Canadian Psychology
Psychologie canadienne

Volume 62:4 November 2021 / novembre 2021

Special Issue: Teaching Psychology /
Numéro spécial : Enseignement de la psychologie

ISSN: 0708-5591
ISBN: 978-1-4338-9534-0

Canadian Psychology
Psychologie canadienne

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Psychologie canadienne paraît quatre fois par année (février, mai, août, novembre) et est regroupée en un volume par année. La revue est publiée pour le compte de la Société canadienne de psychologie par l' Educational Publishing Foundation de l'American Psychological Association (APA), 750 First Street, NE, Washington, DC 20002-4242. Abonnements d'un an seulement (de janvier à décembre). Les tarifs de 2022 sont les suivants : Particulier au Canada : 119 $_TPS/TVH. Non-membre aux États-Unis : 176 $ (local), 205 $ (étranger), 218 $ (par avion). Institution au Canada : 289 $_TPS/TVH. Institution aux États-Unis : 617 $ US (local), 666 $ (étranger), 681 $ (par avion). Membre de L'APA : 113 $. Écrire au EPF/APA Subscriptions Department, 750 First Street, NE, Washington, DC 20002-4242; subscriptions@apa.org. Imprimé aux États-Unis.

Canadian Psychology
Psychologie canadienne

https://www.apa.org/pubs/journals/cap

November 2021
novembre 2021

Volume 62
Number 4 / no 4

Special Issue: Teaching Psychology /
Numéro spécial : Enseignement de la psychologie

(*Contents continue*)

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Lancement : janvier 2021; rédactrice en chef : Vina Goghari

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Ressources utiles :

- Hyman, R. (1995). How to critique a published article. *Psychological Bulletin, 118*, 178–182.
- Sternberg, R.J. (2006). *Reviewing scientific works in psychology*. Washington, D.C. American Psychological Association.
- https://authorservices.wiley.com/Reviewers/journal-reviewers/how-to-perform-a-peer-review/step-by-step-guide-to-reviewing-a-manuscript.html
- https://www.sciencemag.org/careers/2016/09/how-review-paper
- https://www.elsevier.com/reviewers/how-to-review

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 345–347
https://doi.org/10.1037/cap0000310

EDITORIAL

Teaching Psychology

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This editorial introduces the special issue "Teaching Psychology," focusing on education and training, one of the fundamental aspects of our profession. Ten articles center on important issues and trends in the landscape of teaching psychology, including (a) improving work–life balance for teachers, (b) moving toward a science of teaching, (c) decolonization and social justice-related teaching pedagogies, (d) course-specific guidance, and (e) a focus on student learning and student success. To remain as relevant to societal needs as possible, psychology will have to create the necessary bridge from theory and research to helping students prepare for careers; include new technological innovations; ground teaching in science; and transform the teaching of psychology to promote a more equitable and inclusive society.

Keywords: undergraduate education, graduate education, teaching pedagogy, scholarship of teaching and learning, higher education

We are pleased to introduce this Special Issue on Teaching Psychology. This issue has been percolating for some time in the Canadian psychology landscape. The idea for such an issue has been discussed frequently since the Canadian Psychological Association (CPA) held two summits on graduate education and research in Canada in 2019. These thought-provoking and generative discussions resulted in the Special Issue on Graduate Education, Research, and Professional Training in Psychology (Goghari, 2019). This Special Issue on the teaching of psychology and undergraduate education follows as a natural complement to that work. Compared with 2021, the teaching world in psychology was quite different in 2019 when this Special Issue launched its Call for Papers. Since then, the worldwide COVID-19 pandemic has changed the very nature of our lives, profession, and education since the point when, over the course of just a few days in March 2020, instructors had to pivot to largely virtual instruction and mentorship. This pivot transformed the teaching of psychology to include new pedagogies and access, but our core commitment to our learners and learning remains the same. This Special Issue is a tribute to the dedicated teachers and learners who continue to shape psychology for the public good.

The 10 articles featured in this special issue can be subsumed into 5 overlapping categories, all of which link to larger-scale trends in education: (a) improving work–life balance for teachers, (b) moving toward a science of teaching, (c) decolonization and social justice-related pedagogies, (d) course-specific guidance, and (e) a focus on student learning and student success.

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In relation to improving the work environment for teachers of psychology, Regan Gurung from Oregon State University sets the stage to enable teachers to survive and even thrive in pandemic conditions in his article "Inspire to Learn and Be CCOMFE Doing It" (Gurung, 2021). Gurung specifically situates the importance of teaching and learning during the COVID-19 pandemic, offering a prescriptive instructional model that emphasizes compassion, clarity, organization, being multifaceted, flexibility, and engagement (CCOMFE). Similarly, Dana Dunn from Moravian College and Jamie McMinn of Westminster College thoroughly explore the elusive notion of work–life balance in their article "The Work-Life Balance of Academic Psychologists: Evidence and Anecdote" (Dunn & McMinn, 2021). Academics striving for work–life balance have always contended with a push–pull dynamic, and this home/office dichotomy became even more pronounced during the pandemic. Dunn and McMinn describe potential approaches for establishing boundaries, challenges to time management, and the changes in work–life balance over the arc of one's career.

Many of the authors in this issue address important, high-level teaching concerns that are not necessarily tied to a specific course or curricular issue. In their article "Towards an Ecological Science of Teaching," David Daniel of James Madison University and Pedro De Bruyckere of Artevelde University suggest that researchers examining the effectiveness of different teaching techniques must transcend an understanding of main effects and use more nuanced and complex methods to reflect real-world learning conditions (Daniel & De Bruyckere, 2021). At times, statistical significance may be an artifactual (i.e., deceptive) goal; Daniel and De Bruyckere note that under certain ecological conditions, a nonstatistically significant outcome might result in a meaningful and authentic change in student learning outcomes. In his work "Teaching Styles and Troublesome Students," Douglas Bernstein from the University of South Florida examines developing trends in student attitudes, focusing mainly on how attributes such as an outsized sense of entitlement develop (Bernstein, 2021). Rather than ascribing such phenomena to

oversimplified generational tropes or faulty parenting, Bernstein proposes that instructor teaching styles may directly influence students' sense of entitlement. He defines different teaching styles, relates one particular style to troublesome student behavior, and outlines a research agenda for this new conceptualization of teaching styles.

The teaching of psychology continues to benefit from the digital revolution and its accompanying innovations. Danae Hudson from Missouri State University provides a comprehensive state-of-the-art overview of digital textbooks in her work "Learning How to Learn From Digital Textbooks: Evidence-Informed Recommendations for Instructors and Students" (Hudson, 2021). The look and feel of digital textbooks have advanced far beyond the conversion of physical textbooks into PDF or e-pub documents, and savvy instructors can leverage concepts from learning science and integrate these features to create complete learning systems. Here, Hudson shares her expertise in the digital textbook world from the unique perspective of instructor, published researcher, and introductory psychology digital textbook author.

Decolonization and social justice-related pedagogies are also critical to changing not only how we think about psychology, but also how we teach it. In their article "Reenvisioning Undergraduate Teaching in Psychology Through Structural Competency and Radical Justice," Alisha Ali and Corianna Sichel of New York University address the opportunity to educate undergraduate psychology majors as agents of social justice to rectify oppression, marginalization, and disempowerment (Ali & Sichel, 2021). Although many current faculty members may wish to help undergraduate students develop such skills, they may lack the competencies to prepare students for the varied challenges they will face. Ali and Sichel present a structural competency paradigm that models the desired outcomes of critical thinking and social change. Decolonization also takes center stage in the integrative work "Indigenizing the Introductory Psychology Course: Initial Course Content Suggestions and Call for Collaboration," in which Jonathan Wilbiks from the University of New Brunswick tackles the literal reconciliation of typical Western/European "ways of knowing" about psychological knowledge with Indigenous ways of knowing in a Canadian context, and describes how these epistemologies may be in conflict (Wilbiks, 2021). In the context of the Truth and Reconciliation Commission of Canada, Wilbiks provides a wealth of resources enabling teachers of introductory psychology to begin to integrate Indigeneity into their courses, and to further this important goal he recommends establishing an open-source database as a repository of such shared materials.

Making course content relevant to today's students can be challenging even for the best of instructors; Christopher Green from York University offers valuable advice on enhancing relevance and interest in his article "Teaching the History of Psychology" (Green, 2021). Not knowing students' general interest level or background in history can initially pose challenges to making psychology courses broadly interesting to them. Green provides a wide array of topic examples—ranging from Wilhelm Wundt to German unification to British standardized testing (and more)—that instructors may use to increase student interest; in addition, he offers practical pedagogical advice on using original source material and other approaches in optimal ways to enliven History of Psychology courses.

Two authors in this special issue focus broadly on the teaching of psychology from the student perspective while centering the necessity of faculty efforts to help students succeed. In her work "A Comprehensive, Iterative, and Integrated Model for Developing Psychology Workforce Literacy," Stacie Spencer from MCPHS University shares her expertise in helping students to envision their future and to experience a successful transition from degree to career (Spencer, 2021). Occupational domains and workforce literacy are key elements of career mentoring that every undergraduate psychology student should receive, and Spencer has developed and implemented a multistage, multiyear model that develops workforce literacy in her students well beyond the basic elements of "academic advising" or "career advising." Understanding student learning challenges is the emphasis of the article "An Advance Organizer for Student Learning: Choke Points and Pitfalls in Studying" by Stephen Chew from Samford University (Chew, 2021). For instance, Chew notes that alerting students to common mistakes made while studying for tests and writing papers does not teach them the actual requisite error-correction skills; if such approaches helped students to acquire these skills, they might not make such errors in the first place. Chew presents an organizational scheme that describes effective methods of teaching students how to avoid such errors—an invaluable "how to" guide for instructors who seek ideas on teaching their students how to avoid multitasking pitfalls, overcome overconfidence, and more.

