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INTERVIEW

An Interview with Kenneth A. Kiewra

Daniel H. Robinson [1]

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Kenneth Kiewra is professor of educational psychology at the University of Nebraska. During is 38-year career, Kiewra has conducted pioneering research on note taking, the SOAR Teaching and Learning Method, and talent development. In this interview, Kiewra discusses his research program, crystalizing experiences that led him to educational psychology, graduate training, career moves, and major influencers. He also weighs in on the state of teaching and learning and the journal review process and offers readers advice culled from his research and experiences. This interview is personal for me because it was Ken who drew me into the learning area through a course he taught at Nebraska, which is where I earned my Ph.D. in 1993 with Ken as my advisor. We have been colleagues and close friends since. I stood with Ken at his wedding, we were softball teammates, and our yearly visits are fun-filled with cycling, tennis, basketball, food and drink, and talk of educational psychology. Now I have the honor of sharing Ken's experiences and wisdom with you.

DR: Educational psychology is not a domain of which most people are aware. How did you first become interested in pursuing educational psychology?

KK: As a talent researcher, I'm interested, in part, in how chance plays a role in one's introduction to a talent domain. If Martha Graham, the child, does not one day see a poster announcing a dance recital and her father not take her to that recital, perhaps she never becomes a world famous dancer and choreographer. If Bobby Fischer's mother does not move from Arizona to New York City in the 1950s when Bobby was a child and if Bobby's older sister does not one day purchase a plastic chess set for her and Bobby to play, perhaps Fischer never pushes a pawn, perfects his game practicing with New York City grandmasters, or become the only American world chess champion. And, perhaps if I was not rejected from my first college choice and if my parents did not visit Oneonta College on a weekend trip to upstate New York, I would not have become

✉ Daniel H. Robinson
daniel.robinson@uta.edu

[1] College of Education, The University of Texas at Arlington, 504 Hammond Hall, Arlington, TX 76019, USA

an educational psychologist. It seems that chance events sometimes create these crystalizing experiences that send people on their way.

DR: Describe your crystalizing experiences.

KK: When my parents returned from that weekend trip, they said they had visited the Oneonta campus and thought I would like it. It was about five hours from home (neither too far nor too close), was surrounded by picturesque hills, and had lighted tennis courts. "Good enough," I thought. I applied, was accepted, and attended. My college experience began a bit like Animal House, minus the toga parties—okay, there were toga parties. I recall, for example, going into my meteorology final freshman year with a solid B but ending up with a flimsy D in the course. "How did this happen," I asked the professor. His curt reply: "You got an F minus, minus, minus on the final. Perhaps you were under the weather." "Yeah, like meteorologists are always right," I thought.

Thankfully, I had two crystalizing experiences that lifted the fog and propelled me toward educational psychology, experiences I would not have likely had anywhere else. The first occurred during my second year. I was an English education major and needed to fulfill requirements in educational psychology. This led to me taking developmental psychology with Professor Dennis Hocevar. The course was super interesting and wonderfully designed in line with educational psychology principles. For instance, there were clear learning objectives and opportunities to retake alternate-form exams, things I had never experienced before. Fortunately, I never needed the retakes. I shockingly scored 100% on all eight exams. When the course ended, Professor Hocevar wrote me an unexpected note that said, "Great work in the class. Please let me write you a letter of recommendation for graduate school." "Graduate school?" I thought, "What's that?"

A year later, I took another required educational psychology course, this one on learning and instruction, from Professor Nelson DuBois. The first day, Professor DuBois told the class, "By definition, educational psychologists should be among the best instructors on campus. They should apply educational psychology principles guaranteed to help them teach effectively and to ensure that students learn." It did not take long for me to realize that Professor DuBois did that…and more. His lectures were spell binding, delicious, infectious. His delivery a model for prospective teachers. He was undeniably the best instructor on this campus, any campus, I thought. Almost immediately, I knew I wanted to know what he knows, do what he is doing. I started auditing his other classes while not even attending some of my own. I was on an educational psychology rampage.

DR: But, you did not go directly to graduate school, you became a third-grade teacher on Long Island where you were raised. Why was that?

KK: Becoming a teacher had long been a career goal, and I was still hungry to fulfill that goal. I was also eager to apply the educational psychology principles I learned in college in an actual classroom. Moreover, Professor DuBois told me that teaching experience now would open doors later when I applied to graduate schools and applied for academic positions. My plan was to teach for a couple years and then go onto graduate school.

DR: You went to graduate school at Florida State University two years later. Why did you choose FSU?

KK: Following the advice of Professor DuBois, I chose about eight to ten strong programs in educational psychology throughout the U.S. and sent out applications that naturally included recommendation letters from Professors Hocevar and DuBois. I contacted those that accepted me and asked for a teaching assistantship. I wanted to do what I saw Dr. DuBois doing. Several said they'd try later to arrange funding as a teaching or research assistant, but only FSU guaranteed me a teaching assistantship on the spot. I would be teaching the same course I had taken from Professor DuBois that propelled me toward educational psychology. FSU was already atop my list because of its national reputation in instructional design and because Robert Gagne', the father of instructional psychology, was an FSU professor.

DR: Tell us about your time at FSU.

KK: Well, it was relatively brief. I graduated with my Ph.D. in less than three years. My biggest influence, by far, was my advisor, Dr. Harold Fletcher. When I arrived on the FSU campus, I had no housing and no plan. Dr. Fletcher and his wife graciously invited me into their home until I found an apartment. They were certainly eager to help. Dr. Fletcher showed me the newspaper each morning with suggested apartment options circled.

