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# Graduate Student Award Winners in Educational Psychology: What Made Them Successful?

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## **Abstract**

Much is known about the factors that make some educational psychologists highly productive. Beginning nearly 25 years ago, Kiewra and colleagues began a series of six qualitative investigations to uncover the keys to scholarly success in educational psychology. The initial study (Kiewra & Creswell, 2000) investigated Richard Anderson, Richard Mayer, and Michael Pressley, who were ranked as the top scholars in a survey of educational psychologists. The second study (Patterson- Hazley

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& Kiewra, 2013), more than a decade later, investigated productive scholars Patricia Alexander, Richard Mayer, Dale Schunk, and Barry Zimmerman who were ranked as the top scholars in a survey of educational psychologists at that time. The third study (Flanigan et al., 2018) investigated a pre-selected cohort of productive German scholars affiliated with Ludwig Maximilian University: Frank Fischer, Hans Gruber, Heinz Mandl, and Alexander Renkl. The fourth study (Prinz et al., 2020) investigated five productive female scholars from the USA and Europe, stemming from a survey of international female scholars. They were Patricia Alexander, Carol Dweck, Jacquelynne Eccles, Mareike Kunter, and Tamara van Gog. The fifth study (Kiewra et al. 2021) investigated six recent early career award winners in educational psychology: Rebecca Collie, Logan Fiorella, Doug Lombardi, Sabina Neugebauer, Erika Patall, and Ming-Te Wang. The sixth study was a retrospective account of how educational psychologist John Glover was so productive (Kiewra & Kauffman, 2023).

This series of studies found several common and critical factors related to scholarly productivity, including centers of excellence, mentorship, collaboration, research management, time management, writing, and support. What follows is a thumbnail synopsis of previous findings.

### **Centers of Excellence**

Productive scholars gravitated to centers of excellence for graduate school training. They sought out reputation-rich schools and mentors that could jumpstart and guide their scholarly journeys. Richard Anderson, for example, received his doctorate at Harvard University where he was mentored by a famous psychologist linked to a long line of other famous psychologists rolling back to the dawn of psychology (Kiewra & Creswell, 2000). Ming-Te Wang and Sabina Neugebauer were also Harvard trained. Wang found his Harvard experience motivational and inspirational. Wang said, “When you sit in the classroom and the instructor is some big name you actually read, like Howard Gardner and Robert Selman, it helps me to know that I can do it too. I can publish my work in top-tier journals too” (Kiewra et al., 2021, p. 1991). Tamara van Gog valued her Open University of the Netherlands’ training. She said, “Because I was in an environment that was highly productive, well-known, and internationally oriented, I got to do a lot of symposia at international conferences with leading researchers and research groups from around the world. We were well connected at the Open University. Those connections helped my work and established visibility” (Prinz et al., 2020, p. 777).

## **Mentorship**

Productive scholars credited their mentors for directing and supporting them, and productivity lists reveal that productive early-career scholars were mentored by productive scholars (Fong et al., 2022). One of those was Logan Fiorella who called his advisor, Richard Mayer, “the single biggest influence on my professional life” and said that Mayer “laid the foundation for how to develop a solid system of research.” Fiorella also credits Mayer for making him a “stickler for writing” and for modeling a “machinelike work ethic” that gets things accomplished and produces many publications (Kiewra et al., 2021, pp. 1998–1999). Another early-career scholar who benefited from having a productive mentor was Erika Patall (Kiewra et al., 2021). Her mentor, Harris Cooper, navigated her through several career-altering decisions, including her identity as an intrinsic motivation researcher, her foray into meta-analysis, which became her signature methodology, and her expanded job search, which culminated in a prestigious University of Texas professorship.

## **Collaboration**

Productive scholars collaborate a lot. The early-career scholars collaborated on about ninety-five percent of their works (Kiewra et al., 2021). More seasoned scholars collaborated about half the time for Rich Mayer and Dale Schunk (Patterson-Hazley & Kiewra, 2013), about three-quarters of the time for Patricia Alexander and Barry Zimmerman (Patterson-Hazley & Kiewra, 2013), and about ninety percent of the time for Jacquelynne Eccles (Prinz et al., 2020) throughout their long careers. Collaboration is on the upswing (Fong et al., 2022). In 2008, the mean number of authors per article over the previous five-year period was 2.6. That figure rose to 3.3 in the five-year period ending in 2015 and rose again to 3.6 during the next five-year period. The increasing collaboration trend is evident in Rich Mayer’s most recent CV. Just one of Mayer’s last 24 empirical publications was sole authored.

Productive scholars particularly collaborate with students (Kiewra et al., 2021). For example, seventy percent of Ming-Te Wang’s

post-graduation publications and about fifty percent of Logan Fiorella's post-graduation publications include student authors. Erika Patall also collaborates more with students than with colleagues. She said, "I don't have a lot of collaborations with colleagues. For me, almost everything is done with students" (Kiewra et al., 2021, p. 2007).

## **Research Management**

There are several aspects to research management among productive scholars, with perhaps the most important being research prioritization and working on multiple projects. Regarding research prioritization, productive scholars spend about half their workdays focused on research activities, and most preserve the morning hours when they are most fresh and alert for accomplishing scholarly work. Erika Patall said, "You can't be a jack of all trades. To be a successful researcher, you must prioritize research over all else. You have to accept that you'll be less good at other things" (Kiewra, Luo, & Flanigan, p. 2007). John Glover also prioritized research over other academic duties. Colleague Barbara Plake said, "I don't think John was the least bit interested in service. He ducked committees as hard and fast as he possibly could, because they took away from the important (scholarly) work that he wanted to do. If he was on a committee, he gave it minimal attention because that's not what he was here to do" (Kiewra & Kauffman, 2023, p. 58).

Regarding multiple projects, German scholars Heinz Mandl and Hans Gruber report that they work on three to seven projects at a time. Alexander Renkl often handles 10 projects at a time, while Frank Fischer juggles 15 (Flanigan et al., 2018). Renkl staggers projects so that they are at different points of completion. Renkl said, "We're working on two projects where we are writing the proposal. We have six to seven projects that are running and two more that we are trying to get accepted for publication" (p. 321). American scholars Logan Fiorella and Sabina Neugebauer do much the same (Kiewra et al., 2021). Fiorella reports working on five to seven different projects at various stages of completion. Neugebauer typically has "many projects going on in different phases within the lifecycle of a project" (p. 1997).

## Time Management

In addition to the aforementioned strategies of spending about half their work hours on scholarly activities and preserving morning hours for that work, productive scholars use a host of other time-management strategies. One such strategy is goal setting and planning. Self-regulation researcher Dale Schunk (Patterson-Hazley & Kiewra, 2013) sets five or six yearly project goals each August along with plans and timelines for completing them. Monthly, Schunk monitors his progress toward those goals and modifies his goals, plans, and timelines accordingly. Schunk sets weekly goals each Sunday and writes detailed plans for completing them. Every night, he lists daily goals for things he wants to accomplish the next day.