Together, these 10 articles cover the landscape of Teaching Psychology and situate training and education at the forefront of the discipline of psychology. Given the popularity of psychology courses and the psychology major, psychology educators have a real opportunity to reach an enormous number of learners and to make psychological knowledge critical to current societal needs. However, to do so, teachers of psychology will need to move beyond their existing grounding in psychological theory and research to help students prepare for careers, integrate new technological innovations, base teaching in evidence-based pedagogy, and promote a more inclusive and just discipline.

Résumé

L'éditorial présente la livraison spéciale consacrée à l'enseignement de la psychologie — en particulier à l'éducation et à la formation — un volet fondamental de notre profession. Dix articles portent sur des questions et des tendances importantes dans le domaine de l'enseignement de la psychologie, dont a) l'amélioration de l'équilibre travail-vie personnelle parmi les professeurs; b) la progression vers une science de l'enseignement; c) les pédagogies de l'enseignement axées sur la décolonisation et la justice sociale; d) une orientation adaptée aux cours; e) l'accent sur l'apprentissage et la réussite des étudiants et étudiantes. Pour maintenir sa pertinence à l'égard des besoins sociétaux, la psychologie devra relier théorie et recherche et l'aide aux étudiants et étudiantes en vue de préparer leur carrière, inclure les récentes innovations technologiques, ancrer l'enseignement dans la science et transformer l'enseignement de la psychologie en vue de favoriser une société plus équitable et plus inclusive.

Mots-clés : études du premier cycle, études supérieures, pédagogie de l'enseignement, science de l'enseignement et de l'apprentissage, enseignement supérieur

References

Ali, A., & Sichel, C. E. (2021). Reenvisioning undergraduate teaching in psychology through structural competency and radical justice. *Canadian Psychology/Psychologie canadienne*, *62*(4), 385–390. https://doi.org/10.1037/cap0000306.

Bernstein, D. A. (2021). Teaching styles and troublesome students. *Canadian Psychology/Psychologie canadienne*, *62*(4), 367–376. https://doi.org/10.1037/cap0000279

Chew, S. L. (2021). An advance organizer for student learning: Choke points and pitfalls in studying. *Canadian Psychology/Psychologie canadienne*, *62*(4), 420–427. https://doi.org/10.1037/cap0000290

Daniel, D. B., & De Bruyckere, P. (2021). Toward an ecological science of teaching. *Canadian Psychology/Psychologie canadienne*, *62*(4), 361–366. https://doi.org/10.1037/cap0000291

Dunn, D. S., & McMinn, J. G. (2021). The work-life balance of academic psychologists: Evidence and anecdote. *Canadian Psychology/Psychologie canadienne*, *62*(4), 352–360. https://doi.org/10.1037/cap0000281

Goghari, V. M. (2019). Spotlight on graduate education, research, and professional training in psychology. *Canadian Psychology/Psychologie canadienne*, *60*(4), 215–218. https://doi.org/10.1037/cap0000194

Green, C. D. (2021). Teaching the history of psychology. *Canadian Psychology/Psychologie canadienne*, *62*(4), 400–408. https://doi.org/10.1037/cap0000294

Gurung, R. A. R. (2021). Inspire to learn and be CCOMFE doing it. *Canadian Psychology/Psychologie canadienne*, *62*(4), 348–351. https://doi.org/10.1037/cap0000277

Hudson, D. L. (2021). Learning how to learn from digital textbooks: Evidence-informed recommendations for instructors and students. *Canadian Psychology/Psychologie canadienne*, *62*(4), 377–384. https://doi.org/10.1037/cap0000304

Spencer, S. M. (2021). A comprehensive, iterative, and integrated model for developing psychology workforce literacy. *Canadian Psychology/Psychologie canadienne*, *62*(4), 409–419. https://doi.org/10.1037/cap0000309

Wilbiks, J. M. P. (2021). Indigenizing the Introduction to Psychology course: Initial course content suggestions and call for collaboration. *Canadian Psychology/Psychologie canadienne*, *62*(4), 391–399. https://doi.org/10.1037/cap0000284

Received September 20, 2021
Accepted September 20, 2021 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 348–351
https://doi.org/10.1037/cap0000277

Inspire to Learn and Be CCOMFE Doing It

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Books and research on how to teach well abound. The coronavirus pandemic forced a new look at teaching as faculty taught remotely. Teaching and learning has been discussed in a new light with the importance of course design and instructional practices to build community coming to the forefront. In general, the role of educators to inspire students is clearer than ever. This piece reviews broad criteria used to evaluate teaching in general and as influenced by the pandemic. It provides a new, concrete set of prescriptions for instruction, charging educators to be compassionate, clear, organized, multifaceted, flexible, and engaging (CCOMFE) to inspire learning.

Keywords: model teaching, remote learning, pandemic, inspiration, student evaluations

When considering what makes for good teaching higher education too often focuses on the extent to which content is covered or on student evaluations. When teaching moved remote during the COVID pandemic the process of teaching and learning was made more visible. Evaluations of student reactions to remote teaching and a review of effective elements suggest the key elements of clarity, compassion, organization, multifacetness, flexible, and engagement (CCOMFE). The ability and importance of educators to inspire learning rises tall as well. This short piece unpacks each of these key elements highlighting the importance of inspirational teaching. I first review the impact of the pandemic on teaching teasing apart the nuances of emergency remote teaching from online teaching in general. I then shine a light on what makes good teaching with an emphasis of CCOMFE teaching. Finally, I underscore the role of providing hope and inspiration as a teaching tool.

In David Brin's postapocalyptic novel *The Postman* (1985), the world is a scattered conglomeration of townships struggling for survival. There is no real government and the advances of generations have been wiped away. One surviving supercomputer at a university in Corvallis, Oregon, may herald back a renewal, but all is not as it seems. A wanderer finds the uniform of a long-dead postal worker and dons it for protection. Soon he realizes he is wearing a symbol of hope. People he encounters are inspired to work for good. The visual remnant of a time and process long gone catalyzes the end of tyranny and the resurgence of order. There is a lesson here for the teaching of psychology in a pandemic (and postpandemic) world": Inspiration is not only a helpful tool to support learning, it is a critical feature of good teaching.

With the global pandemic and international protests surrounding the murder of George Floyd, the situation seems bleak. While nothing close to a postnuclear wasteland, the current situation eerily echoes the futures evoked in science fiction narratives of contagion and postapocalyptic societies. A U.S. survey of over 4000 faculty at more than 1500 higher education institutions suggests inspiring and motivating students was a significant challenge during Spring 2020 (Fox et al., 2020). A survey of over 1000 students mirrored this finding, showing students had significant motivation problems during the same time (Means & Neisler, 2020). Teachers of psychology, just like the protagonist in Brin's tale, can play a significant part of leading us forward to better times.

Psychological scientists and those who teach it are particularly important because the subject matter of the field directly relates to affect, behaviors, and cognitions (Chew et al., 2018). Psychologists study how human beings function, describe their behavior, and work to predict factors such as learning. I would argue that higher education, and in general and psychology in particular, have overlooked a key affordance of educators. We can and should aim to inspire learning.

Teachers of psychology can use the knowledge from psychology and about human learning to inspire learning. This not a charge to take lightly. By virtue of the roles we play, educators worldwide are already well positioned to lead our students forward. To make this point, I first reflect on pedagogy during the pandemic, and then overview general characteristics that make model teachers of psychology. I use this foundation to highlight the role of inspiration and the need to practice a pedagogy of hope. I conclude with a key heuristic designed to make courses inspirational both during the pandemic and beyond.

Teaching Psychology During A Pandemic

With the onset of the pandemic, courses moved out of brick and mortar classrooms and went remote. Faculty worked overtime and students struggled to cope with their own anxieties and, for many, a new way to learn. Deming (2020) nicely addressed the seismic changes to higher education brought on by the Coronavirus pandemic, aiming to allay fears of both classroom teachers who may see their jobs threatened by online instruction, and learners who may see remote teaching as the future of education. Deming argued for traditional colleges to make learning experiences more meaningful, by mentoring, individualized attention, and the inspirational role of

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educators. Specifically, he noted that face-to-face interactions with faculty are more likely to motivate students and provide some benefits that online instruction may not be able to do as well. The discussion of teaching during the pandemic shines a light on some issues with how teaching in general is discussed.

Three key clarifications are prudent to highlight for a special issue on teaching of psychology. First, teaching is more than just delivering content. Synchronous lectures on the same days and times as face-to-face instruction are major factors that distinguish emergency remote teaching (ERT) from online education. Many instructors making the pivot to ERT used synchronous lectures to deliver content. In online education which is mostly asynchronous, lecturing (if any), is recorded allowing learners to access content on their own schedules. Attention needs to be paid to the engagement of the learner through pedagogy designed to increase engagement and build community. Beyond just lecturing to deliver content, the key for ERT, online learning, and face-to-face classes are implementing activities used to foster discussion, engagement, and active learning.

Second, criticisms applied to ERT (e.g., sometimes poorly designed) can be applied to all forms of instruction, whether face-to-face or online. There are great classroom teachers and poor classroom teachers. There are effective online classes and ineffective online classes. Even a chalkboard can be misused. Likewise, we are bound to hear of exemplary examples of ERT in the months ahead. Our challenge is to capture and share these exemplars of effective and inspiring teaching. We can also use this moment to explore all forms of teaching and all classes, whether online or face to face, and hold them to the same yardstick.

Finally, let us not forget that the short-term solution for keeping education going forward in a positive manner, whether in K-12 or higher education via ERT, is not the same as what prior to the pandemic has been called "online learning" or "eLearning." The educators who kept teaching delivered ERT, they did not move to online learning as we knew it, a distinction obfuscated too often. Online teaching requires detailed structuring, planning, and design, often taking months of preparation. For many instructors, ERT involved delivering lectures otherwise live, via the internet, with all else staying the same.

The discussion around ERT relates to whether it is good enough and nicely draws attention to *the* key question: What is good education? All education needs to be scrutinized to answer this question. We should always compare different pedagogies. Instead of only asking if ERT during the pandemic is the same as normal face-to-face instruction, we also always need to assess our courses. A wealth of research explores how well online courses compare to face-to-face courses (it depends, but they do compare well and sometimes do even better than face-to-face), but we should also be asking how well summer courses compare to regular term courses or if 6-week courses are equal to full semester courses (as they award the same credits).