Fletcher was also my teaching supervisor, and he gave me a lot of room to figure things out on my own. I chose the text (a text Dr. DuBois co-authored) and took full responsibility for the course from Day 1. The only teaching advice I recall came from the department chair, Ken Brewer, who said: "Don't be up there itchin' and a scratchin' like some dang baseball player." I did get a call from Professor Gagne' one day who asked if it would be okay for him to visit my class and talk about the topic of his famous book, *Conditions of Learning* (Gagné 1965). I was living the dream.

Well, sort of. I recall Dr. Fletcher having his advisees to his house one evening early in the first quarter so that his seasoned graduate students could tell the newbies about their research. Naïve as dirt, I had no idea that educational psychologists conducted research. I thought they simply taught educational psychology. I never gave much thought to where those teaching and learning principles came from. That evening, I was deluged with alien talk of Latin-square and nested designs, ANOVA and non-parametric statistics, federal grant agencies, and informed consent. "Gulp." This wasn't what I signed on for. When I spoke to Dr. Fletcher in his office later that week and told him I was thinking about dropping my Ph.D. aspirations in educational psychology in favor of a masters in instructional design (a more applied branch of educational psychology), he calmly filled his pipe, struck a match, inhaled quickly several times to fan the flame, took a long draw from the pipe, exhaled, and smugly said: "Instructional designers depend on the theories and research of educational psychologists to know how to aid learning and instruction. It is the educational psychologist who advances new knowledge." I was unfazed. Another puff and exhale and then, "If you switch programs, you'll never be able to call yourself an educational psychologist." Bam. This blow struck a nerve. I never questioned my educational psychology calling again.

In the ensuing quarter, I could no longer avoid the alien world of research, and Dr. Fletcher guided my first class in statistics, analysis of variance. It went well. My fear of statistics was allayed, but something even more important and surprising transpired. Because of Dr. Fletcher's offbeat teaching methods, I discovered my first and lasting

research topic: note taking. Here's the story. The first day of class, Dr. Fletcher outlawed note taking. He believed that note taking diminished student thinking and involvement. He wanted active, engaged learners. He also believed that students needed notes to study later for tests and as a reference when conducting research. Toward this end, he provided the class with a set of notes he prepared following each lecture. Most students were enamored with this arrangement—they could kick back and simply listen to the lecture but still have complete notes for review. Not me. I was a voracious note taker who was twice named Note Taker of the Year Runner-Up in college. So, I abandoned my front-row seat, retreated to the room's back row, and became a clandestine note taker—scribbling feverishly on a small lap-supported note pad when Fletcher looked away. Incidentally, I suppose this made me the first "laptop" note taker. One day, emersed in my note taking, I did not realize that Dr. Fletcher had slipped behind me and was watching me take notes. "Mr. Kiewra, are you taking notes in my class?," he chided. Caught pen-handed, I could only lie, "No, I'm writing a note to a friend back home." Dr. Fletcher chortled and said, "How nice of you to tell him about omnibus testing." This experience led to my conducting two note-taking studies that were the basis of my qualifying paper into the doctoral program and four more note-taking studies that were the basis of my dissertation, with Dr. Fletcher advising me every ANOVA of the way (e.g., Kiewra and Fletcher 1984).

Dr. Fletcher did something else that shaped my career. He taught me how to write…or at least write better. Although I was an English Education major in college, I evidently lacked writing skills. English Education majors must pass the English Writing Exam while in college in order to student teach and to later be certified. Three times I took the exam and failed it, failed it, failed it. Perhaps I was under the weather, weather, weather. I even had an English professor who was on the Writing Exam Committee tell me prior to my last attempt, "It's good to anticipate writing topics and practice writing essays beforehand on that topic, say, for instance (wink, wink), 'the pros and cons of a liberal arts education.'" Nope. Still failed.

In graduate school, as I composed sections of my qualifying paper and later my dissertation, Dr. Fletcher invited me to his house to review and revise those sections. But, here's the thing: He did not read my work in advance. He had me read it aloud to him. "What, I have an advisor who can't read?" I thought. He'd light his pipe, lean back in his chair, close his eyes, and carefully absorb both my ideas and their expression until he found something troubling and stopped me in my tracks. "Stop. Wrong word. You mean eager not anxious. Eager means desiring; anxious means nervous." "Stop. Your sentence lacks parallel structure. If you say, 'derived from theory,' then later say, 'derived from research.'" "Stop. Use the active voice rather than passive voice. Say, 'researchers sounded the alarm' rather than 'the alarm was sounded by researchers.'" As Dr. Fletcher healed my broken writing sentence by sentence, I gradually became a writer. Throughout my career, I've tried to help my students improve their writing in much the same fashion.

DR: I'm sure you will remember that you came over to my small apartment when I was writing my dissertation and sat with me at my Mac Classic computer with the nine-inch screen and helped me build my sentences. Best writing help I have ever received. Tell us about your first academic position, which was at Kansas State University (KSU).

KK: In my final year at FSU, I applied for a dozen jobs, maybe two dozen. I remember Dr. Fletcher counseling me to slow down and to only apply to major universities where research was emphasized. He said that working at a small college with a big teaching load would quash research productivity and hinder my moving to a university position later. Now was the time to choose wisely he advised.

Not that there would be much choosing. My CV was publication bare. Although I had conducted six note-taking experiments and written a literature review while in graduate school, I graduated with zero publications. Dr. Fletcher had counseled me to move through school quickly, saying: "You might as well get paid for what you're doing anyway." My CV, though, did contain a wealth of teaching experiences and a single line about being a marathon runner. An FSU professor had encouraged me to add something seductive to my CV likely to arouse interest. He credited his "former circus performer" CV line to sparked interest in his applications and to comfortable interview ice breaking when hiring committees asked about his curious circus background.