Another strategy is diligence. Productive scholars stay focused on work and do not procrastinate. Rebecca Collie has two children and limited time to accomplish things. She said, “When I’m at work, I have to work, and I just get on with it. There can be no procrastination, no wasted time, because as soon as my children get home from school or daycare, I need to be a mom” (Kiewra et al., 2021, p. 2000).

Another strategy is achieving a work-life balance. Rich Mayer, the world’s most productive educational psychologist, said, “I put my family first and my job second” (Kiewra & Creswell, 2000, p. 149). Similarly, Logan Fiorella, who is married and has a young daughter, said that he puts family first. Fiorella works a conventional nine-to-five schedule and rarely works evenings or weekends (Kiewra et al., 2021). Scholars Barry Zimmerman and Dale Schunk also seek work-life balance (Patterson-Hazley & Kiewra, 2013). Zimmerman exercises one to two hours most afternoons and enjoys leisure activities such as tennis, snow skiing, New York City music performances, and traveling abroad. Schunk builds break time into his days. He said, “I have to have breaks. I can’t work all the time. I schedule the breaks just like I schedule the work. If I don’t schedule breaks, the work will fill up that time” (p. 30).

## Writing

Productive scholars also use a host of writing strategies. First, they make writing a habit. They write almost every day. Logan Fiorella said, “It is really important to establish a writing habit, doing it at the same time and place day after day, where it’s just what you do, and it feels like no big deal” (Kiewra et al., 2021, p. 2013). Ming- Te Wang said much the same, “I force myself to write every day even if it’s just an hour or two or a single paragraph. Psychologically, I know I’m making progress” (Kiewra et al., 2021, p. 2013). John Glover had a writing routine and he exhorted graduate students to follow his lead, telling them to write five pages a day (Kiewra & Kauffman, 2023).

Productive scholars recognize the importance of seeking writing feedback. Ming- Te Wang said, “Receiving feedback is sometimes painful, but you just need to get over it because no one is a perfect writer and feedback is what makes you better” (Kiewra et al., 2021, p. 2013).

Two early career award-winning scholars, Ming-Te Wang and Sabina Neugebauer, relied on writing groups while in graduate school to develop writing skills. Neugebauer carried this practice to her professorial role and said, “I have always had a writing group, (and being part of these groups) plays an enormous role in my professional development and productivity” (Kiewra et al., 2021, p. 1996).

## Support

Productive scholars are well supported by their universities. For example, the University of Georgia supports Logan Fiorella by providing him with a manageable course load, reducing service obligations, and nominating him for awards (Kiewra et al., 2021). At the University of Pittsburg, Ming-Te Wang’s dean established a motivation center and appointed Wang director. That center positions Wang to seek grants, partner with schools, and fund staff and student positions. Sabina Neugebauer commented that resource-rich institutions provide various supports that set one up for success. They provide a brand name that attracts prominent scholars and talented students with whom to collaborate. They also provide the infrastructure and financial resources to get things done (Kiewra et al., 2021).

Productive scholars also lean on others for personal support in order to maximize their scholarly time and products. German scholars Frank Fischer and Alexander Renkl have spouses who handle the bulk of family chores (Flanigan et al., 2018). Female scholars often rely on their spouses to share household duties too. Rebecca Collie said this about her husband: “I couldn’t do what I do without his support. I couldn’t be as productive. I just couldn’t. He does half the drop-offs for the kids and cooks half the meals” (Kiewra et al., 2021, p. 2007).

### **The Present Study**

Taken together, previous studies revealed key factors associated with scholarly productivity among the professoriate, but none of those studies directly assessed factors that make one successful in graduate school. Understanding graduate school success seems important because it is likely the springboard for graduates securing a strong post-doctoral or faculty position upon graduation and fueling a productive career. Understanding graduate school success might also have implications for graduate programs and faculty working with students. Unfortunately, little is known about what graduate school factors boost scholarly productivity. Studies pertaining to graduate training offer insights about boosting graduate school retention and completion (Sverdlik et al., 2018), not graduate school success. Previous investigations of well-established scholars reviewed here, though, suggest that certain graduate school factors, namely, access to centers of excellence and mentorship, are keys to career success. But are they also keys to graduate school success? Moreover, previous studies involve retrospective accounts. What might those who just completed graduate school reveal about factors thought to boost graduate school success? Finally, what other factors might boost graduate school success? Are they the same ones that boost career success or are there new factors specific to the graduate school experience? To answer these questions, we conducted the present study, wherein four award-winning graduate students in educational psychology were interviewed about their graduate school success experiences. The present study tells their stories, links those stories to previous findings among well-established scholars, and draws conclusions about graduate school success that can benefit graduate students and those who train them.



## Methods

### *Participants*

To understand what makes some educational psychology graduate students so successful during their graduate training, we invited four recent American Educational Research Association (AERA) Division C (Learning and Instruction) Graduate Research Excellence Award winners to participate in the present study. This selection process fits with that for investigating early-career scholars who were also award winners (Kiewra et al., 2021). The recipients were Carly Robinson, Hyun Ji Lee (H.J. Lee), Sirui Wan, and Hyewon Lee (H. Lee). All agreed to participate. Table 1 shows participants' AERA award year, Ph.D. institution, Ph.D. start and end dates, present position (and year started), and total number of publications and conference presentations to date.

### *Data Collection*

Demographic information was collected from each participant using a questionnaire and examining their current curriculum vitae. The questionnaire first asked about their educational training for their bachelor's, master's, and doctoral degrees, in particular, their institutions, education timelines, advisors, and research topics. The questionnaire next asked about their current post-graduate position (institution, time begun, and supervisor). Finally, the questionnaire asked about scholarly productivity during and following graduate training, with respect to publications, conference presentations, and funded

**Table 1** Demographic information for the four graduate student award winners

Name	Carly Robinson	Hyun Ji Lee	Sirui Wan	Hyewon Lee
AERA award year	2020	2021	2022	2021
Ph.D. institution	Harvard University	Korea University	University of California, Irvine	Ohio State University
Ph.D. start and end dates	2014–2020	2016–2022	2017–2022	2016–2022
Present position (year started)	Postdoc, Brown University (2020)	Postdoc, Ohio State University (2022)	Postdoc, University of Wisconsin, Madison (2022)	Postdoc, Texas A&M University (2022)
Total publications	18	11	10	4
Total conference presentations	37	13	26	17

grant projects. Next, participants were interviewed individually via Zoom by our research team in March 2023, with each interview lasting about 90 min. Participants were instructed beforehand to think about “what factors helped make them successful graduate students?” Each interview began with that open-ended question. Following their open-ended response, participants were prompted to consider factors they might not have mentioned, such as (a) influences of people (e.g., advisor, peer group, family), places (e.g., their institution), and things (e.g., classes, grants); (b) research management strategies; (c) time management strategies; and (d) writing strategies— factors found relevant in previous studies (Flanigan et al., 2018; Kiewra & Creswell, 2000; Kiewra et al., 2021; Patterson-Hazley & Kiewra, 2013; Prinz et al., 2020). Interviews were recorded via Zoom, which automatically produced an audio file and written transcript for analysis.