In fact, scrutiny of ERT highlights what higher education should be more sensitive to in general. Students face significant challenges with ERT because of challenges with equitable internet access, stress and anxiety due to the pandemic, unstable living conditions, and existing mental and physical health issues. What many forget is that too many of our students always face these challenges, regardless of delivery method. Plus, these challenges are all studied by psychology and teachers of psychology should better incorporate what is known about solutions to these factors. Now perhaps we are more aware of the issues and in a better position to address them after, and even because of, the pandemic.

The upside to ERT during the pandemic is that it highlights the ways technology can aid learning. The situation forces us to consider the important elements of in-person teaching that some faculty have not compensated for when going remote (Fox et al., 2020). Have we been using our face-to-face time optimally? What do students get out of coming to college in person? Can the ways community is built, students are engaged, and the instructor's presence felt in ERT and online teaching be elevated in face-to-face classes with technology? Psychological science does provide ways to answer all these questions. For example, a recent study of learning during the pandemic showed that two major factors influenced student learning during Spring 2020 classes": Self-efficacy and the fit between expectations and what was received (Gurung & Stone, in press). Students who felt they could perform well in any modality, and students who had a match between their preferred modality and the modality of their classes, performed better on objective exams. In another study of learning during 2020, students high in metacognition and perseverance used more effective study techniques during pandemic learning (Gurung et al., in press). Paying attention to such psychological factors even after the pandemic can increase student learning.

What Is Good Teaching?

The struggle to convert classes to a remote format forced the question: Are remote classes as good as face-to-face classes? In answering this question, faculty and administrators in higher education noted some rookie mistakes. At first the charge for faculty was to keep the lights on and teach a face-to-face course without being face to face. Time constraints precluded a full course redesign for most faculty. Faculty who had previously taught online and designed courses with instructional designers fared better than those who did not have such experiences. Many attempts to go remote resulted in "Frankencourses" or courses-and-a-half. Some students experienced lumbering beasts of courses where in-person activities were surgically squashed into preexisting online courses. This squeezing resulted in more work for all. Moving face-to-face classes into the cloud did not allow faculty to capitalize on the better practices available and tested in online education. For example, many online classes use discussion rooms and chat, and, in general, optimize course design to address the useful categories of student-instructor, student-student, and student-content (Riggs, 2019). Many psychology teachers may not have used all that we know about the psychology of learning (Chew et al., 2018). Factors such as self-efficacy and motivation are key to learning and psychologists know this. Not all teachers of psychology used this information and modified their pedagogy accordingly.

So, what makes a good teacher anyway? A possible, yet stereotypical, answer "A teacher who gets good student evaluations of teaching (SETs)." Unfortunately, SETs are accompanied by a host of issues. Experts agree that the evaluation of teaching effectiveness needs multiple measures (Richmond et al., 2016). While SETs are ubiquitous and present a wealth of important information if well designed and administered correctly, SETs should never be relied on as the sole marker of teaching effectiveness (Boysen, 2016). But that is not all. SETs are also influenced by numerous factors that have nothing to do with teaching. Student misperceptions of learning

contaminate evaluations of teaching. As well described by Carpenter et al. (2020), students often believe they have attained high levels of learning when taught by enthusiastic, organized, engaging instructors and believe they have learned when, in fact, they may not have. The shortcomings of metacognitive skills are well documented (Dunlosky & Rawson, 2019), and these same metacognitive skills also make SETs less valid. Instructors mistakenly take high student evaluations to reflect good teaching without considering how they are influenced by faulty metacognition. Biased evaluations can lead instructors to do more (i.e., use superficially engaging pedagogies) of what, in fact, may be doing less (i.e., not lead to learning).

Many have attempted to characterize good teaching over the ages (see Gurung et al., 2018, for a full review). A Society of Teaching of Psychology Taskforce took on the charge to research and determine what it meant to be a model teacher. Over a 2-year period, this group featuring Richmond et al. (2014) integrated the literature on basic pedagogy, higher education, curricular design, and psychology-specific scholarship of teaching. They identified six general criteria for model teaching: training, instructional methods, content, assessment, syllabus, and student evaluation of teaching. Endorsed by the APA, the model teaching characteristics (MTC) was modified and additional research conducted to explore the scale's validity (Boysen et al., 2015). Another attempt led to the development of a measure of pedagogical behaviors associated with master teachers. The teacher behavior checklist (TBC; Keeley et al., 2010) is an easy to use, well-validated scale listing 28 ideal teacher behaviors. Students rate how frequently their instructor exhibits each behavior (e.g., speaks clearly). Although the TBC has now been used around the world (Buskist & Keeley, 2018), its limitations are similar to those of other SETs, and may fall prey to the faulty metacognition issues described by Carpenter et al. (2020), where errors in thinking and lack of awareness of biases can skew perceptions of the instructor.

What is interesting that while both the MTC and TBC help us clarify the specifics of what makes an effective teacher, they also describe teachers who are inspirational without tapping into the characteristic of "inspirational" specifically. In fact, qualitative statements of well evaluated teachers often show comments such as "She really made me want to study," a comment I have read in many reviews of faculty teaching. As I examine the nature of higher education today, I reflect on how teachers who can inspire are perhaps the most needed. To inspire, teachers need to have the training, content and instructional knowledge, and the other elements and behaviors well captured by the MTC and TBC, but by focusing on these components we seem to forget to focus on the role of inspiration.

Aim to be CCOMFE

This is a powerful time in our history. When the world emerges from a pandemic and addresses the problem of racial and cultural inequities, our classrooms may be ground zero for a rebirth and strengthening of the human mind. With more educators aiming to provide radical hope (Gannon, 2020), education moves closer to a collaborative enterprise between faculty and students than remaining a process of handing over knowledge. Ideally, faculty collaborate with students to help them go beyond simply gaining new knowledge but to analyzing, evaluating, synthesizing, and applying that knowledge. But knowledge is not fixed. It is dynamic, varies with interpretation, and must be questioned. We faculty can help. We can create safe spaces for students to comfortably interrogate existing beliefs, some of which may be inaccurate. We can make sure we include texts and readings from diverse perspectives than help this process. This is where we must take pains to inspire as we educate.

The pandemic is forcing higher education to pay more attention to good teaching and, ironically, the same prescriptions for teaching well in general apply to teaching psychology and during a pandemic. What is imperative is that the inspirational role of an educator becomes more important (Gurung, 2020; Means & Neisler, 2020). Students who had better experiences were in classes characterized by six factors: compassion, clarity, organization, multifacetedness, flexibility, and engagement. These six factors provide a prescription for teaching and learning during the pandemic, nicely echoing evidence-based practices for good face-to-face and online teaching (Richmond et al., 2016; Richmond et al., 2021; Riggs, 2019). These factors make for inspirational teaching and mirror empirical research from psychological science.

Inspirational teaching calls for *Compassion*. Faculty sensitive to the challenges of academia and the stressors of students' lives are careful of how much is asked from students. Faculty also communicate their care and concern for and to their students. They are kind, thoughtful, and even in the face of their own personal turbulences, they care for their students' well-being.

Faculty need to be *Clear*. We all become stressed when we do not know what is expected of us and when. Courses with clear expectations and detailed, well-structured learning management system (LMS) content are easier to learn from. Students who understand exactly what is needed, whether for group discussions or class projects, report better experiences.

Organization is more important now that ever. A well-organized instructor and class have always facilitated better learning. Paying close attention to the alignment of student learning outcomes to class activities and assessments stands to increase student motivation as their efforts are better justified.

Multifaceted courses, which provide students with many ways to learn and to interact with the content, the instructor, and other students (e.g., synchronous and asynchronous; breakout rooms, discussion boards, Jamboard, Google slides), tend to be easier to hold students' attention. Setting courses up to have different avenues for learning can be accomplished by leveraging the affordances of Zoom and LMS such as Canvas. As nicely captured by the MTC, faculty with good training and knowledge of different instructional methods can easily design multifaceted courses.

With the many extra challenges faced by students and faculty alike, inspirational teachers have *Flexibility*. Successful instructors are more flexible on due dates, attendance, and how learning is demonstrated. Given the uncertain nature of the pandemic, instructors ready to modify their classes for easing or tightening restrictions are seen more positively. Even without a pandemic, sickness or emergencies are always possible and while there is a place for due dates and attendance policies, instructors should always be ready for special cases where they can be waived.

Finally, instructors need to consider ways to build *Engagement*. Faculty who pay close attention to increasing their presence (e.g., introductory and weekly videos, frequent communique), and getting students to be engaged (e.g., Zoom polls, postlecture activities,

reading reflections) have students who are more engaged in the material and will be more satisfied with their learning (Means & Neisler, 2020).

Inspire Hope

Knowing disciplinary content will always be important. Being familiar with a wide range of pedagogical instructional methods is a critical part of good teaching. Beyond cognizance of backward design, the benefits of formative and summative assessment, the creation of rubrics, and the other tools in one's pedagogical toolkit, educators need to be aware of the important role they play. For many students, and especially those who have weathered storms of inequality, unhealthy home environments, suboptimal childhoods, or prejudice (based on their race, culture, gender, sexual orientation, class, disability, or otherwise) the higher education classroom can be a form of salvation. A college education can open the doors of thinking and opportunity, providing lifelong skills and the ability to go beyond knowing "what" to knowing "why" and "why not." Armed with our knowledge of the psychological factors influencing behavior, teachers of psychology are well positioned to nurture students' ability to think in more sophisticated ways. When educators are inspirational, this cognitive development is more likely to happen. If we strive to be inspirational, we can give our students hope.

Akin to the Postman in Brin's cautionary tale of the future, the educator—by the mere fact of being in the role of teacher—has a power to wield. Psychological research well documents the power of roles and situations. Let us not squander that power. Instead we can capitalize on the positions we hold to go beyond conveying knowledge to involving our students in the creation of knowledge and more importantly in developing skills they will use for a lifetime.