Kansas State University summoned me for an interview. My first trip to the Midwest was punctuated with a harrowing flight on a four-seat, prop-propeller plane from Kansas City to Manhattan, KS that jumped like checkers above the crop squares below. I arrived drenched in sweat. It turns out that one search committee member was also a dedicated runner who peppered me with running questions and led me on a sunrise run in the Flint Hills. Did my running background help me land this job? Perhaps so.

Once at KSU, I began publishing my previous work and conducting new note-taking studies. Between 1983 and 1987 (I left KSU in 1986), I published 18 articles. This surprised me. Not for a moment did I imagine this level of productivity when I was hired. Perhaps the selection committee foresaw more than teaching and running when they offered me the position. Among these 18 publications, five were with my KSU colleague, Steve Benton, who was hired one year after me (e.g., Kiewra and Benton 1988). To this day, he remains my most influential colleague. Benton was a disciple of John Glover at Nebraska. Glover taught Benton and his other charges how to be productive. "Write six pages every day," Glover reminded his students daily. Benton's expertise in experimental design and statistics were unmatched and his craving for research infectious. It was Benton who hoisted me onto the research bandwagon and held the reins. And, more importantly, he made it a fun ride. Fashioned after the popular movie Ghostbusters, Benton called us Data Busters. He even made us a line-through-the-word-data insignia to signify it. He'd joke, "Professors, are you feeling sick and need to miss class? Don't cancel. Who you gonna call? Data Busters. Don't send those students home. We'll be there in a jiffy to collect some data."

DR: You were at KSU four years. Why did you leave?

KK: KSU lacked a critical mass in educational psychology. There were no graduate students in the learning area, leaving Benton and me fairly isolated. So, in my fourth year, I applied elsewhere and was invited for interviews at four universities. Part of the reasoning for applying was also seeing if the grass was greener elsewhere. I imagine most academics wonder this at some point.

DR: How is it that you chose Utah State?

KK: Logan Canyon. Just as I had never set eyes upon the rolling plains before arriving in Kansas, I had never viewed the majesty of the Rocky Mountains before setting foot in Utah. And, what a view I had when Department Chair Blaine Worthen drove me up Logan Canyon, a picturesque and winding 3,000-foot ascent along the Logan River, through the Bear River Mountains, past dense forests, and eventually above the tree line amid the clouds. Dr. Worthen made me an offer in that splendid, rarefied air: an associate professor position in psychology, a team of graduate students to assist me, a sizeable boost in salary, and Logan Canyon. "Yes!"

DR: Was Utah State a good choice for you? Was there greener grass?

KK: The greenest. First off, I was surrounded by really smart graduate students in psychology hungry to do research. In my two years there, I conducted seven studies with students that were eventually published, three of them in the *Journal of Educational Psychology* (e.g., Kiewra et al. 1988). Second, the support there was fantastic. Dr. Worthen had a new office built for me. It was actually a double office; my graduate assistants occupied the outer part, and I occupied what they teasingly called the inner sanctum. Dr. Worthen also encouraged and supported my first-year tenure application. My next-door neighbor, Bartell Jensen, was the university vice president for research. He and his wife fed me homemade meals and dropped off baskets overflowing with fresh picked raspberries. Bartell and I would often chat outdoors about our lawns or the deer peeling bark from our trees. And, he'd always inquire about my research, telling me to just ask whenever I needed something. Several times, I requested support for research or travel and each time he kindly granted the request. And, toward the end of my first year, I was crossing the quad drinking a milkshake from the Dairy Store when I heard a distant voice calling me. I turned to see my dean, Oral Ballam, a white-haired dynamo, running after me. When he caught up, he wrapped his arm around my shoulder and said, "I'm so glad you're here with us at Utah State." That remains one of the most fulfilling moments of my academic life, and it serves as a reminder for me to appreciate and applaud others. Of course, there was Logan Canyon, Green Canyon, Bryce Canyon, and all the other spectacular canyons that were my running and cross-country skiing havens. Utah State was a tremendous choice.

DR: Then why did you leave after just two years?

KK: Simple. I needed to relocate to the Midwest to remain involved in raising my one-year old son. A job came open at the University of Nebraska, and I was fortunate to land it. I've been there ever since, 32 years.

DR: What were your first impressions of the University of Nebraska?

KK: This was hallowed ground. This was where the legendary John Glover had worked and thrived before heading to Ball State University and dying soon after, killed by a fallen tree. I knew I was not hired to replace Glover; no one could. But occupying his former position, his former office, was inspiring. This was where the mighty Glover churned out scholarly books on learning, development, creativity, and animal training; where he ground out scores of research articles sometimes containing five or six

experiments; where he exhorted graduate students to follow his lead and write at least six pages every day; and where he scolded administrators who forgot a university's true purpose of educating students. I felt compelled to carry his torch as best I could.
Fortunately, I wasn't alone. When I arrived, there were three strong and established colleagues in the cognition, learning, and instruction area with me: Royce Ronning, Ken Orton, and Roger Bruning, a rarity at most universities. We were a strong and united team. Meanwhile, Bruning especially eased my transition to Nebraska and my progress thereafter, guiding and mentoring me until his retirement just a few years ago.

DR: That is a strong educational psychology cohort. I should know. I left Arizona State University to work with you at Nebraska, which was one of the best programs in the country at the time. Can you explain how it evolved to where it is today?

