an academic life based on what I have learned since starting graduate school in 1969. If any of these 10 observations makes sense to you, I will consider this exercise to have been a success.





## About Acquired Wisdom

This collection began with an invitation to one of the editors, Sigmund Tobias, from Norman Shapiro a former colleague at the City College of New York (CCNY). Shapiro invited retired CCNY faculty members to prepare manuscripts describing what they learned during their College careers that could be of value to new appointees and former colleagues. It seemed to us that a project describing the experiences of internationally known and distinguished researchers in Educational Psychology and Educational Research would be of benefit to many colleagues, especially younger ones entering those disciplines. We decided to include senior scholars in the fields of adult learning and training because, although often neglected by educational researchers, their work is quite relevant to our fields and graduate students could find productive and gainful positions in that area.

Junior faculty and grad students in Educational Psychology, Educational Research, and related disciplines, could learn much from the experiences of senior researchers. Doctoral students are exposed to courses or seminars about history of the discipline as well as the field's overarching purposes and its important contributors. .

A second audience for this project include the practitioners and researchers in disciplines represented by the chapter authors. This audience could learn from the experiences of eminent researchers – how their experiences shaped their work, and what they see as their major contributions – and readers might relate their own work to that of the scholars. Authors were advised that they were free to organize their chapters as they saw fit, provided that their manuscripts contained these elements: 1) their perceived major contributions to the discipline, 2) major lessons learned during their careers, 3) their opinions about the personal and 4) situational factors (institutions and other affiliations, colleagues, advisors, and advisees) that stimulated their significant work.

We hope that the contributions of distinguished researchers receive the wide readership they deserve and serves as a resource to the future practitioners and researchers in these fields.





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