References

Boysen, G. A. (2016). Using student evaluations to improve teaching: Evidence-based recommendations. *Scholarship of Teaching and Learning in Psychology*, *2*, 273–284. https://doi.org/10.1037/stl0000069

Boysen, G. A., Richmond, A. S., & Gurung, R. A. R. (2015). Model teaching criteria for psychology: Initial documentation of teachers' self-reported competency. *Scholarship of Teaching and Learning in Psychology*, *1*, 48–59. https://doi.org/10.1037/stl0000023

Brin, D. (1985). *The postman*. Bantam Books.

Buskist, W., & Keeley, J. W. (Eds.). (2018). *Habits and practices of master teachers: International Perspectives on excellent teaching*. Wiley.

Carpenter, S. K., Witherby, A. E., & Tauber, S. K. (2020). On student's (mis) judgments of learning and teaching effectiveness. *Journal of Applied Research in Memory and Cognition*. https://doi.org/10.1016/j.jarmac.2019.12.009

Chew, S. L., Halonen, J. S., McCarthy, M. A., Gurung, R. A. R., Beers, M. J., McEntarffer, R., & Landrum, R. E. (2018). Practice what we teach: Improving teaching and learning in Psychology. *Teaching of Psychology*, *45*(3), 239–245. https://doi.org/10.1177/0098628318779264

Deming, D. (2020, April 9). *Online learning should return to a supporting role*. New York Times. https://www.nytimes.com/2020/04/09/business/online-learning-virus.html

Dunlosky, J., & Rawson, K. A. (Eds.). (2019). *The Cambridge handbook of cognition and education*. Cambridge University Press. https://doi.org/10.1017/9781108235631

Fox, K., Bryant, G., Lin, N., & Srinivasan, N. (2020, July 8). *Time for Class—COVID-19 Edition Part 1: A National Survey of Faculty during COVID-19*. Tyton Partners and Every Learner Everywhere. www.everylearnereverywhere.org/resources

Gannon, K. (2020). *Radical hope: A teaching manifesto*. West Virginia University Press.

Gurung, R. A. R. (2020, June). *Pandemic teaching prescriptions*. Inside higher education. https://www.insidehighered.com/advice/2020/06/10/six-factors-best-online-experiences-faculty-and-students-share-opinion

Gurung, R. A. R., Mai, T., Nelson, M., & Pruitt, S. (in press). Predicting learning: Study techniques, metacognition, grit, and procrastination. *Teaching of Psychology*, 1–7. https://doi.org/10.1177/0098628320972332

Gurung, R. A. R., & Stone, A. R. (in press). You can't always get what you want and it hurts learning during a pandemic. *Scholarship of Teaching and Learning in Psychology*. https://psycnet.apa.org/PsycARTI

Gurung, R. A. R., Richmond, A. S., & Boysen, G. A. (2018). Studying excellence in teaching: The story so far. B. Buskist & J. Keeley (Eds.), *Habits and practices of master teachers: International perspectives on excellent teaching* (pp. 11–19). Wiley. https://doi.org/10.1002/tl.20312

Keeley, J., Furr, R. M., & Buskist, W. (2010). Differentiating psychology students' perceptions of teachers using the Teacher Behavior Checklist. *Teaching of Psychology*, *37*(1), 16–20. https://doi.org/10.1080/00986280903426282

Means, B., & Neisler, J. (2020). *Suddenly online: A National survey of undergraduates during the COVID-19 pandemic*. Digital Promise. Tyton Partners and Every Learner Everywhere. www.everylearnereverywhere.org/resources

Richmond, A. S., Boysen, G. A., Gurung, R. A. R., Tazeau, Y. N., Meyers, S. A., & Sciutto, M. J. (2014). Aspirational model teaching criteria for psychology. *Teaching of Psychology*, *41*(4), 281–295. https://doi.org/10.1177/0098628314549699

Richmond, A. S., Gurung, R. A. R., & Boysen, G. (2016). An evidence-based guide to college and university teaching: Developing the model teacher. *Routledge*. https://doi.org/10.4324/9781315642529

Richmond, A. S., Gurung, R. A. R., & Boysen, G. (2021). *The model online teacher: A pocket guide*. Routledge.

Riggs, S. (2019). *Thrive online: A new approach to building expertise and confidence as an online educator*. Stylus Publishing.

Received June 9, 2020
Revision received December 2, 2020
Accepted December 5, 2020 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 352–360
https://doi.org/10.1037/cap0000281

The Work-Life Balance of Academic Psychologists: Evidence and Anecdote

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What represents a good work-life balance for career academics in psychology? What does it mean to have a good work-life balance? In this article, we use evidence and anecdote to discuss the challenges of achieving and maintaining work-life balance between faculty members' offices and homes. To do so, we discuss the boundaries that bind and separate psychology faculty members to work and home, the dilemmas posed by what seems to be ongoing faculty availability, issues of time management, service to one's own department and to the wider institution, and life at home. We close this article by suggesting that the only way to reduce the impact of or even eliminate the distress tied to aspects of the arc of faculty careers is to develop a reasonable semblance of work-life balance. To begin, we consider the nature of the perceived dichotomy between work and life.

Public Significance Statement
This article explores what it means for psychology faculty members to have a good balance between life in the workplace and the home. We use research evidence and anecdotal observations to discuss the office and home demands routinely faced by psychology colleagues. To do so, we consider the pressure to be available and accessible all the time, time management issues, service to one's department and institution, and life at home.

Keywords: work-life balance, academic careers, technology, time management

Many academic psychologists are careerists, that is, they thrive by pursuing professional advancement. Success is writ large by publications, grants, conference talks, and colloquia, excellent teaching evaluations, scholarly or pedagogical awards, sabbatical leaves, and, of course, tenure and promotion. Achieving the various goals tied to these emblems of success is not easy, so much so that maintaining a careful balance between the demands of career and the pull of private life requires ongoing attention.

What represents a good work-life balance? What does it mean to have a good work-life balance as a faculty member, whether part- versus full-time? These are questions that many academic psychologists, whether new to the academy or approaching emeritus status, routinely ask themselves.[1] As a term, work-life balance is meant to reflect a boundary between one's professional activities and obligations ("the office") and one's private or personal life ("the home"). The former venue entails teaching, scholarly or research pursuits, and service requirements (e.g., committee work), whereas the latter sphere includes family, friends, and leisure activities and particular interests. The problem, of course, is that the boundary between work life and social life is porous but often unidirectional, with career demands spilling over into and often circumventing personal pursuits and pleasures. To paraphrase a line from a famous poem by Yeats (2020), sometimes "things fall apart; our center cannot hold" or so it seems much of the time.

In this article, we use evidence and anecdote to discuss the challenges of maintaining balance between one's office and home. To do so, we discuss the boundaries that bind faculty members to or separate them from work and home, the dilemmas posed by what seems to be ongoing faculty availability, issues of time management, service to one's own department and to the wider institution, and life at home. We close this article by suggesting that the only way to reduce the impact of or even eliminate the distress tied to aspects of the arc of faculty careers is to develop a reasonable semblance of work-life balance. To begin, we consider the nature of the perceived dichotomy between work and life.

The Boundaries That Bind and Separate

The concept of work-life balance is the focus of research and debate across disciplines, not just psychology. Cohen et al. (2009) noted that researchers do not agree that a clear dichotomy between work and life exists, as we implied in our introduction. Indeed, work often creeps into home spaces as we respond to emails, upload

This article was published Online First April 22, 2021.
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[1] We cannot speak for all academics because we know our own field best, but neither are we suggesting that psychologists necessarily experience unique pressures tied to work-life (im)balance.

materials onto learning management systems, and prepare committee reports or research manuscripts while sitting in our living or dining rooms. Home matters also cross into the work space when we tend to child and/or elder care, manage personal appointments and issues, grieve losses in our families and relationships, and so forth. The boundaries become even more challenging for faculty members who are the sole caregiver for parents or children; who live apart from their families so that they can be closer to their campus (i.e., one work space, but two homes); or who teach at multiple institutions (i.e., one home, but several work spaces). The porous and blurred nature of boundaries already were obvious to faculty members who teach online, and many of us came to this realization while virtually welcoming students and colleagues into our homes during the COVID-19 pandemic (see also, Warzel, 2020). Across spring 2020 and into the fall, home, in effect, became a true extension of the workplace as institutions of higher education worked to mitigate the spread of the novel coronavirus.

Blurring boundaries are not the only challenge of understanding work-life balance. Perhaps surprisingly, it is unclear how much faculty members work, at least with regard to the number of hours worked. In a preliminary study at Boise State University, Ziker (2014) reported that faculty members work 60 hr weekly, on average, with a significant portion of time dedicated to such non-teaching activities as completing administrative tasks, attending meetings, and supporting recruitment activities. Gopaul et al. (2016) noted similar types of tasks across the working week for Canadian academics, though they reported fewer hours (50.7) devoted to those tasks. McKenna (2018) described more recent controversy on social media in which academics disagreed on the amount and nature of their work; nevertheless, 60 hr remained a consistent marker among American faculty members who contributed related posts on social media. McKenna noted that disagreements focused on the contract period (e.g., Do we count the summer?), the ongoing commitment of cognitive effort that surrounds our teaching and scholarship (e.g., Is it work if I am thinking about classroom assignments while exercising?), and the difference between work and our disciplinary passions (e.g., I love psychology, so teaching does not feel like work.). More systematic and cross-cultural research of faculty workload is important if we are to understand issues like work-life balance and help our colleagues in finding this balance.