KK: After Orton and Ronning retired, we filled one position with Gregg Schraw, who had just graduated from the University of Utah. Schraw, as most readers know, became a preeminent educational psychologist at Nebraska. When Schraw left Nebraska for UNLV ten years later, we hired Doug Kauffman, another outstanding and productive scholar who was, I'm proud to say, trained in our program. When Kauffman left for the private sector, Bruning and I were the last of the mainline educational psychologists remaining in the department and throughout the university. When Bruning retired recently, the administration seemed ready to add another faculty member in our area, but budget cuts interrupted that and now the cavalry seems a long way off. I'm not sure if the learning, cognition, and instruction staff reduction we have experienced at Nebraska is trending among other higher education institutions, but I'm sure that insufficient expertise in this area is a serious detriment to colleges and universities where the primary objective should be student success. That's my inner-Glover growling.

DR: You've certainly had a long career in Nebraska. What's stood out for you about working there?

KK: Autonomy. I have had the freedom and support to carve my own path. For instance, all the courses I teach or supervise, I developed. I supervise 18 annual sections of a university-wide learning strategies course called Strategies for Academic Success. I teach a college-wide course called Teaching Learners to Learn. And, I teach three different courses on talent development: one for graduate students, one for Honors students, and a university-wide mini course for undergraduate students. For five years, my department supported my directing the university's Academic Success Center, where we offered programs that helped students succeed academically. And, the department had my back when I was appointed editor-in-chief for *Educational Psychology Review*, allowing a course release and administrative support for that.
The other thing that stands out is the students. We've had a fantastic run of students grace our program and become the next generation of learning, cognition, and instruction scholars. People like Doug Kauffman, Brent Igo, Matt McCrudden, Rayne Sperling, Patti Gubbels, Abe Flanigan, Linlin Luo, Amanda Witte, Dharma Jairam, Duane Shell, Terri Flowerday, Steve Lehman, Sharon Zumbrunn, and many others, including you, Dan Robinson. We're so proud of all of you. And, it is the students who have been my

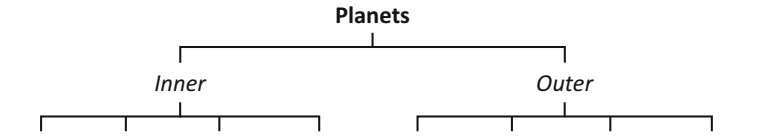
primary collaborators. I recently did a count and found 123 student co-authors on my publications and 201 student co-authors on my conference presentations. In many cases, it was the students who led these investigations and helped me cut new paths in my own thinking and research.

DR: Let us talk about those investigations. Tell us about your research program.

KK: My research program contributes to the science of teaching and learning and has four related prongs. The first prong is note taking, which, as I said, began in graduate school and continues today. My note-taking studies have addressed topics such as:

- Note taking and achievement (Kiewra 1984).
- Instructor-provided notes (Kiewra 1985).
- Borrowed notes (Kiewra et al. 1991a).
- Review questions and note taking (Kiewra and Benton 1985).
- Repeated lecture presentations and note taking (Kiewra et al. 1991b).
- Advance organizers and note taking (Kiewra et al. 1997).
- Organizational lesson cues and note taking (Titsworth and Kiewra 2004).
- Copy-and-paste note taking (Igo et al. 2008).
- Essay writing as a form of note review (Kiewra et al. 1995).
- Note revision (Luo et al. 2016).
- Laptop versus longhand note taking (Luo et al. 2018).

My note-taking research took a turn in the late 1980s when Nelson DuBois, my educational psychology college professor, and I began studying graphic organizers as note-taking tools (Kiewra et al. 1988)—my second research prong. Graphic organizers are spatial representations that reveal important relationships with just a glance. Looking at the Fig. 1 planets organizer, we immediately notice that as planets move farther from the sun, revolution time increases and orbit speed decreases. That one relationship encompasses 24



	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune
Miles from the Sun:	36 million	67 million	93 million	142 million	483 million	886 million	2 billion	3 billion
Revolution Time Around the Sun:	3 months	8 months	1 year	2 years	12 years	30 years	84 years	165 years
Orbit Speed (Miles/Second):	30	22	19	15	8	6	4	3
Diameter (Miles):	3,000	8,000	8,000	4,000	89,000	75,000	32,000	31,000
Surface:	Rocky	Rocky	Rocky	Rocky	Slushy	Slushy	Slushy	Slushy
Moons:	0	0	1	2	17	22	15	6
Rotation Time:	59 days	243 days	24 hours	25 hours	10 hours	11 hours	16 hours	19 hours