### ***Data Analysis***

Interview transcripts were first analyzed using exploratory analysis to uncover primary factors that contributed to graduate school success for each participant (Brinkman & Kvale, 2014). The authors read the transcripts and created codes for statements related to graduate school success. Next, the authors examined all codes and categorized them into larger themes for each interview transcript. Last, the authors assessed the themes, regrouped related themes, and determined the final themes for each participant. Each author coded two interview transcripts independently. For each transcript, the responsible author created a summary of themes, subthemes, and codes for the other authors’ review. Resulting factors for each participant are reported in the “Results” section.

Next, a cross-case approach (Yin, 2014) was used to explore similarities and differences among the four graduate student award winners. The first author examined the themes and subthemes in all interview transcripts and compared the four scholars with respect to those themes. All authors reviewed and discussed the themes and resolved disagreements. Finally, a member-checking procedure was conducted (Creswell & Poth, 2018) by having each participant read portions of the manuscript germane to their success story, make corrections, offer suggestions, and validate findings. Cross-case themes are reported in the “Discussion” section.

## Results

The four graduate student scholars were proactive in cultivating and harvesting graduate program opportunities likely to bear graduate school success. For each scholar, their primary success mechanisms are presented as advice for those seeking graduate school success.

### *Carly Robinson*

Carly Robinson paved the way for graduate school success by ensuring she had (a) institutional resources, (b) guidance from multiple mentors, and (c) national recognition via prestigious fellowships and awards. She also (d) approached coursework strategically, (e) worked hard and efficiently, and (f) built a support network that helped her survive and thrive.

#### *Seek Institutional Resources*

Robinson's decision to pursue her doctoral degree at Harvard University was largely influenced by the attractive funding package they offered. Robinson said:

When I was deciding among graduate schools, it largely came down to the funding package. Ultimately, my decision to attend Harvard was influenced by the fact that funding was unconstrained for the first two years, allowing me to focus solely on my research without having to worry about securing funding through lab work or teaching.

Because Robinson's initial funding was unconstrained, she was able to use those early years to complete required coursework and advance her research agenda by conducting collaborative research with her mentors and by applying for external grants. Robinson said, "Those resources were indispensable in enabling me to efficiently manage time and pursue my research interests."

#### *Seek Supportive and Generous Mentors*

Robinson benefited from the tutelage of three doctoral program mentors. One of them was Todd Rogers, for whom she worked as a

research assistant before graduate school and who inspired her to seek her doctorate. Rogers continued to co-mentor Robinson unofficially throughout her doctoral program at Harvard. Robinson's first official Harvard advisor was Hunter Gehlbach who served in this capacity for one year before leaving Harvard for another position. Gehlbach, though, remained committed to Robinson's graduate school completion and success and served as a primary research advisor throughout Robinson's program. When Gehlbach left Harvard, Robinson selected Monica Higgins to serve as her formal academic advisor and doctoral committee chair, which she did throughout the remainder of Robinson's program.

Robinson recalled her mentors as "supportive and incredibly invested" in her graduate school success and as generous for allowing her first authorship and coauthorship on journal publications and book chapters. Moreover, these mentors aided Robinson's data collection by allowing her to survey participants in their own studies.

It was Hunter Gehlbach who served as Robinson's primary research mentor throughout graduate school, helping Robinson to grow as an independent researcher. Robinson said:

I was lucky to have Hunter as my mentor. He always valued my input, and we would brainstorm together to find solutions when discussing intervention and research design. Even if we didn't always go with my recommendations, during these meetings I learned a lot about how a researcher approaches each step of a project. Thanks to this scaffolding experience, I am now a confident and successful researcher.

Even though Gehlbach was at a different institution during most of Robinson's doctoral program, the pair met remotely weekly, and Robinson had full access to his mentoring. Robinson said:

Hunter devoted an incredible amount of time mentoring me throughout my program. While we had a scheduled hour-long weekly meeting, Hunter also met me outside of our regular weekly meetings to provide me with detailed and valuable feedback on my manuscript writings and grant proposals. His feedback on my writing contributed significantly to my growth in graduate school and as a scholar.

Finally, Robinson appreciated the academic support from her formal doctoral committee chair, Monica Higgins. According to Robinson, Higgins adeptly guided her through her doctoral program and provided helpful advice about work prioritization, time management, career paths, and adding an interdisciplinary perspective to her research. Taken together, Robinson said, “I had excellent mentorship and advice that was coming from all these different angles.”

### *Apply for Research Grants and Fellowships*

Robinson was able to supplement and maintain her level of funding through research grants and fellowships. Initially, she applied for small external grants and fellowships while fulfilling course assignments to learn the grant-writing ropes and boost research productivity. As her two-year institutional funding drew to a close, Robinson applied for and received the prestigious Institute of Educational Sciences (IES) training fellowship that supported her tuition costs and allowed her to focus unconstrained on her research program for her third and fourth years of doctoral training. Robinson said:

I made use of my coursework assignments to apply for numerous grants and fellowships. Even though I faced rejections initially, I persisted and revised my proposals until I succeeded. Throughout this process, I constantly refined my research objectives and conducted pilot studies, which ultimately helped me make data-driven decisions when it was time to propose my dissertation. As a result, my dissertation research was a success. The IES fellowship especially set me up for success because it allowed me to stay focused on my research rather than take on assistantships that would draw me away from my own work.

### *Approach Coursework Strategically*

Throughout her doctoral program, Robinson was selective in choosing her courses and was strategic in her coursework approach, both of which advanced her research productivity. When options existed, Robinson chose research methods and statistics courses over others,

because “those courses directly advanced research competency.” Robinson was also strategic in selecting and benefiting from content classes. Robinson said, “I tried to choose content classes that required project assignments or deliverables. Such assignments positioned me to plan studies and write literature reviews that I eventually used in my research program and dissertation.” In all of her topical coursework, Robinson sought “to connect the larger body of theoretical knowledge” she was learning to her research goals and objectives.

Robinson valued the individual and pointed feedback her instructors provided for improving her writing. Robinson said, “My instructors were engaged with my writing and offered generous feedback that made me a better writer and one who can communicate across disciplines.”

Finally, Robinson also credited Harvard professor Jon Star who created a professional development course designed to explore the hidden curriculum for how one achieves success as an academic. She recalled:

I took a special course designed to unearth the hidden curriculum in academia. For instance, we watched job talks and critiqued them to understand the do’s and don’ts of job talk presentations. We examined literature reviews, looking for the recipes for successful ones. There were many other helpful experiences and ideas that are rarely brought to the surface in graduate training.