Cohen et al. (2009) further suggested that time at work is not qualitatively identical to the same amount of time spent at home. Our demands and activities on campus are not the same as those that we enact at home, and our roles and styles also differ. Approaching interactions with our partners in the same way we approach a department chair or dean would probably be met with an unenthusiastic response; conversely, adopting a parental role with colleagues may be unappreciated by many. It is also unclear how balance should be conceptualized temporally (Cohen et al., 2009). Can balance be understood as a snapshot, or do we think about balance over a longer period, perhaps taking the average degree of balance over the course of a quarter/semester or academic year? Keeping a longer term perspective can be useful for understanding that faculty members' work is often cyclical, and balance will be stronger or weaker at fairly predictable times during the academic year and as roles at work and at home change (Latz & Rediger, 2015). A longer term perspective can also be beneficial as faculty members experience what Latz and Rediger refer to as *floods*, or unexpected life events that threaten a more general sense of balance (e.g., a serious medical diagnosis, divorce, the death of a child or parent).

Important to Cohen et al. (2009) is the degree of control one has over work-life spaces and the roles/identities that are evoked by them. Imbalance becomes particularly salient when we feel we have little control over the boundary between work and home. Control is lower when a faculty member receives a request from a chair or dean that must be completed outside of work, for example, or when family issues cannot be confined within the boundaries of home. This point reminds us that imbalance is both objective and perceptual, and that perceptual thresholds for balance vary across faculty members. A request from our chair that requires an hour of work during the evening will be seen as "no big deal" to some, but a serious threat to balance for others. Perceptions of the ability to balance work and home also vary across types of institutions and disciplines (Wolf-Wendel & Ward, 2015); faculty types or ranks (Kezar & Bernstein-Sierra, 2016); gender, race, and other demographic characteristics (Bryan & Wilson, 2015; Denson et al., 2018; Kachchaf et al., 2015), career stage (Darcy et al., 2012), as well as their complex interactions.

It is also important to note that a porous boundary between work and home is not always a detriment. Many of us enjoy teaching psychology because we are intrigued by human behavior, and our behavioral observations can enrich teaching and scholarship. Appropriately describing a process that was observed in one's own child or parent can bring a developmental theory to life for our students or even spark a new hypothesis for testing. Conversely, we would be foolish to resist sharing mental illness research to help a friend manage symptoms of depression, preferring instead to keep work separate from home. Rigidly dichotomizing work and home is not adaptive for most of us, and finding a healthy balance between them is a more reasonable strategy.

Balance sounds like an easy state to achieve, but it is somewhat complicated and likely to be influenced by factors like the demands and speed of work. Currie and Eveline (2011) refer to *extensification* as the ways in which work is more mobile and therefore creeps into the boundaries of non-work spaces, and *intensification* as the greater amount and pace of work we now face. The former points to the fact that academics do not leave campus at the door of their homes, and work continues outside "business hours" (after all, email and online learning platforms can be accessed 24 hr a day). Lectures and class activities must be developed and student questions answered; learning and programmatic outcomes must be evaluated; committee work must continue; scholarship and other activities to maintain professional credentials cannot wait. The compressed timing of a quarter or semester discourages procrastination, even if it means that we sacrifice our personal time to further our academic careers. Intensification is perhaps most acute at transition points in faculty members' lives, such as when standing for tenure or promotion or when accepting an administrative post (e.g., department chair).

The COVID-19 pandemic has provided additional examples of both extensification and intensification. Many of us worked quickly to adjust face-to-face operations to online modalities, and efforts to engage students (and thereby retain them for future semesters) required urgency and substantial energy. The amount and pace of work were perhaps not equally felt across disciplines or even within psychology departments, as courses that center on laboratories and clinical experiences required significant retooling for online

instruction. We also realized that technology could not always replicate what happens in the intimately-structured discussions of a psychology capstone seminar or an experiential course, despite features like digital break-out rooms that are designed to facilitate small-group conversations.

To the extent that faculty members enjoy their teaching and scholarship—and we hope they do—the effects of extensification and intensification may be less negative or pervasive. Similarly, institutions can minimize these effects and thereby improve faculty satisfaction and retention by providing policies and resources that promote work-life balance, including parental leave, flexible schedules, and other employee assistance programming. As Lester (2015) noted, however, many faculty members are reluctant to use policies like parental leave for fear of harming their chances for career advancement. The same may be true for family leave more broadly, such as when a faculty member needs to care for aging parents.

Career advancement issues tied to family leave may be of particular concern to women psychology faculty, though both men and women are likely to have such leave benefits available to them. A recent study of Pan-Canadian women faculty and graduate students highlighted particular sources of work-family conflicts. McCutcheon and Morrison (2018) found that compared with men, women experience more conflicts when it comes to balancing their roles as academics and family members. One reason is that most academic settings are still tailored to fit the norms tied to the traditional life course of male rather than female academics. These norms are based on the notion that men are less likely to take parental leave but women likely will, which means the "tenure clock" for women is more likely to be disrupted; also, a male colleague's research program may slow once children arrive but a woman's program may stop for a time. A sample of women faculty and graduate students in psychology reported facing three interconnected challenges: The (still) ongoing influence of masculine workplace norms, a perceived need to choose focusing on either work *or* family, and the resulting consequences of work-family conflict (e.g., sacrificing family time to focus on scholarship). Given that men outnumber women in the full professor rank across Canadian universities (Statistics Canada, 2019), these challenges may be especially acute for women faculty who strive for tenure and promotion. Greater attention to creating professional environments that are amenable to the particular needs of women faculty and graduate students who are or will become parents or the caregivers for aging parents is clearly important. Other related sources echo these and related concerns (e.g., June, 2012; Prentice-Dunn, 2015; Toffoletti & Starr, 2016). In addition to creating policies and resources that promote work-life balance, universities must also build cultures that attend to gender issues and encourage, or at least do not discourage faculty members from using available policies and resources to their benefit. On this point, it is encouraging to note that the number of women serving such administrative roles as deans has increased recently (Statistics Canada, 2019), suggesting that cultural norms within Canadian universities may change.

In addition to formal policies that promote balance, leaders within a department or institution can informally model and encourage expectations around work-life balance (cf. Bryan & Wilson, 2015; Lester, 2015; Szelényi & Denson, 2019). A dean who frequently sends emails or texts outside of an institution's typical work schedule challenges her faculty's ability to separate work from home. Research in organizations outside of academia has shown that perceived managerial support is positively related to work-life balance (Darcy et al., 2012), and we suggest the same is true within universities (cf. Lester, 2015; Wilk, 2016). Faculty can create those expectations for students as well by including statements in their syllabi about when they will be unavailable to respond to emails or other student requests. Those offline periods should be reasonable and sensitive to times in the academic calendar when students may need to connect with faculty more frequently, such as during final exams. Those expectations around how and when students communicate may also vary by class. Compared with students in an introductory course, those in a capstone seminar may be provided with more flexibility for contacting faculty outside the normal schedule and through more media (e.g., email, phone, or text).

The Dilemmas Posed by Ongoing Faculty Availability

Technology produces a sense that we are "always on," and we often feel what Turkle (2011) refers to as being tethered to our technologies. The ubiquity and relative popularity of social media and cell phones also contribute to the sense that faculty members are always available, an example of extensification. While few people expect to receive an immediate response to a text message they sent at 2 a.m., they likely expect to hear back first thing the next morning. On the one hand, availability can be good in the sense that questions about a course assignment or policy can be asked and answered with some dispatch. On the other hand, the ease of contact via email or text discourages those seeking information from searching for it themselves (e.g., looking in a syllabus or on a department website)—it is much easier to skip these steps and go right to the source. And, to be fair, some faculty members cultivate an aura that they want to be consulted by their students with questions great and small at any time. Whether this is attributable to such personality traits as conscientiousness or a desire to be known as an accessible instructor may be beside the point; both explanations are symptoms of a "culture of busyness" that reduces the psychological barrier separating work-life from life at home. Some faculty members may feel they have little choice but to be available, or that checking emails and texts while at home or on vacation may lessen their workload when they return to campus (Wilk, 2016). With substantial administrative responsibilities, one of us has lost count of the number of times he has checked his phone before bed or during the night, only to feel a need to respond to a work email that then arouses the brain and disrupts sleep. That sense of tethering creates pressure to keep our phones nearby, to read one more message, and to check social media to be sure that all is well at our institutions before we sleep and when we wake (cf. Wilk, 2016). Simply, such tethering creates a foundation for imbalance.

Faculty members and administrators are not the only ones who are tethered to technology. We all have arrived to a classroom filled with students who are engaged with their phones or laptops, but not with the students sitting beside them. Turkle (2011) would describe such a classroom not as "a communal space but a place of social collection" (p. 155). Students in the same physical room are connected only virtually, and their connection to technology does not necessarily end when a faculty member begins a class or lab. Students often continue to send and respond to text messages, visit websites, and watch unrelated videos during our classes, behaviors referred to as cyberslacking (Gerow et al., 2010). Faculty members are guilty of this, too, as we often cannot resist checking emails and texts during

meetings (especially now, given the plethora of and anonymity found in Zoom meetings) or editing our own presentation slides while sitting in a colleague's conference presentation. Research on such multitasking points to its general ineffectiveness for student learning (May & Elder, 2018; Patterson, 2017) and likely our own, not to mention how it can frustrate us or seem inconsiderate.

We are not suggesting that technology universally threatens effective teaching, learning, or work-life balance. Technology brings both advantages and disadvantages. During the COVID-19 pandemic, technology allowed us to remain connected with our colleagues and students, even if not in the deeply meaningful ways that exist when we are in our classrooms, labs, or offices. Where life at home is concerned, technology allowed virtual connections with family and friends since face-to-face gatherings posed health risks, or because normal travel or holiday visits were neither possible nor advisable. Even those virtual connections raised issues and concerns that we did not heretofore appreciate in our classrooms. For example, we may have realized that not all students have stable or safe home lives, and the university was their literal escape. We saw more into the lives of our colleagues than we may have known from just casual interactions on campus. In some cases, our rush to support students during remote instruction led to greater personal imbalance as we worried about those who had little choice but to return to an imperfect home situation; to the reality that they were responsible for caring for their younger siblings or older relatives while trying to complete our classes; to the need to find a part-time job because their parents/caregivers lost their jobs during the pandemic; to an environment that did not provide the same level of psychological support and simple privacy that they were guaranteed on their university campuses. Perceived imbalance may also have contributed to our own sense of helplessness as we considered how to support our students academically and personally during a phenomenon that was clearly beyond our control.