Fig. 1 Planets matrix

SOAR Example

Select

Framework for Note Taking

Fixed Interval

Definition _____
_____
Example _____
_____
Response rate _____
Extinction _____

Variable Interval

Definition _____
_____
Example _____
_____
Response rate _____
Extinction _____

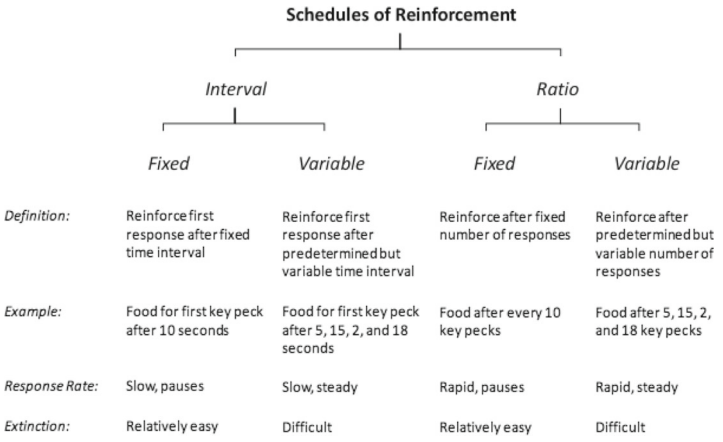
Fixed Ratio

Definition _____
_____
Example _____
_____
Response Rate _____
Extinction _____

Variable Ratio

Definition _____
_____
Example _____
_____
Response rate _____
Extinction _____

Organize



Associate

- Interval schedules are based on time; ratio schedules are based on number.
- In fixed schedules, the reinforcement pattern remains constant; in variable schedules, the reinforcement pattern changes.
- Interval schedules produce slow responding; ratio schedules produce rapid responding.
- Fixed schedules produce pauses in responding; variable schedules produce steady responding.
- Fixed schedules are easy to extinguish; variable schedules are difficult to extinguish.
- A salesperson who receives a commission for every five products sold is reinforced on a fixed-ratio schedule.
- Slot machines pay off on a variable-ratio schedule.
- Remember the 2 Rs: ratio and rapid.

Regulate

- What is the definition of variable interval schedule?
- Which schedules involve steady responding?
- Which schedules are difficult to extinguish?
- A teacher uses pop quizzes so that students might be assessed at any time. What kind of student study behavior is likely to occur?

Fig. 2 Simple SOAR example

discreet facts that would likely go unnoticed in a linear formatted text or outline. We also quickly notice that inner planets have smaller diameters, rockier surfaces, fewer moons, and longer rotation times than outer planets. That's 32 discreet facts rolled into one relationship that would, again, be obscured in text or outline notes. Your dissertation research (Robinson and Kiewra 1995), Dan, is among the earliest studies confirming that graphic organizer notes are superior to text or outline notes for relationship learning. My graphic organizer investigations with colleagues have addressed topics such as:

- How graphic organizers aid in learning confusing word-pairs (Igo et al. 2004).
- The use of eye-tracking methods to determine how students study graphic organizers (Luo et al. 2017).
- How graphic organizers are best constructed and studied (Jairam et al. 2012).
- How graphic organizers influence web-based learning (Igo and Kiewra 2007).
- How graphic organizers impact achievement versus concept maps (Katayama et al. 2001).
- The power of the mnematrix—the combination of mnemonics and matrix (Atkinson et al. 1999).

Beginning in 2009, my note-taking and graphic organizer research led to my developing the SOAR Teaching and Learning Method, my third research prong. SOAR stands for the method's four components: select, organize, associate, and regulate. Student success, I reasoned based on information-processing theory and on strategy research, requires that students be taught or prompted to (a) select important lesson ideas using note taking, (b) organize those ideas using graphic organizers, (c) associate those ideas to one another and to prior knowledge to discern meaningful relationships, and (d) regulate learning using self-monitoring techniques such as self-questioning. Figure 2 is a simple SOAR example for teaching or learning about schedules of reinforcement.

After developing the SOAR method, I conducted research led by graduate student collaborators Dharma Jairam and Tareq Daher and confirmed that SOAR methods boosted achievement more than students' preferred study methods for text-based learning (Jairam and Kiewra 2009), computer-based learning (Jairam and Kiewra 2010), and learning from multiple sources (Daher and Kiewra 2016). SOAR studiers also achieved more than those using SQ3R study methods (Jairam et al. 2013). SOAR worked whether college learners received completed SOAR supplements, were helped to create SOAR supplements, or were trained to create their own SOAR supplements. Across all studies, SOAR methods boosted achievement more than students' preferred methods or SQ3R. Differences pertained to fact, relationship, and concept learning, with the largest differences occurring for relationship learning—with SOAR users scoring from 21% to 63% higher than non-SOAR users across the studies. A fifth study (Luo and Kiewra 2019) assessed SOAR's impact on writing and confirmed that SOAR methods improve synthesis writing.

The fourth research prong is talent development, which, in my mind, signifies the top rung in the teaching-learning process. Regarding talent development, my investigation encompasses two sub-prongs: (a) parents' roles in talent development and (b) productive educational psychologists.

My talent research began in an unexpected place—my home. When my first child, Keaton, was born, I had no intention of introducing him to chess and

developing his chess talent. I was not a chess player myself, and like most parents, I just wanted him to be healthy and happy. I never anticipated that he would become a six-time National Scholastic Champion, receive a college scholarship to play chess, and earn the International Master title. And, I never imagined what a vital role I would have to play to help nurture his chess talent. This personal experience awakened my data gathering instincts as I investigated the roles parents play in national- and world-class talent development—first in chess (Kiewra et al. 2006; Kiewra and Witte 2013) and then in many other domains such as Olympic speed skating, Olympic figure skating, baton twirling, music, writing, volleyball, fencing, photography, and spelling, among others (e.g., Kiewra and Witte 2018; Ott Schacht and Kiewra 2018; Witte et al. 2015). Although I have studied the extraordinarily talented, my research and teaching reflect the belief that what these extraordinary people have done, virtually all people can do if supported with the optimal conditions of learning. Talent is made, not born. Ralph Waldo Emerson justly said, "Every artist was first an amateur." My research has helped uncover those talent nurturing conditions that help some hit the high notes or become chess grandmasters. More importantly, though, my research aims to help all learners, be the subject music or chess or spelling or math, be better on Friday than they were on Monday, and whether the end goal is Carnegie Hall or community band, chess champion or chess club. My talent development work is chronicled in my book *Nurturing Children's Talents: A Guide for Parents* (Kiewra 2019a).