### *Work Hard and Take the Train*

Robinson worked hard and often amassed about 60 h of work in a week. Robinson’s work schedule was especially full during the first two years of her doctoral program as she juggled full course loads and her research work. During these years, she usually began working before 7:00 a.m., because she believed she could be most productive in the early hours. Robinson said:

I was the most efficient in the morning. I felt fresh and able to tackle things most efficiently and productively early in the day. An early start also freed up evenings for my social life and personal growth, like seeing friends and working out.

To maximize productivity, Robinson maintained and followed an extensive to-do list and efficiently used time pockets between classes and meetings to do more work on research projects. Robinson said:

I am a planner. As a graduate student, I always thought about and decided on what to prioritize and work on next. Such planning helped me be productive. Even when I only had 15 minutes of free time, I would pull from my to-do list and make progress on research tasks in an efficient and effective manner.

Another way that Robinson maximized time was on her twice daily train rides between Harvard's campus and her home in Providence, Rhode Island. During this commuter time, Robinson would "read, work on course assignments, and dive into the data for ongoing projects." She added, "Fortunately, the Internet service on the train was not great which prevented me from getting distracted by responding to emails or opening up browsers. This was a wonderfully productive time."

### *Meet in the Middle and Seek Support*

Robinson's attention to graduate studies was tested as she built important personal relationships during graduate school, first as a spouse and then as a mother. Fortunately, Robinson created and benefited from support strategies that allowed her to focus on both school and family.

At the onset of graduate school, Robinson and her husband lived in different places for the first two years so that both could focus on their work. They only joined each other on weekends, with one traveling to meet the other. Later, they secured joint housing in between their workplaces, leaving both with a 90-min commute.

When their child was born in Robinson's final year of graduate school, Robinson was supported by her husband, who shared child-rearing duties, her parents, and service providers. Her husband's job allowed the couple to afford a nanny to care for the child. Robinson said, "My parents came and cared for the baby and other things, and they were very happy to help." During her entire doctoral program, Robinson also received emotional support from family. She said, "My

family helped me to sustain myself throughout my graduate school experience. And, I always had a pleasant escape from work with them, whether it was a phone call, a home-cooked meal, or an out-of-town vacation.”

### **Hyun Ji Lee**

Hyun Ji Lee’s graduate school success stemmed primarily from five factors: (a) dual mentoring, (b) seeking and exploiting learning opportunities, (c) honing writing skills, (d) working hard and smart, and (e) building a support network.

#### *Two Mentors Can Be Better Than One*

H.J. Lee benefited from having two University of Korea mentors, Sung-Il Kim and Mimi Bong, with unique and complementary strengths. Dr. Kim taught her how to approach new research topics, develop interesting research ideas, and design rigorous experiments. Dr. Bong taught her how to meticulously analyze data, write manuscripts, respond to reviewers, and manage time effectively. “I learned a great deal from both to become a complete researcher,” she said.

H.J. Lee’s advisors stressed publishing a few impactful studies of high quality rather than publishing many less impactful and less rigorous studies. H.J. Lee said, “My advisors pursued impactful and high-quality research. They prioritized quality over quantity at all times. Their high expectations for all matters of research—from design to manuscript writing—taught me to strive to do high-quality work.”

H.J. Lee’s advisors also helped her build a scholarly network while in graduate school by exposing her to the written work of international scholars and introducing her to them at international conferences. H.J. Lee said:

My advisors believed it was essential for me to keep up with the research of productive and influential scholars in my area and to meet those scholars firsthand. Meeting international scholars was inspirational for me because becoming an international scholar and conducting research on a global scale suddenly seemed a feasible goal for me.



H.J. Lee also benefited from her advisors' insistence on mastering English speaking and writing. Being at a Korean university, H.J. Lee assumed that her graduate training would occur in her native Korean language. That was not the case. Her advisors emphasized the importance of English proficiency for career success. Initially, H.J. Lee struggled to think deeply while using English and questioned its necessity in class. She said:

My advisors taught all their graduate courses in English and consistently emphasized its importance for becoming a successful international scholar. They told students that the outcome would be worth the struggle. They were right. With time and practice, my English skills have developed to where I am comfortable and proficient in my English language thinking and writing.

#### *Seek and Exploit Multiple Learning Opportunities*

H.J. Lee is a consummate learner. She describes herself as having “a love for learning,” “a desire to master new topics,” and one who “gains pleasure from enlightenment.” Accordingly, she was not content to learn solely from her graduate school coursework. She sought out and benefited from other learning opportunities, such as workshops and online courses. H.J. Lee said:

I have always sought opportunities to learn and take full advantage of them as they arise. I took a lot of voluntary courses and workshops and used online resources to learn research methodologies from experimental design to advanced quantitative methods. My inquiries not only built my research skills, they also helped me to explore diverse perspectives about topics of interest.

H.J. Lee also enjoyed and benefited from being part of an apprenticeship system, wherein graduate students with different levels of experience collaborated with faculty and with one another on multiple research projects. She learned a lot from observing and collaborating with more senior students early in her graduate career and

from later mentoring more junior students when she became more senior. H.J. Lee said:

I learned a lot from observing my more senior research colleagues presenting their research ideas and products in the lab and from my advisors' feedback on their work. By learning from senior lab members and advisors, I developed essential skills and knowledge to boost my research productivity and to also guide emerging scholars in the same way.

### *Hone Writing Skills*

H.J. Lee recognizes that developing strong writing skills is critical to productive scholarship. She emphasizes the importance of seeking opportunities to write and to receive feedback from various sources, including professors, mentors, and collaborators. For H.J. Lee, graduate courses played a vital role in her writing development, with weekly critiques and feedback from her professors helping her improve her writing skills over her graduate career. She said, "In most courses, professors assigned us weekly critiques, and they provided us with detailed and helpful feedback about our writing."

H.J. Lee especially credits her advisor, Dr. Bong, for meticulously commenting on and editing her work and always addressing Lee's weaknesses. She said:

Dr. Bong tracked all the changes she made to my written products so that I could see and understand exactly where my writing needed improvement. In addition, she often taught me important writing lessons, such as how to make my repetitive writing more concise.

Another source of writing instruction and practice for H.J. Lee came from being part of an online writing group that she assembled after being part of a previous writing group as an exchange student at Ohio State University. Regarding her assembled group, H.J. Lee said that the writing group taught her many things about writing, kept her writing regularly on her dissertation, and was a huge emotional support.

Over the course of her graduate school training, H.J. Lee developed some personalized writing strategies that served her well. When

writing manuscripts, H.J. Lee's writing begins by summarizing the research questions, hypotheses, and significant findings. Then, she creates the tables and figures. Finally, she creates an abstract and detailed outline. She shares all this with her co-authors, seeking feedback and input. When H.J. Lee composes the manuscript, she starts with the methods and results sections, followed by the introduction and discussion. H.J. Lee makes writing a routine and priority. She writes most mornings for two to four hours. Based on her graduate school experiences, H.J. Lee offered this writing advice to graduate students:

1. Take graduate courses that improve writing skills.
2. Write with advisors and invite, value, and heed their feedback.
3. Make it a priority to write every day.