COVID-19 has shown us that we *can* teach remotely, even those of us at universities that prize face-to-face instruction. However, faculty members and administrators must think carefully about what happened in spring 2020 as a response to a crisis, and not as an intentional, carefully designed plan for teaching and engaging students that also protects faculty resources. Institutional mission and the kinds of students it attracts must remain at the core of our collective reflections on the COVID-19 pandemic and our future crisis response planning. Part of this planning should include concern for promoting balance among faculty members, students, and staff and administration.

Creating Our Own Balance: Time Management Matters

Waiting for cultural changes within our departments and universities can be frustrating, and so we turn our attention to time management strategies that individual faculty members may consider when pursuing balance between work and home. The ideas, examples, and encouragements in this section are not divinely inspired; rather, they are meant to help faculty members reflect on how well they currently use their time and whether there are opportunities for carving out more spare time at home by being more efficient in the office and classroom (see also, Latz & Rediger, 2015). We recognize that not all suggestions may be readily accessible to all readers, as our ability to manage time often is influenced by factors that are beyond our control or that are connected to characteristics of our universities, departments, or roles.

Learning to Prioritize

Completing work responsibilities (e.g., course preparation, grading, scholarly writing) so that they do not interfere with recreational or "down" time requires knowing the difference between important tasks and minor or even trivial ones. The former should always take precedence over the latter. Yet, like many people, some faculty members cannot distinguish between these task types or, worse, they choose to do routine or easy tasks first because usually they are more pleasant than the important ones (e.g., Lakein, 1996). Bigger, time-consuming tasks should be done first—or at least partially tackled—while minor ones are better left for times when an instructor is winding down the workday or when only a few minutes are available (e.g., before heading to teach a class). Keeping a list with important tasks in one column and more trivial ones in another is by no means a bad idea.

Prioritizing tasks is easy to do if we know which ones should have high priority. The pressure to teach, publish, obtain grants, practice, and provide service becomes particularly stressful when institutions do not have clear guidelines around what activities are valued for tenure and promotion. Even within psychology, what constitutes acceptable scholarship is debated. Whether the scholarship of teaching and learning is equivalent to a psychopharmaceutical trial or a behavioral experiment, for example, is critical for understanding how faculty members will be evaluated. In cases where scholarship may not match the typical expectations that are described in a tenure and promotion policy, faculty members carry the additional responsibility of educating their colleagues, chairs, and dean or provost about the importance of their scholarly work. This is also true for psychologists whose applied work may not clearly align with the scholarship expectations of their departments. The additional effort impinges on balance.

Related to research and scholarship is the growing need for faculty members to pursue external grants as provincial and governmental financial support for universities has decreased in recent years. Increasing students' tuition and other fees is not a sustainable strategy, leaving institutions and faculty members to pursue external grants from agencies, foundations, and other partners. Gopaul et al. (2016), for example, found that 75% of Canadian respondents to the Changing Academic Profession survey reported feeling increased pressure to secure external funding. Writing a grant proposal is an arduous task, especially the first time, and it takes time for planning, drafting and revising, and navigating the application requirements that are often funder-specific. Unfortunately, too, not all proposals are funded. Between 2009 and 2012, for example, 37% of psychology-specific proposals submitted to the Social Sciences and Humanities Research Council's standard research grants program were funded on average. Faculty members' substantial work to develop proposals that ultimately are unfunded may not be "counted" toward tenure or promotion reviews. Those who receive a grant will have additional responsibilities for reporting annual and overall outcomes, and some institutions may not have a sponsored research office to support their efforts.

Other activities to support universities are also expanding faculty members' traditional work of teaching, researching, and providing service to their institutions. Many areas of the United States are facing a demographic shift, for instance, with fewer high school students projected for much of the current decade. In addition to this shift in the number of students who would then pursue a university

degree, attitudes about the value of higher education have been unfavorable in recent years. The disruptions caused by the COVID-19 pandemic that sent most students home to learn virtually presented additional threats to future enrollment. A number of surveys conducted in spring 2020 (e.g., Carnegie Dartlet, Niche, Simpson Scarborough) suggest that high school and/or university students would rather sit out the 2020–2021 academic year than to enroll in online classes, and those data influenced conversations about reopening campuses in Canada, the United States, and other countries. Though some institutions may be experiencing similar or increased fall 2020 enrollments to previous semesters, it is too soon to tell how attitudes about higher education and the lingering effects of COVID-19 will influence enrollments across the next few years. In any case, there is little doubt that many pressures on enrollment exist and persist, and faculty members may be called upon to assist with recruitment and retention efforts in ways that are new to them.

The Perfect is the Enemy of the Good

Perfectionism is a problem when it comes to both personality (e.g., Flett & Hewitt, 2002) and professional productivity (Pandey et al., 2011). We know some competent academics who never finish (publish) what they start—not because they lack research and writing skills but because they never believe what they've done is "good enough" yet for others to read and evaluate. They revise and revise but never get the work "out the door" or, in current parlance, uploaded to the journal or publisher. We also know teachers who engage in self-criticism after every class meeting because they are never satisfied with their lecture, lesson plan, or assignments. Still others routinely change textbooks in a never-ending search for the "right" one for their course. Many of us tinker with and tweak our courses in an ongoing manner, but not to a place where we undermine our own good efforts (and we wish to point out that using teaching and learning assessments wisely is one way to refine courses without undue stress; see Dunn et al., 2020). Often, undue perfectionism is linked with both health and psychological challenges (Albert et al., 2016; Dittner et al., 2011; Leonard & Harvey, 2008).

Learning to Delegate

Some teachers want to handle all details associated with their classes, but this may not be the most efficient use of time. In large classes, for example, teaching assistants (TAs) may be available to do some of the heavy lifting, like grading simple assignments or holding review sessions. A departmental administrative assistant can assist with tasks that indirectly relate to success in teaching and scholarship, including scheduling meetings and ordering instructional equipment or supplies. Some instructors are loath to use this readily available help because they feel it is their responsibility to handle even the most mundane aspects of classes. What they fail to realize is that their efforts should be tied to content and pedagogy rather than (at least some mundane) record keeping. Similar problems can arise in lab groups, where willing students want to learn about key aspects of the research process. Delegating important tasks to them may help them become more competitive for graduate programs.

Individuals who cannot delegate may not want to give up control, worry about being disliked, want to feel and be needed, and honestly believe that they can do a given job better than others (Mitchell, 1987). Nonetheless, unwillingness to delegate means that you may be spending too much time on the work of others. Such unwillingness may also deprive colleagues from developing important skills and experiences. A department chair who never delegates, for example, misses opportunities to groom the next generation of leadership.

Delineating Teaching Days and Writing Days

A good way to gain control over your time is to arrange your work week with some days dedicated primarily to teaching and others focused on scholarly writing. One of us stacks courses on Monday and Wednesday mornings in order to have Tuesday and Thursday mornings available for writing and editing. Afternoons are used for office hours for students, committee and faculty meetings, and general department business. Friday is also available for seeing students or holding meetings or for conference travel. What about the weekend? Ideally, much of a given weekend—even during the academic year—should be given over to family and leisure activities. Of course, this is not always possible given the demands of particular points in the semester (e.g., midterm exams, final exams). During the summer months, eschewing weekend work can pay dividends when the fall arrives, as you may genuinely feel relaxed and rejuvenated for the work to come. Saving work on a new course prep until the fall semester arrives may present challenges, of course, so you must remain judicious in how to allocate time. Early career faculty members may have less ability to stack their schedules, and such a schedule is unlikely feasible every semester. The point remains that faculty members can be proactive in scheduling time for work that helps protect their home time.

Collaborating

There are seasons to the life of a faculty member. One common piece of advice is to craft an identity for yourself in the field early in your career by publishing single author and lead author publications. Later, once your reputation is established, you can afford to collaborate. We generally agree with this advice but also believe that there is a constructive synergy associated with collaborating with others on scholarly work (e.g., Dunn & Zaremba, 1997; Prentice-Dunn, 2015; see also, Darley et al., 2004). Collaboration ensures that you are accountable for getting your part of the work finished on time. Collaborating with one or more colleagues on your campus or at other universities also can increase the pace and frequency of your published scholarship, with the work being shared in such a way that further protects home life. Finally, developing an ongoing writing partnership with a colleague can be truly mutually beneficial and quite rewarding (e.g., we two feel this way).

Come to Know Thyself

A review of the suggestions in this section reveals a need to reflect on how and where time is being spent. We urge colleagues who want to reclaim time for work and leisure—thereby regaining work-life balance—to keep a time log for 2 or so weeks. Jot down in 15- or 30-min increments during the workday where you spent your time—everything from course preparation to Facebook or Instagram to writing (or not writing). At the end of the 2 weeks, calculate how

much of the available time is used widely and well, as well as how much time may be lost, wasted, or spent in ways that are less constructive. Paper or electronic calendars provide similar opportunities to reflect on an entire semester, with its ebbs and flows in work activity. As an added advantage, calendars provide reminders of tasks performed across a year, which makes writing annual evaluations and tenure and promotion self-statements efficient.

It also is worth noting that for most of us, commutes are a part of our time log. One of us uses the hour drive to campus to prepare for the day's meetings and to rehearse class examples and explanations. The trip home is spent reflecting on the day's events, including what worked or did not work well in classes. The commute is an active time of cognitive work and preparation. For other faculty members, commutes may be a time to leave work behind and prepare for home events or tasks, or to escape through favorite music, podcasts, or audio books. Regardless of how we spend the time while commuting, travel between home and campus can be an important marker of the boundary between them. The work-from-home mandates that many faculty members experienced during the COVID-19 pandemic eliminated commutes and thus a sense of when work begins and ends. Additional routines or activities (e.g., trips to fitness centers, theaters, retail stores, or restaurants) were disrupted, leaving a lot of time at home to fill. For some, work became the filler, highlighting extensification.