Being an educational psychologist, I was naturally curious about how leading educational psychology scholars become so productive. Over four studies, my colleagues and I have investigated the success stories of 14 highly productive educational psychologists in the U.S. and Europe in order to light the path for budding scholars (Flanigan et al. Kiewra 2018; Kiewra and Creswell 2000; Patterson-Hazley and Kiewra 2013; Prinz et al. 2020). Some of the scholars studied include Richard Anderson, Carol Dweck, Michael Pressley, Richard Mayer, Patricia Alexander, Alexander Renkl, Barry Zimmerman, and Tamara van Gog. Findings revealed contributing factors such as influential mentors, a center of excellence training ground, collaboration with colleagues and students, and efficient research-management and time-management routines. Here is some advice for new and seasoned scholars gleaned from the studies:

- Do not aim to be a productive scholar. Aim to be the best scholar you can be one project at a time.
- Get solid training. Seek out the best programs and mentors.
- Do pioneering science. Do not follow the crowd. Follow your bliss and examine new or under-researched topics that interest you.
- Investigate a few things deeply. Carve out your niche.
- Work on several projects simultaneously. Productive scholars sometimes worked on 10 projects at a time, each at a different stage of completion.
- Build an apprenticeship program. Marshall a team of graduate students and shepherd them closely, gradually allowing them more leadership.
- Set goals and monitor progress. Self-regulation is crucial to research completion and productivity.
- Work hard for a long time. As scholar Michael Pressley often said, "There are no quick fixes."

- Write and revise with clarity. Take readers by the hand and help them understand your ideas.
- Understand that there is no secret sauce. Anyone who works hard and smart can succeed and flourish.

As I step back and examine my own research program, I draw three conclusions that might be of value to budding scholars. First, it is based on personal interest. As a graduate student denied note-taking privileges, I wanted to better understand note taking. As an educational psychologist, I wanted to seek out the top scholars and understand how they were so productive. And, as a parent, I wanted to understand how to nurture my child's chess talents. Second, my research is programmatic. Note-taking research led to investigating graphic organizers—a special brand of notes. Note-taking and graphic organizer research led to creating and investigating a comprehensive teaching and learning method called SOAR. Investigating academic learning was a natural segue for investigating talent, the highest rung of the learning ladder. And, all of this work fits snugly under the umbrella of teaching and learning science. Last, my research agenda bears widespread implications for student studying, instructional design, and talent parenting.

DR: You've mentioned several influential people throughout your career, including college professors Dennis Hocevar and Nelson DuBois, FSU graduate school advisor Harold Fletcher, colleague Steve Benton at Kansas State University, his advisor, John Glover, Blaine Worthen at Utah State, Roger Bruning at Nebraska, and many outstanding students. Are there others?

KK: Certainly too many to mention here, but there are two I'll single out. The first is Joel Levin who I hope most readers know about. Joel was an educational psychology professor at Wisconsin and later Arizona. He is the author of numerous books and more than 300 scholarly articles on topics such as learning strategies, mnemonics, and research methodology. Levin's productivity and widespread educational influence certainly earn him a spot on the Mount Rushmore of Educational Psychology, but his influence on me was also more direct. I became acquainted with Levin when he was editor of *Journal of Educational Psychology* and shepherded some of my manuscripts through the publication process. Levin was far more hands-on than any other editor I ever encountered. He scoured every manuscript with a fine-tooth comb, identified any and all weaknesses, and advised on how to correct them, but always in a positive and helpful way. And, not just once. This helpful process was repeated and repeated until all was right. I'm sure other researchers would agree, once they stopped cursing him, Joel Levin made you a better researcher, statistician, thinker, and writer—a better scholar. I had the good fortune of co-authoring an article with Levin and some students that combined our two primary interests: mnemonics and matrix—the mnematrix as Levin smartly coined it (Atkinson et al. 1999). Working closely with Levin from idea conception to manuscript publication was akin to observing Michelangelo paint the Sistine Chapel or watching Joe Montana engineer a game-winning drive in the final minutes…pure mastery. Oh, he'd probably want me to mention that he also schooled me in tennis.

There can be no surprise who the other is—the most productive educational psychologist of our time: Richard Mayer, Distinguished Professor of Psychological and Brain

Sciences, University of California, Santa Barbara. Mayer is the author of more than 500 publications including 30 books. I've had the privilege of twice interviewing Mayer for my productive scholars research (Kiewra and Creswell 2000; Patterson-Hazley and Kiewra 2013). When I last interviewed him in 2012, he had published an average of 15 works per year the previous 10 years. And, he's not slowing down. A glance at his selected publications on his university website shows more than 40 publications in top journals and four books between 2017 and 2020. What impresses me most about Mayer is the systematic nature of his work, all of which addresses the fundamental question: How can people be helped to learn in meaningful ways that help them solve new problems? Throughout Mayer's career, he has addressed and answered this question relative to text learning, multimedia learning, learning in computer-supported environments, and computer games for learning. Moreover, Mayer synthesizes this work and derives useful evidence-based principles for instruction and learning. Finally, his published articles are exemplary models of how to conduct research and how to write. I was fortunate to collaborate with Mayer on two studies (Kiewra et al. 1991b, 1997) and witness and benefit from his mastery first-hand. The field can chisel Mayer's image on the Mount Rushmore of Educational Psychology too.

DR: Let us circle back to the topic of editorship. You mentioned that Joel Levin was a helpful and hands-on editor. You were editor for *Educational Psychology Review* and are a member of several editorial boards. What are your perceptions of the editorial process?