### *Work Hard and Smart*

H.J. Lee was a hard worker throughout graduate school. She typically logged 50–60 work hours a week, with the bulk of that time spent on coursework in the first two years of her program and then on research thereafter. Her work spilled over into weekends, but she did preserve one weekend day for leisure. H.J. Lee said, "I had a one-day weekend break without considering research, studying, or work. That refreshed me and helped me remain productive the other days of the week." In general, H.J. Lee maintained a balanced lifestyle. She frequently enjoyed swimming, bike riding, and socializing with colleagues and friends during meals, on weekends, and in the evenings. She made few sacrifices to her well-being while in graduate school other than sacrificing sleep on occasion.

As a graduate school scholar, H.J. Lee typically worked on about three projects at a time with faculty and student collaborators. One of these was a project she led. For the others, she served secondary roles. This system of working on multiple tasks and sharing leadership roles allowed her to maximize her graduate student learning and productivity.

H.J. Lee worked efficiently. She scheduled her time by creating monthly, weekly, and daily to-do lists and highlighted the priorities. Each evening, she made plans for the next day's work schedule and closely monitored the progress she made that day. She kept detailed records of her accomplishments and time spent working. She found

this record-keeping rewarding and motivating. At the end of each work day, H.J. Lee parked on a hill, meaning that she left unfinished work in a convenient place to pick back up the next day.

### *Build a Support Network*

H.J. Lee had financial and emotional support that helped her succeed in graduate school. Regarding financial support, she received external funding that allowed her to focus on her studies without worrying about financial constraints. H.J. Lee said, “I was fortunate to receive financial support from the National Research Foundation of Korea, which provided me with three years of funding, covering all tuition fees and living expenses.”

Regarding emotional support, H.J. Lee’s family was most instrumental. She said, “My family supported my education and career goals and helped me financially and emotionally throughout my graduate studies.” Support from family began much earlier, though, and paved the way for H. J. Lee’s successes. H. J. Lee commented that the resilience and persistence traits learned in her home contributed to her graduate school success. She said:

I was raised by a family that values learning and self-discipline. They stressed being conscientious and always doing your best. My parents were optimistic about life and about my future, always telling me I can accomplish what I set out to do. If I became discouraged or failed at something, they told me that adversity is part of the learning process and with more work I will do better. When I eventually took a college course in educational psychology, I realized that my parents instilled in me a growth mindset. A mindset that I rely upon and credit for all my academic and scholarly successes.

### *Sirui Wan*

Five factors were instrumental in Sirui Wan’s graduate school success: (a) pursuing passion, (b) mentorship, (c) supportive and flexible graduate school environment, (d) learning outside of class, and (e) planning and spending time wisely.

### *Pursue Your Passion*

While he was a student in China, Wan became fascinated with the choices students make regarding their educational path and decided to pursue a master's and then a doctoral degree to better understand and address the issue of human choice and motivation. Wan chose UC-Irvine for his doctoral degree because he would have the opportunity to work with and receive mentoring from Jacquelynne Eccles, a UC-Irvine professor, who has long been a highly regarded and well-known expert on human motivation (Prinz et al., 2020). Once at UC-Irvine, Eccles helped Wan build his doctoral program around this specific interest area, which included targeted classwork and research opportunities aimed at developing Wan's expertise. Wan said, "It is important to contemplate, explore, and decide what research direction you want to pursue during graduate school. Recognizing that direction helps focus your energy and helps you seek people along that path who you can reach out to for advice and direction."

Wan suggested that all graduate students approach graduate school as he did: know your passion, know what related research questions you want to pursue, seek a passion guide, and build a program that helps you realize that passion. Wan said, "I think my own takeaway would be to explore yourself and find things that you are really interested in and then pursue those interests because that will really motivate you to keep going when you confront difficulty and trials, and it will also help you to find the people that can truly support and guide you."

### *Work with Effective Mentors*

Wan worked with two effective and complementary mentors during his graduate training at UC-Irvine. Drew Bailey taught Wan the fundamentals of conducting rigorous research and writing manuscripts, along with a host of other important tasks such as how to respond to reviewers when resubmitting a revised manuscript for publication and how to solve research problems. Because Bailey worked outside Wan's main topic area, he was instrumental in providing keen insights and challenges to Wan's work as the two met weekly and bounced ideas back and forth. Mentor Jacquelynne Eccles provided more big-picture

guidance for building doctoral program success and later professorial success. Eccles was also instrumental in helping Wan gain expertise in his passion area of motivation and choice. Wan said that Eccles was “inspiring, always there to support me, offering advice when I needed to make choices, and helping me achieve my goals. She made me and other students her priority.”

### *Seek a Supportive and Flexible Graduate School Environment*

Wan credited his graduate school environment for much of his graduate school success. Wan said, “UC-Irvine provided a supportive and flexible environment because they encouraged students to work with multiple faculty members in other research areas, as well as their advisor.” By allowing students to “float” among faculty and research projects, Wan worked not only with his advisors but also with professors from other disciplines, such as cognitive and experimental psychology. Wan noted that these varied collaborations provided unique opportunities for students to expand their research network to other faculty and peer collaborators, work on multiple projects simultaneously, and produce more publications.

Wan’s program was also supportive and flexible in allowing students to change advisors without repercussions at any point in their graduate training. Wan said:

One key area of flexibility in our program was how commonly students changed advisors. I thought that was a program strength because a student’s interest might change along the way, especially because of opportunities to work with different faculty on varied research projects. I know that in some other programs, it’s hard or uncommon to change advisors.

Wan’s institution also provided financial support for the entirety of Wan’s five-year doctoral program. UC-Irvine guarantees all graduate students at least five years of funding, with a possibility for a sixth and seventh year through options like teaching assistantships. Wan said, “I think it’s super important to have that kind of financial security, because it allows you to focus on your own research projects and productivity. Financial support is definitely an important factor for graduate school success.”

### *Learn Outside of Class*

Wan took advantage of learning opportunities outside of required coursework and research collaborations by participating in workshops, which built research skills or topical knowledge, and in writing groups, which provided him with extensive practice opportunities and feedback. Wan said:

The writing group helped a lot. Every week, one person provided their writing sample and then others provided writing feedback. Because students hailed from different disciplines, the feedback especially helped me communicate research ideas to a wide audience. There was also a lot of good advice offered in the group about other academic skills such as time management, planning, and dealing with rejection. Receiving this kind of information as a graduate student is tremendously important.

### *Plan and Spend Time Wisely*

Wan was an avid planner during graduate school. Wan said, “A key success component for graduate school success is planning. Proper planning helps you set and accomplish goals in the next few days, few weeks, the semester, or academic year.” Wan added, “Plans can always change but they set the direction for where to go with your work, what to do each day. Planning also reduces stress and brings emotional peace.”

Wan turned plans into products through hard work. Throughout graduate school, Wan typically spent two to four hours per day focusing on his research projects, mostly during the evenings in his home office where he could best concentrate. Wan worked on multiple research projects each year, usually taking the lead on one to three different projects at any given time.