A Last Thought: Location, Location, Location?

Systems of higher education vary from country to country, and readers may wonder if such variance influences work-life balance for faculty members. Do Canadian academic psychologists, for example, have some advantages over their counterparts living in the United States? Universities in Canada are more decentralized than they are in the United States, and they are regulated provincially (Gopaul et al., 2016). There also are fewer small institutions like the liberal arts colleges where the authors teach and research, but Canadian institutions tend to be more financially stable because of government subsidies (M. Furimsky, personal communication, September 23, 2020). These structural features can have mixed effects on work-life balance: Stress may rise as one moves between institutions in different provinces with different regulations, but financial stability relieves stress related to job security. Remuneration may matter as well. There is some evidence that Canadian professors are paid higher average monthly salaries than their American colleagues (Brown, 2012), though female faculty members and deans are paid less than their male counterparts (Statistics Canada, 2019). However, travel costs from Canada to American conferences are often exorbitant, and so better salaries are offset by professional costs (C. Rawn, personal communication, September 21, 2020). A final example of difference is that there are fewer faculty positions in Canada than in countries like the United States, which creates significant competition to earn and maintain faculty positions (M. Furimsky, personal communication, September 23, 2020). These factors may produce tremendous work-life imbalances, particularly for early career academics.

Departmental and Institutional Service

Service responsibilities on campus fall into two broad levels: those for the department and those for the institution. Efforts in the former are generally aimed at performing your fair share of the burden of making the department run smoothly. Although much of the day-to-day work may fall to a department chair (and in larger programs, to the associate and even assistant department chairs), most programs need everyone to lend a hand at some point. This is particularly true for labor intensive efforts like departmental course assessment and academic program reviews. In contrast, efforts outside the department are to create and often implement policies or procedures that are institution wide. These can be elected or appointed opportunities. Besides providing a view of how an institution operates, they also afford faculty members a chance to work on large projects with colleagues from a variety of disciplines that affect most or all students and academic programs (e.g., curriculum revision committees, accreditation preparation committees).

Departmental and On-Campus Reputation

Service in or outside a department allows individual faculty members to craft a reputation in the eyes of their peers. Such reputations can be important for tenure and promotion purposes (i.e., becoming "known") but also offer a way to become recognized by others for your skills and abilities. Being recognized as both efficient and a hard worker can be pleasant and rewarding, unless it continually leads to more service-related work. Some requests—that from a provost or president—probably cannot be declined. But others can or should, and at the very least, involve some negotiation and recognition of a sunset clause for your participation in any long-term project(s). In our own experiences, we have noticed that recently tenured associate professors are often asked to take on big projects. Forging an agreement before beginning to serve for a fixed period is a wise and prudent precaution. Timelines should always be made before you begin any work, along with the expected outcomes and deliverables so that you understand how this work ties directly to tenure and promotion and, in some cases, compensation or sabbatical leave time. We advise colleagues to do their fair share but not to become so enamored of service work that one's teaching and scholarship productivity suffer or, worse, become moribund.

Attending to Equity Issues

Whether you are a faculty member or a department chair, you should worry about equity issues within your department. Generally speaking, equity within a department centers on teaching loads as well as some service responsibilities: Do all faculty members teach the same number of courses each semester, quarter, or across the academic year? Does each faculty member have some service activity within the department? Different expectations for professors in the same department—which lead to differential outcomes—are not uncommon. Problems can occur when some colleagues are given reductions in teaching load (say, teaching two rather than three or four courses per semester) in order to conduct their research (in some cases, grant funds or hiring packages enable them to "buy out" some of their courses, which are then taught by adjunct faculty members or graduate students). Colleagues who lack funding or were hired under different circumstances are at a disadvantage where their research programs are concerned because they continue to teach full loads. Having higher service responsibilities than other colleagues also creates problems. Resentment is not unheard of, which can be compounded if those with and without the

course reductions or service expectations are not yet tenured. Similarly, non-tenure track faculty—instructors and some visiting professors—may be given heavier teaching loads to satisfy course enrollment demands when course releases are granted to some colleagues. Clearly, issues of inequity can create interdepartmental tensions, which mean it is in everyone's interest to maintain a sense of fairness where teaching loads (not to mention departmental service and other duties, such as student advising) are concerned.

Do not Overdo Committee Service

On every campus, there is a subgroup of faculty colleagues who excel at committee work. If you are such a person, please make sure your service is tied to one or two committees. Any more than that can distract you from other important tasks and require you to work in your leisure time, and it can also detract from service to your department—an important point to remember as departmental colleagues will be asked to support your tenure or promotion. It can be very satisfying being seen as the "go-to" person, but we offer the caveat that no one ever received a faculty promotion or a sabbatical due solely to demonstrated skills running a university committee. Believing that you will be the exception to this unwritten rule is a chimera. What can be important for promotion, however, is a record of leadership on influential committees.

Local, Regional, National, or International Reputation?

We've done no formal study and are aware of none, but we suspect that colleagues who maintain a largely local—that is, on campus—reputation probably have a more defined work-life balance. Those who cultivate regional or national reputations likely display less work-life balance because they seek opportunities to do service or hold officer positions in regional or national psychology organizations, or in societies dedicated to advancing education and pedagogy. Colleagues with international reputations can expect to be invited abroad to speak or for residential sabbatical leaves or even to receive honorary degrees. Such roles and opportunities can be invigorating and allow for networking with colleagues, but also require significant time and effort that no doubt contributes to an imbalance between campus and home life. Our own writing partnership, for example, began through joint activities like grading Advanced Placement exams and belonging to the Society for the Teaching of Psychology (APA Division 2), and that work partnership has been balanced by personal friendships between our families and geographical ties.

Life at Home

Although the boundary between work and home is often permeable, it is possible for faculty members to enjoy the few hours of time we have between the office and sleep. For some of us, home is an oasis, a space where we can recharge our psychological batteries. For others, home represents the site of our second shift (e.g., Hochschild & Machung, 2012; see also, Hochschild, 1997), which may not leave us feeling rejuvenated. Whether home represents oasis or more work for you, it is important that you include enjoyable elements and activities that help you balance the demands of work.

Recreational Activities and Hobbies

One origin of the word "recreation" means to renew or to create again, and to some extent what psychologists do in their spare time should enable some degree of recreating oneself. The possibilities here are virtually endless, from reading to cooking to gardening to attending concerts or the theater, really, any activity—whether solo or social—that provides pleasure and the opportunity to think about something besides teaching, psychological research, and the responsibilities of being a professor. Many faculty members may balk at the notion of having a hobby—graduate school may have precluded all that for a time—but one of the pleasures of being a professor is setting aside time to do what you want when you want to do it (within reason, of course; see Martin & Taylor, 2004). It is entirely possible to pick up with a hobby again or find a new one. Book clubs abound, for example, and some individuals will welcome the opportunity to volunteer their services or even expertise to help local and community groups, acts that can foster positive town-gown relations (e.g., Kemp, 2013). The point is to find something you enjoy doing and then pursue it with enthusiasm. One of us likes to collect antiques—the joy is partially the hunt—while the other enjoys cooking, yoga, and travel. These activities restore the mind and soul so that we are more helpful to our students and colleagues.

Learning to Relax

One symptom of work-life imbalance we have observed is the inability of some people to relax. If nothing else, learning to do nothing or to do very little can provide a beneficial respite on the weekend or in the evenings during the work week. But it can take some practice. Ask yourself this: How often do you bring home a briefcase or backpack or bag home with you chock full of work to be done but then never do it? Would not it be wiser to leave it at the office and then do the required grading or recommendation letter writing or whatever the next day or within the next week? Leaving work at work can be a start. We fully realize for many—faculty with administrative responsibilities and new assistant professors and instructors come to mind—not bringing work home is unrealistic (see Prentice-Dunn, 2015 for a counterpoint). But for those who are firmly ensconced in their careers, it might be a constructive starting point for learning to relax.

Time Management at Home

Managing one's time at work may seem easier than doing so at home because of the former setting's more predictable structure (e.g., "If it is Monday, then I am teaching Research Methods," while laundry or vacuuming may not be associated with a particular day or time). Still, there are a variety of steps that can be taken to manage time while running a household. First, one may have the resources to take advantage of convenience services. During the COVID-19 pandemic, many people ordered and paid for their groceries online. The fees for the service saved time because someone else shopped, bagged, and transported the groceries home (we suspect that many people will continue to rely on the service once the pandemic dissipates). Prepping meals in advance by making a week's worth of dinners on a Sunday means that each night's dinner requires reheating rather than actual cooking. Other household

responsibilities, such as cleaning or childcare, can also be outsourced for a price or through bartering (e.g., families rotate carpool responsibilities for transporting children to school and other activities). And if collaboration and delegation are beneficial for our career success, then they should also be helpful for organizing home life. Including children in meal preparation can be an enjoyable way to share in family care, for example, and spouses or roommates can be enlisted to share the burden of cleaning and other maintenance projects. As we are all too aware, most of us spend an inordinate amount of time on the internet engaged with social media, entertainment, or even gaming activities. Consciously controlling media time can be a way to save discretionary time for other, more important purposes. At the same time, the judicious use of technology can assist with completing home tasks, such as purchasing a robotic vacuum or scheduling bill payments automatically through online banking. Finally, in order to manage the time spent on home tasks well, one should strive to obtain 7 or even 8 hr of quality sleep each night. Running a household goes more smoothly when one is well-rested.

We recognize that our suggestions for managing home life may seem idealistic and out of reach for some readers. Our suggestion to include children in meal preparation sounds easy—until a toddler throws a tantrum, another child disappears to watch television instead of washing vegetables, and the small apartment kitchen will not accommodate more than a few chefs at a time. And let's not forget the piles of laundry waiting, the homework that must be finished before bed, the leaking pipe that can no longer be ignored, and the monsters that must be cleared from inside closets and under beds before children can sleep. How can we possibly think about our hobbies, much less about the fantasy of quality sleep in those moments? As a dean, one of us consistently has reminded colleagues during the pandemic that if we do not take care of ourselves, we will be of little use to those who rely on us, including our students and families. The laundry pile can wait for another day—trust us, it will still be there—but first take time to rest and recharge. There should be no shame in taking time for yourself, asking for assistance when needed, and offering yourself grace when not everything on your daily to-do list is accomplished.