KK: It's good in theory but often breaks down in practice. From my perch as writer, reviewer, and editor, I've seen too many reviewers set out to show how smart they are, picking at a manuscript until it bleeds. And their smart ideas are often off track, things best left for a different study. In Holbrook's (1986) classic article about the sadomasochism of the review process, he jokes (sort of) about authors receiving "12 pages of technically incompetent and hopelessly unsympathetic criticisms from three mutually inconsistent reviews" (p. 105). Holbrook offers this advice to reviewers: "The human tendency toward criticizing others dwells so strongly in our constitutions that we find it much easier to recognize flaws than to discover virtues. Allow yourself the pleasure of saying something nice or paying a compliment once in a while" (p. 107).

But, the real problem, I believe, lies with the editors who sometimes behave like managers instead of scholars. They seem reluctant to get involved in the review process. Oftentimes, editors respond like this to authors: "I did an independent review of your manuscript and am in agreement with the reviewers…" Really? If you did an independent review, how can you agree with erroneous statements reviewers made due to careless reading? How can you agree with irrelevant or incomprehensible ideas? How can you agree with reviewers who disagree? I do not mean to dump on all editors, but the field could certainly use more editors like Joel Levin who closely read a manuscript, who did not patently agree with reviewers and let reviewers and authors know that, and who took a more developmental approach, trying to improve and polish work that had potential rather than dismissing it.

There's something else that troubles me. I really do not find many of the published articles I read enjoyable, interesting, or even comprehensible. It is as if the article is more

about statistics than substance, more about jargon than ideas. I once asked Levin what he thought constitutes a good manuscript worthy of publication. Levin said that in addition to the manuscript meeting technical necessities, he employs the Friend Test. He said he sometimes gives the manuscript to an educated friend (or reviewer) unfamiliar with the topic area, and the friend must find the paper clear, interesting, and memorable days later in order for Levin to consider publishing it. Editors should make it a priority to employ some sort of Friend Test and do all they can to make sure a published article is comprehensible and interesting for all readers.

DR: We've not discussed teaching much. How would you describe your teaching philosophy and methods?

KK: The teaching-learning process needs repair. Oftentimes, teachers deliver content like math and history but do little to help students learn it. Teachers focus on the products of learning, not the processes. Students, meanwhile, use weak learning strategies like outlining and rehearsal, because they have not been taught how to learn. As an educational psychologist, I strive to repair the teaching-learning process by doing the following:

1. Help instructors teach so effectively that their students cannot help but learn.
2. Help students learn so effectively that they can learn in any setting, even when instruction is poor.
3. Help instructors teach students how to learn.

The primary repair tool I employ is SOAR, the teaching-learning method described earlier. For maximal learning to occur, students must be helped or taught to select important lesson ideas through note taking, organize related ideas using graphic organizers like matrices and illustrations, associate lesson ideas to one another and to prior knowledge, and regulate learning through self-questioning.

I teach instructors to teach in SOAR-compatible ways and to teach students SOAR methods in the course Teaching Learners to Learn; in my book *Teaching How to Learn* (Kiewra 2009); and in my applied writings, such as: "How classroom teachers can help students learn and teach them how to learn" (Kiewra 2002).

I teach students how to learn through the use of SOAR strategies in the university-wide course, Strategies for Academic Success; in my three study skills books, the latest being *SOAR to Academic Success and Beyond* (Kiewra 2020); and in applied writings such as "7 Tips for how to take better notes" (Kiewra 2019b).

Of course, I strive to practice what I preach in all my classes by designing instruction in accordance with SOAR principles, for instance: providing note-taking frameworks that help students select and organize important lesson ideas, providing mnemonics that foster association, and raising questions that promote regulation. But, I also teach students how to learn by embedding strategy instruction within content instruction. When providing a matrix that aids organization, for example, I pause to tell students how and why to create matrix organizers on their own. In this way, I reveal the processes of learning. Like Dr. DuBois conveyed to me years ago, educational psychologists should strive to be outstanding models of teaching.

Here's another way of conveying what I try to accomplish in my teaching. Perhaps you have heard the old adage: If you give a man a fish, he has food for a day, but if you teach

a man how to fish, he'll drink a lot of beer and get sunburned. No, wait, that's not it: He'll have food for a lifetime. My philosophy and actions are aimed at helping teachers be good fish givers (helping students learn their lessons today) but also good fishing instructors (helping students learn for a lifetime).

DR: Tell us about your service activities, especially with regard to chess and your recent award.

KK: I believe it's imperative to take educational psychology to the people. I remember seeing a cartoon where two lab-coated scientists had filled a white board with esoteric formulae and scientific jargon. One turns to the other and says: "The beauty of this is that no one can apply it." That should never be the stance among educational psychologists who, I believe, have the opportunity if not the obligation to share their ideas and findings with those who can benefit most—teachers, students, coaches, and parents, for instance. I have strived to both advance new knowledge and to translate it through applied articles, books, a documentary, and nearly 500 community presentations. Joel Levin once commended me for this service. I'm proud to share his words: "Dr. Kiewra has exhibited an extraordinary commitment to disseminating valuable instructional-strategy information through his school and community presentations. In that sense, he represents the very best exemplar of an educational psychologist, or one who adapts the findings of psychological research to the improvement of educational practice."