Wan made daily writing a habit, a routine. Wan said, “Daily writing kept me in the flow, kept my momentum rolling. Otherwise, the tendency is to avoid writing.”

Wan was certainly not an all-work-no-play graduate student. He maintained a healthy work-life balance, punctuated by his passion for

and appreciation of outdoor activities. Wan was a member of the university rowing team, which had him rising at 4:30 a.m. and training for two hours most mornings. He stopped working most days by 4:00 p.m. to enjoy other recreational opportunities at the ocean or in the mountains nearby. There was hiking, jogging, and swimming. Several days a week, Wan also worked out at a nearby gym. He also socialized with his partner and friends. Wan took off from work completely one weekend day per week, saying, “I needed a clear personal health break from work to relax and have fun. That break day, though, also provided an opportunity for self-reflection and to think about big ideas.”

### ***Hyewon Lee***

Hyewon Lee was a single mother in graduate school, which required her to apply productivity strategies in both her academic and personal life. Her challenges and compensatory strategies make her experiences especially pertinent to graduate students balancing scholarly work and family life. H. Lee emphasized how she (a) maximized time, (b) leaned on four compatible and helpful mentors, and (c) followed her bliss.

#### *Maximize Time*

H. Lee said, “Time was everything.” Any time spent on scholarship was time away from family and vice versa. H. Lee was intentional about making the most of the time she had. To this end, she employed time-saving strategies on multiple levels: big-picture strategies to ensure that no work time was wasted, everyday strategies to make the most of her daily work time, and family-focused strategies to maximize her personal life.

One big-picture strategy was interweaving coursework and research. For example, H. Lee turned course projects into research opportunities. She said, “Course projects were a springboard to reviewing literature, designing new studies, and writing conference proposals.” Another big-picture strategy was always favoring quality over quantity in terms of research involvement and productivity. H. Lee said, “Instead of quantity, I wanted quality in my studies, because a quality focus provided greater opportunity for me to develop



my research skills and knowledge and to conduct impactful studies.” Another big-picture strategy was collaborating only with others with whom she worked well and could count on. To complete tasks in an effective and timely manner, H. Lee said, “I did research with those who were dependable, a small group of three to four.”

H. Lee employed everyday strategies that maximized time. One pertained to time allocation. She said, “For cognitively demanding work, I fiercely allocated large chunks of uninterrupted time, usually four hours in length. One to two hours was not enough for me to get into deep concentration.” She was equally intentional in her approach to low-priority work by allocating minimal time for those tasks, usually no more than an hour. H. Lee would tell herself, “I’ll get this work done within an hour and not spend any more time on it than that.” As H. Lee worked, she used a timer to signal when to take short breaks to rest and restore energy. H. Lee did most of her scholarly work at home, in part because of the pandemic but mostly to maximize work time. She said, “I took advantage of working remotely. I rarely traveled to campus. I didn’t want to waste my time traveling.” In the same vein, H. Lee rarely traveled to conferences because doing so would interrupt her work and compromise her family time.

H. Lee also used family-focused strategies to maximize her personal life and parenting time. One strategy was partitioning her day into work and family time. Mornings were spent parenting before her child went to daycare from 9:00 to 5:00. H. Lee worked uninterrupted during this time block. From 5:00 p.m. to 7:00 p.m., H. Lee and her child were supported by a nanny, who was like a family member and helped with childcare. From 7:00 p.m. until her child went to sleep, H. Lee focused on and enjoyed her parenting time. H. Lee returned to her scholarly work for a few hours after that. To maximize her parenting time, H. Lee reduced household responsibilities by leaning on her church community for support. Church members sometimes helped her with cooking and household chores. H. Lee also used food services to reduce food preparation time. When she did have to cook, it was “a very simple meal, because I tried to save my time as much as I could.” H. Lee took Sundays off from work entirely to maximize family time and to recover from her work week. H. Lee admitted that she had little time for herself and that her personal and emotional well-being were low priorities throughout graduate school, but that there are no regrets.

*Find Compatible and Helpful Mentors*

H. Lee had an advisor and three other mentors. Her advisor, Shirley Yu, was patient, encouraging, and helpful. H. Lee said:

My advisor was patient with me, knowing that I was juggling family demands and schoolwork. She encouraged me but didn't push because she knew I set high expectations for myself. Instead, she would say, "You're doing a good job" and offer other warm and encouraging words.

Yu also helped H. Lee jumpstart research projects by sharing data from her own projects. In their biweekly meetings, Yu encouraged H. Lee "to play with the data" and test her ideas "without fear of being judged." Such opportunities allowed H. Lee to "follow my research passions, dig deep into my ideas, and develop my own views."

In addition, H. Lee had three informal mentors, all of whom she identified with in various and helpful ways. All were Asian females, recent graduates who transitioned to the USA for their Ph.D.s, had English as a second language, and had families of their own. H. Lee said that those similarities led to "some tailored mentoring aligned with my cultural and personal circumstances." H. Lee added, "My mentors always encouraged me and validated my choices so that I can be more confident as a student and mother." The commonalities she shared with her mentors also inspired H. Lee who said, "A great thing was looking at their personal lives: How they handle their family roles and their roles as faculty members. Seeing them, I could more clearly imagine myself with the same future." Although graduate school life was challenging for H. Lee, her mentors' backgrounds, work-life balance, and successes served as a guiding light.

H. Lee's mentors also served traditional mentoring roles, such as guiding H. Lee's reading selections and research projects and teaching her the ins and outs of becoming a successful academic, what some call the hidden curriculum of scholarly success. H. Lee said, "My mentors helped broaden my perspective, teaching me about things behind the scenes in academia, things about building professional networks, choosing collaborators, and responding to reviewers, for example."

### *Follow Your Bliss*

H. Lee's motivation to pursue a doctoral degree and investigate motivation evolved from her previous seven years as an elementary school teacher in South Korea. H. Lee said:

I was really intrigued by what made my students have different outcomes, although they were instructed in the same environment. In particular, what caused low achievement and how might educators help low achievers improve their grades? These issues intrigued me and moved me to learn more about the psychological and motivational processes and mechanisms leading to such achievement differences.

Toward that end, H. Lee first completed a master's degree at Seoul National University. Her advisor's research fit with and sharpened H. Lee's interests. She said, "My advisor studied achievement motivation, and I knew then that I would naturally follow his research interest, recognizing that it was also my interest." To follow that interest, H. Lee realized that she needed to attain a Ph.D. and believed that the USA was the best place to do that, but she needed to prepare herself for that while earning her master's. H. Lee said, "I wanted to study in the U.S., so in addition to spending most of my time learning theories and content knowledge, I also prepared for the GRE and English language tests."