Other notable service activities have included directing the Academic Success Center at the University of Nebraska, serving as editor-in-chief of *Educational Psychology Review*, serving as president and program chair of MWERA, serving as chair and program chair for the AERA SIG Studying and Self-Regulated Learning, and serving as an expert witness on note taking in a trial involving the U.S. Securities and Exchange Commission and a major U.S. energy company. Those wishing to know more about that should read "Note taking on trial: A legal application of note-taking research" in *Educational Psychology Review* (Kiewra 2016).

Regarding chess education, I became interested in that when my oldest son began pursuing chess. Since that time, I investigated chess talent and published articles, such as "How to parent chess talent: Classic and modern stories" (Kiewra and Witte 2013) and have done feature interviews with *Chess Life* (Root 2019) and *Chess Base* (Root 2016). I also served on the National Chess in Education committee and on the editorial board for *Journal of Chess Research.* Closer to home, I became president of the Lincoln Chess Foundation and organized and ran dozens of chess festivals, summer camps, and family clubs, including one for children with special needs. I also taught school chess clubs for about a dozen years and co-wrote a weekly chess column for the city paper. It was these activities, I suppose, that led to the 2020 Chess Educator of the Year award.

DR: Any advice you'd like to pass on to emerging scholars that you have gleaned over your career.

KK: Great question. I'll list a few:

1. Take the leap. When I interviewed productive scholar Michael Pressley (Kiewra and Creswell 2000), he told a story about a child who comes before a tribal leader for his initiation into adulthood. The boy must leap from a cliff. The leader nudges the boy toward the edge; the child recoils in fear. The sage leader calmly says, "Go ahead and jump, it's not as far as it looks." Pressley followed this story with one of his own: "If anyone had told me when I was sitting in graduate school that I'd be where I am right now, I probably wouldn't have believed it, but in retrospect, it isn't as far from there to here as I would have thought at the time." Educational psychologist Benjamin Bloom (1985), who studied the top 120 Americans in six talent domains, reached the same anyone-can-do-this conclusion: What these immensely talented people accomplished, almost anyone can accomplish if conditions are right. So, take the leap. Or, as an Arabic proverb advises: "Throw your heart in front of you and run and catch it."
2. Follow your bliss. When I interviewed productive scholar Richard Anderson (Kiewra and Creswell 2000), he advocated conducting pioneering science. Anderson said: "Too many people are [conducting normal science and] contributing footnotes to other people's history rather than making some substantial and unique contribution on their own…Don't take the most popular problem of the day. Ask what is important in the general area I'm working in that is poorly understood, important, but understudied, and do an analysis of that." Motivational speaker Les Brown similarly warned: "There is no safe position in life…You can't get out alive…You can die on the field or in the bleachers. You might as well come out on the field and have a good time." Throughout my career, I've been fortunate in negotiating a position I embrace and following my bliss as researcher, instructor, book author, journal editor, and Academic Success Center Director, among other things. As I near the end of my career, I notice that my bliss becomes increasingly selective as I pursue what I believe are the most important and impactful projects.
3. Frame failure. There is a lot of failure in this business, any business. Like most readers, I detest critical student comments about my teaching and reviewers' harsh criticisms of my manuscripts. But, to grow is to fail and to learn from failure. Les Brown said, "It doesn't matter what happens to you, only what you'll do about it." And, writer James Michener said, "Character consists of what you do on the third or fourth tries." Of course, it was my advisor, Harold Fletcher, who perhaps expressed the best framing-failure advice: "Learn to live with failure; just don't live with it too long."
4. Enjoy the ride. Doing my academic work has been satisfying and enjoyable. The people—colleagues and students—have made academia delightful. There have been get-togethers and all sorts of shared sporting activities like hiking, biking, golfing, softball, basketball, and tennis. My conference trips to AERA and MWERA were always more about connecting with old acquaintances than about connecting with new ideas. And, there have been running jokes that have kept us laughing, from the Data Busters gag mentioned earlier to impressions of AERA badge snobs—those who peer in to read your name, notice you are no one important, and snap their heads back in antipathy, like they tasted a bad oyster. You'll remember, Dan, our Seinfeld-like take on qualitative research when it began gaining methodological traction. In one episode, Seinfeld characters Jerry and George pitch a show to a television producer about nothing. "How can there be a show about nothing," he asks. "What did you do today, George asks the producer?" "I got up and came to work," he responds. "That's a show," George proclaims. Our qualitative research parody: "I want to study how teachers teach." "Just ask a few teachers what they do…That's a study." Of course, I know better now since all my talent studies are qualitative in nature.

5. Be healthy. Nearly all the productive scholars I investigated valued and prioritized leisure and exercise, proclaiming their importance for maintaining good mental and physical health. I concur. I've been a long-distance runner (although now more a walker) throughout my career, at times racking up 100 mile weeks. Although I simply enjoy the movement—especially on nature's trails, health benefits, and time to reflect on things professional and personal, regular exercising has also piloted me toward a more structured and productive lifestyle and afforded me a growth mindset signaling that I can go the distance as I try to meet any challenge.

DR: Any concluding thoughts?

KK: I'm grateful for this opportunity to reflect on my career and tell my story, a story that began when my parents, by chance, visited Oneonta College one weekend and unknowingly started me on my educational psychology path. Where the path leads next, remains to be seen. I have more goals and unfinished business, but I understand that chance also determines what's around the bend. I rarely reflect on the past or worry about the future anyway, instead trying to remain fully in the moment—whether that moment is working on a book or grading an assignment. In one of my talent interviews, a music mentor said something like the following: "Success, big or small, depends on remaining in the moment, whether that moment is in Carnegie Hall, in a honky-tonk bar, or alone in your basement practicing riffs until your fingers bleed." I'm thankful for all my career moments big and small.

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