Once in her doctoral program, H. Lee continued to follow her bliss and feed her interest through coursework, collaborative research, and especially by reading extensively the work of achievement motivation experts. H. Lee read research articles deeply and personally and felt as if the authors were speaking to her and sharing their passion for investigating achievement motivation and helping students attain academic success. H. Lee also read these articles with a keen eye toward improving as a scholar. She said:

I was reading lots of articles in my research area, perhaps 100 toward each publication. As I read, I would feel like I was having a conversation with the authors. Some articles I read over and over again, because I was so impressed by the authors' writing, their tone of voice, or the way they made a story out of their studies. Reading these journal articles as I did raised the standards of my research design and writing.

## Discussion

Graduate student award winners in educational psychology were interviewed independently and asked to describe the factors that made them successful graduate students. Although each told a unique story, there were commonalities among stories that should be of interest and importance to those pursuing graduate degrees and to those who instruct and mentor them. Six commonalities were particularly evident among participants: (a) follow your bliss, (b) work with one or more helpful mentors, (c) work hard and smart, (d) manage time, (e) seek support, and (f) build writing skills. These graduate school scholarly success factors are discussed and also linked to productive established scholar success factors revealed through previous studies.

### *Follow Your Bliss*

None of the present study's participants attended graduate school to mark time or to simply earn a marketable degree. They went with a purpose, with a passion to learn about an area of personal interest. Wan's passion area was human choice and motivation, and his graduate school choices of institution, mentor, coursework, and research experiences reflected that. H. Lee uncovered her passion for investigating achievement motivation while she was a teacher in South Korea pondering why some students succeed and others fail even when instructed in the same environment. That passion led H. Lee to quit her teaching job, hone her English language skills, attend graduate school in the USA, and overcome the strains of single parenthood to maximize her graduate school experiences.

Productive scholars continue to follow their bliss beyond graduate school and throughout their long and successful careers (Flanigan et al., 2018; Kiewra & Creswell, 2000; Kiewra et al., 2021; Patterson-Hazley & Kiewra, 2013; Prinz et al., 2020). Productive scholar Patricia Alexander (Bembenutty, 2022, p. 89) said:

I wanted to learn all I could about reading and learning—what goes on inside the head of students—and all those important constructs like strategies or interests intricately tied to reading and learning. I have always wanted to understand *why*. Such *why* questions continually pop into my head and

will never be quieted. Seeking answers to those why questions are what drive my research and teaching—it is that questioning behavior and my passion for students' academic development that makes me an educational psychologist.

### ***Work with One or More Helpful Mentors***

Much to our surprise, all the present study participants benefited from having multiple mentors. H. Lee had four, Robinson had three, and Wan and H.J. Lee each had two. All the mentors provided critical training and guidance. Robinson had an unofficial mentor who carried over from her prior position as a research assistant. Robinson's primary mentor left Harvard University after Hunter's first year but continued to act as a second unofficial mentor throughout Robinson's graduate career.

H. Lee had an advisor but also had three unofficial mentors who shared similar characteristics with one another and with H. Lee. All were Asian females, recent graduates who transitioned to the USA for their Ph.D.s, had English as a second language, and had families of their own. H. Lee's mentors also fulfilled traditional mentoring roles and were instrumental in teaching her the behind-the-scenes, hidden curriculum things needed to become a successful academic.

Wan worked with mentors offering complementary strengths. One largely counseled him on research methodology and manuscript writing; the other largely on Wan's passion topic of motivation and choice.

H.J. Lee also had two complementary mentors: one who advised her on how to develop interesting research ideas and design rigorous experiments and one who advised her on analytic strategies and writing improvement. Collectively, her advisors stressed and modeled publishing quality over quantity, exposed her to international scholars, and aided H.J. Lee's English proficiency.

Productive scholars investigated in studies past also credited their graduate school mentors for jumpstarting their scholarly success (Flanigan et al., 2018; Kiewra & Creswell, 2000; Kiewra et al., 2021; Patterson-Hazley & Kiewra, 2013; Prinz et al., 2020). In only one previous case, however, did a productive scholar (Barry Zimmerman) mention having more than one mentor (Patterson-Hazley & Kiewra, 2013). We wonder just how common it is presently for graduate students outside our study to be guided by multiple mentors.

### ***Work Hard and Smart***

Graduate student scholars in the present study and established scholars in previous studies worked a lot, prioritized research, and orchestrated research programs involving multiple studies. Regarding work hours, Robinson and H.J. Lee reported working upwards of 60 h per week as graduate students. Similarly, H. Lee reported working about 10 h each weekday plus additional time on Saturday or Sunday. Productive scholars worked normal to long hours too. Rich Mayer (Kiewra & Creswell, 2000; Patterson-Hazley & Kiewra, 2013) and Logan Fiorrella (Kiewra et al., 2021) reported working normal eight-hour days. Others like Doug Lombardi and Erika Patall (Kiewra et al., 2021), Hans Gruber (Flanigan et al., 2018), Michael Pressley (Kiewra & Creswell, 2000), and Patricia Alexander (Patterson-Hazley & Kiewra, 2013; Prinz et al., 2020) admitted to working far more hours and being consumed by their work.

Regarding research prioritization, the graduate students selected courses and other voluntary learning activities aimed at scholarly growth when possible, and much of their work time was reserved for scholarly activities. All the graduate students sought learning opportunities that maximized their scholarly training and productivity. One such opportunity came from choosing courses that required projects and other deliverables that could lead to or produce literature reviews, grant proposals, conference submissions, or dissertation chapters. Robinson and Wan were also fortunate to have coursework pertaining to the hidden curriculum, the behind-the-scenes advice for being a successful academic and productive scholar. The graduate students also sought scholarly training outside their required coursework by attending workshops, joining writing groups, attending voluntary classes, and doing a lot of unassigned reading.

In terms of time allocated to research, Wan spent two to four hours a day focused on scholarly activities. H. Lee focused on scholarly activities in the afternoons and evenings. Robinson preferred to tackle scholarly work in the mornings when her mind was most fresh. She also used small time pockets to accomplish scholarly things throughout the day, such as on daily train rides. Research prioritization was certainly evident among the established scholars too. Erika Patall likely spoke for most productive scholars when she said, “You can’t

be a jack of all trades. To be a successful researcher, you must prioritize research over all else” (Kiewra, Luo, & Flanigan, p. 2007).

It is well established that working on multiple studies is a hallmark characteristic of productive scholars. German scholars spoke of having 10–15 ongoing projects in different stages of completion (Flanigan et al., 2018). Juggling multiple research projects clearly began in graduate school for our graduate student scholars. All of them were engaged in multiple projects with faculty and student collaborators at any given time, usually leading one or more of them. H.J. Lee typically had three projects ongoing and was leading at least one of them. Wan usually worked on multiple projects and led one to three of them at any given time.

A collaboration caveat from the present study was the “floater” opportunities Wan was afforded at UC-Irvine. Students there were encouraged to float among faculty, rather than work solely with their advisor, seeking and benefiting from myriad collaboration opportunities. The only established scholar to mention student floating opportunities was Erika Patall who mentioned it relative to her faculty positions at the University of Texas and the University of Southern California (Kiewra et al., 2021).

A recent study about productivity in educational psychology found that top scholars collaborate a lot (Fong et al., 2022), having collaborated on 88% of their publications in the past five years with an average of 3.6 collaborators per publication. The graduate student scholars investigated here also collaborate a lot. Among the four recently graduated scholars, they presently have 39 publications and just one of those is single authored, meaning that 97% of their publications are collaborative. Their average number of collaborators per publication is 4.4. Moreover, the bulk of their publications are indicative of an apprenticeship system wherein students team with advisors and fellow students of varying experience to learn the publication ropes and get things published.

### ***Manage Time***

Two hallmark time management characteristics of productive scholars are planning and work-life balance. Graduate student scholars investigated here share these characteristics. Established self-regulation

scholar Dale Schunk exemplifies the planning productive scholars do (Patterson-Hazley & Kiewra, 2013). Schunk sets project goals each year and makes monthly, weekly, and daily plans and timelines for completing them. The graduate student scholars are avid planners and time managers too. H.J. Lee made plans much like Schunk. She scheduled her time by creating monthly, weekly, and daily to-do lists and highlighted the priorities. She kept detailed records of her accomplishments and time spent working. H. Lee set aside uninterrupted four-hour-long time blocks to accomplish cognitively demanding tasks but spent no more than an hour on low-priority work. Robinson also used to-do lists to plan and guide her work. Similarly, Wan reported that proper planning is a key to graduate school success by helping students set and accomplish goals near and far.

Productive scholars and graduate students alike strive to achieve a work-life balance. Established scholars Barry Zimmerman and Dale Schunk are good exemplars (Patterson-Hazley & Kiewra, 2013). Zimmerman exercised one to two hours most afternoons and enjoyed several leisure activities. Schunk scheduled break time into his days to rest and rejuvenate. Among the graduate scholars, three of them took a full day off every weekend for leisure and energy restoration. Most also balanced their work lives by spending time with family, socializing with friends, and enjoying recreational activities like swimming, bike riding, walking, hiking, and rowing.

### ***Seek Support***

Two types of support were instrumental to graduate school success: institutional and personal. The graduate students selected center of excellence institutions that offered strong financial support that also maximized research opportunity and time. Robinson chose Harvard, in part, because of its attractive funding package. Wan had similar financial support from UC-Irvine, which guaranteed Wan five to seven years of funding.

Productive scholars are also well supported by their universities beyond financial compensation. For example, University of Georgia scholar Logan Fiorella was afforded a manageable course load, reduced service obligations, and nominated for awards (Kiewra et al., 2021). Sabina Neugebauer commented that resource-rich institutions



provide various supports that set one up for success. They provide a brand name that attracts prominent scholars and talented students with whom to collaborate. They also provide the infrastructure and financial resources to get things done (Kiewra et al., 2021).

Personal support was important for dealing with the rigors of graduate school. Robinson had a child during graduate school and had childcare support from her husband, family, and nanny. H.J. Lee also benefited from family support, both financial and emotional, throughout her graduate studies. For H. Lee, personal support came largely from a childcare nanny and from her church community, which helped her with childcare, cooking, and household chores.

Leaning on others for personal support, to maximize scholarly time and productivity, was also evident among established scholars in previous studies. Productive scholar Rebecca Collie, for example, relies on her husband's homecare contributions (Kiewra et al., 2021). German scholars Frank Fischer and Alexander Renkl have spouses who handle the bulk of family chores, freeing them to largely focus on their work (Flanigan et al., 2018).

### ***Build Writing Skills***

The graduate students emphasized the importance of building writing skills during graduate school. Common strategies included establishing a writing routine, seeking critical writing feedback, and establishing or joining writing groups. H.J. Lee made writing a routine, writing most mornings for two to four hours. Wan said, "Daily writing kept me in the flow, kept my momentum rolling." Productive scholars maintain writing routines too. For example, Logan Fiorella said, "It is really important to establish a writing habit, doing it at the same time and place day after day, where it is just what you do, and it feels like no big deal (Kiewra et al., 2021, p. 2013).

The graduate scholars received a heavy dose of writing feedback from advisors and instructors and were appreciative of it. Robinson, for example, said that mentor feedback on her writing "contributed significantly to my growth in graduate school and as a scholar," and that instructors "offered generous feedback that made me a better writer, and one who can communicate across disciplines." Productive scholars continue to seek and value writing feedback. Productive

scholar Ming-Te Wang said, “Receiving feedback is sometimes painful, but you just need to get over it because no one is a perfect writer and feedback is what makes you better” (Kiewra et al., 2021, p. 2013).

H.J. Lee and Wan were members of writing groups that proved instrumental to writing improvement. Two productive scholars, Ming-Te Wang and Sabina Neugebauer, also relied on writing groups while in graduate school to develop writing skills (Kiewra et al., 2021). Neugebauer carried this practice to her professorial role and credits writing groups for her professional development and productivity (Kiewra et al., 2021).

## **Conclusion**

There are several implications for graduate programs and graduate faculty wanting to boost graduate student success that arise from the present study, such as (a) offer a strong financial package that attracts and supports potentially strong graduate students and allows them to focus on research, (b) link students with multiple mentors who can help them follow their bliss, (c) allow students to float among faculty and research opportunities, (d) build apprenticeship programs that allow students to work with faculty and with peers of varying experience on multiple projects, (e) counsel students to prioritize research and to seek learning opportunities that boost scholarly skills and productivity, (f) design and offer courses that require deliverables that boost research experience and productivity and that offer detailed writing feedback, and (g) help students develop a healthy work-life balance and support network.

Another important thing a graduate program can do is to instruct students in the hidden curriculum, the behind-the-scenes methods and advice for being a productive scholar. Productive scholar Rebecca Collie (Kiewra et al., 2021) spoke of the hidden curriculum, saying:

If you start out as an assistant professor, you have to navigate the hidden curriculum in academia on your own. You might wonder, “Do I do it this way or that way? I guess I have to try it this way.” Then if it doesn’t work, you have to go back and do it the other way. (p. 1998)

Collie was fortunate to learn the hidden curriculum before becoming a professor thanks to her postdoctoral advisor who fed her bits of success information most days. As Collie indicated, not learning the hidden curriculum leaves most junior faculty trialing and erroring it for some time. That is why we were delighted to see that the former graduate students we interviewed learned hidden curriculum information incidentally from their mentors or took graduate classes especially designed to reveal the hidden curriculum.

Our final recommendation, then, is to have graduate faculty deliver such lessons as they interact with students and to perhaps offer a graduate course that reveals the hidden curriculum. We, the authors, understand the value of such a course. Author Kiewra instructs a hidden curriculum graduate-level course called *Be a More Productive Scholar*, using the research articles cited in this article and a book matching the course title (Kiewra, in press). The other authors, who were students in the class, can attest to the benefits of learning about the hidden curriculum and becoming better equipped to attain scholarly success in graduate school and beyond.

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**Declarations** Conflict of Interest The authors declare no competing interests.

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