Conclusions

A recent symposium held at the 2020 meeting of the *Society for Personality and Social Psychology* (SPSP) caused quite a stir (Jaremka et al., 2020). The symposium explored taboo professional topics that are rarely discussed publicly, including being repeatedly rejected (where faculty hiring, grant applications, and placing publications are concerned), impostor syndrome (feeling like a fraud or a fake rather than a real professional psychologist), and burnout (physical, mental, and emotional exhaustion tied to the ongoing stress of academic work and the drive to do more). Ten psychologists shared candid testimonials about their struggles with the perceived need to succeed that permeates contemporary academic psychology in order to reduce the stigma associated with less than perfect performance as well as their own private fears. Their stories—really, cautionary tales—are both moving and distressing, and, sadly, likely familiar to many readers.

We want to close our article by suggesting that the only way to reduce the impact of or even eliminate distressing reactions to rejection or the risks of feeling like an imposter or experiencing burnout is to develop a reasonable semblance of work-life balance. Doing so cannot be accomplished by assuming it will "happen" naturally or "eventually" after tenure or promotion. We also know that balance is not a permanent state. Maintaining a sense of balance between work and home is an ongoing struggle, and we do not pretend to have mastered it for ourselves. Instead, balance, professional health, and well-being are predicated on being planful and setting aside necessary time for rest, relaxation, and recreation. Achieving a good work-life balance is challenging, but surely our zeal for success in the classroom and lab can be modified to embrace greater well-being for ourselves and those we care about.

Résumé

Qu'est-ce qui constitue un bon équilibre travail-vie personnelle pour les universitaires de carrière en psychologie? Que signifie avoir un bon équilibre travail-vie personnelle? Dans cet article, nous utilisons des preuves et des anecdotes pour discuter des défis liés à l'obtention et au maintien d'un équilibre entre le travail et la vie personnelle des membres de la faculté, au bureau et à la maison. Pour ce faire, nous discutons des limites qui lient et séparent les membres du corps professoral de psychologie au travail et à la maison, des dilemmes posés par ce qui semble être la disponibilité permanente du corps professoral, des questions de gestion du temps, du service à un département et à l'institution en général, et de la vie à la maison. Nous concluons cet article en suggérant que la seule façon de réduire l'impact ou même d'éliminer la détresse liée à certains aspects de l'arc des carrières du corps professoral est de développer un semblant raisonnable d'équilibre travail-vie personnelle. Pour commencer, nous considérons la nature de la dichotomie perçue entre le travail et la vie personnelle

Mots-clés : conciliation travail-vie personnelle, carrières universitaires, technologie, gestion du temps

References

Albert, P., Rice, K. G., & Caffee, L. (2016). Perfectionism affects blood pressure in response to repeated exposure to stress. *Stress and Health*. *32*, 157–166. https://doi.org/10.1002/smi.2591

Brown, L. (2012, March 22). *Why Canada's professors are the best (best-paid, that is)*. The Star. https://www.thestar.com/news/canada/2012/03/22/why_canadas_professors_are_the_best_bestpaid_that_is.html

Bryan, L. K., & Wilson, C. A. (2015). Academic leaders shaping work-life culture. *The Department Chair*, *27*, 21–23.

Cohen, L., Duberley, J., & Musson, G. (2009). Work-life balance? An autoethnographic exploration of everyday home-work dynamics. *Journal of Management Inquiry*, *18*, 229–241. https://doi.org/10.1177/1056492609332316

Currie, J., & Eveline, J. (2011). E-technology and work/life balance for academics with young children. *Higher Education*, *62*, 533–550. https://doi.org/10.1007/s10734-010-9404-9

Darcy, C., McCarthy, A., Hill, J., & Grady, G. (2012). Work-life balance: One size fits all? An exploratory analysis of the differential effects of career stage. *European Management Journal*, *30*, 111–120. https://doi.org/10.1016/j.emj.2011.11.001

Darley, J. M., Zanna, M. P., & Roediger III, H. L. (Eds.). (2004). *The compleat academic: A career guide* (2nd ed.). American Psychological Association.

Denson, N., Szelényi, K., & Bresonis, K. (2018). Correlates of work-life balance for faculty across racial/ethnic groups. *Research in Higher Education*, *59*, 226–247. https://doi.org/10.1007/s11162-017-9464-0

Dittner, A. J., Rimes, K., & Thorpe, S. (2011). Negative perfectionism increases the risk of fatigue following a period of stress. *Psychology & Health*, *26*, 253–268. https://doi.org/10.1080/08870440903225892

Dunn, D. S., Coffman, C., Bhalla, M., Boysen, G. A., Diaz-Granados, J. L., McGregor, L. N., & Smith, P. (2020). Doing assessment well: Advances for undergraduate psychology programs and psychology educators. *Teaching of Psychology*, *47*(4), 251–261. https://doi.org/10.1177/0098628320945097

Dunn, D. S., & Zaremba, S. B. (1997). Thriving at liberal arts colleges: The more *Compleat Academic*. *Teaching of Psychology*, *24*, 8–14. https://doi.org/10.1177/009862839702400104

Flett, G. L., & Hewitt, P. L. (Eds.). (2002). *Perfectionism: Theory, research, and treatment*. American Psychological Association. https://doi.org/10.1037/10458-000

Gerow, J. E., Galluch, P. S., & Thatcher, J. B. (2010). To slack or not to slack: Internet usage in the classroom. *Journal of Information Technology Theory and Application*, *11*, 5–23.

Gopaul, B., Jones, G. A., Weinrib, J., Metcalfe, A., Fisher, D., Gingras, Y., & Rubenson, K. (2016). The academic profession in Canada: Perceptions of Canadian university faculty about research and teaching. *Canadian Journal of Higher Education*, *46*, 55–77. https://doi.org/10.47678/cjhe.v46i2.185269

Hochschild, A. (1997). *The time bind: When work becomes home and home becomes work*. Henry Holt and Company. https://doi.org/10.1111/j.1743-4580.1997.tb00019.x

Hochschild, A., & Machung, A. (2012). *The second shift: Working families and the revolution at home*. Penguin.

Jaremka, L. M., Ackerman, J. M., Gawronski, B., Rule, N. O., Sweeny, K., Tropp, L. R., Metz, M. A., Molina, L., & Vick, S. B. (2020). Common academic experiences no one talks about: Repeated rejection, impostor syndrome, and burnout. *Perspectives on Psychological Science*, *15*, 519–543. https://doi.org/10.1177/1745691619898848

June, A. W. (2012, March 8). *Work-life balance is out of reach for many male and female scientists*. Chronicle of Higher Education. Retrieved September 22, 2020, from http://chronicle.com/article/Work-Life-Balance-Is-Out-of/131111/

Kachchaf, R., Ko, L., Hodari, A., & Ong, M. (2015). Career-life balance for women of color: Experiences in science and engineering academia. *Journal of Diversity in Higher Education*, *8*, 175–191. https://doi.org/10.1037/a0039068

Kemp, R. L. (Ed.). (2013). *Town and gown relations: A handbook of best practices*. Mcfarland and Co.

Kezar, A., & Bernstein-Sierra, S. (2016). Contingent faculty as nonideal workers. *New Directions for Higher Education*, *2016*(176), 25–35. https://doi.org/10.1002/he.20207

Lakein, A. (1996). *How to get control of your time and your life*. New American Library.

Latz, A. O., & Rediger, J. N. (2015). Navigating the water: Community college faculty and work-life balance. *Journal of Faculty Development*, *29*, 13–23.

Leonard, N. H., & Harvey, M. (2008). Negative perfectionism: Examining negative excessive behavior in the workplace. *Journal of Applied Social Psychology*, *38*, 585–610. https://doi.org/10.1111/j.1559-1816.2007.00318.x

Lester, J. (2015). Cultures of work-life balance in higher education: A case of fragmentation. *Journal of Diversity in Higher Education*, *8*, 139–156. https://doi.org/10.1037/a0039377

Martin, J., & Taylor, S. E. (2004). The academic marathon: Controlling one's career. In J. M. Darley, M. P. Zanna, & H. L. Roediger III, (Eds.), *The compleat academic: A career guide* (2nd ed., pp. 363–392). American Psychological Association.

May, K. E., & Elder, A. D. (2018). Efficient, helpful, or distracting? A literature review of media multitasking in relation to academic performance. *International Journal of Educational Technology in Higher Education*, *15*(1), 13. https://doi.org/10.1186/s41239-018-0096-z

McCutcheon, J. M., & Morrison, M. A. (2018). It's 'like walking on broken glass': Pan-Canadian reflections on work-family conflict from psychology women faculty and graduate students. *Feminism & Psychology*, *28*(2), 231–252. https://doi.org/10.1177/0959353517739641

McKenna, L. (2018, February). *How hard do professors actually work?* The Atlantic. https://www.theatlantic.com/education/archive/2018/02/how-hard-do-professors-actually-work/552698

Mitchell, V. E. (1987). Rx for improving staff effectiveness. In A. D. Timpe (Ed.), *The management of time* (pp. 250–256). Facts on File.

Pandey, A., Quick, J. C., Rossi, A. M., Nelson, D. L., & Martin, W. (2011). Stress and the workplace: 10 years of science, 1997–2007. In R. J. Contrada & A. Baum (Eds.), *The handbook of stress science: Biology, psychology, and health* (pp. 137–149). Springer.

Patterson, M. C. (2017). A naturalistic investigation of media multitasking while studying and the effects on exam performance. *Teaching of Psychology*, *44*, 51–57. https://doi.org/10.1177/0098628316677913

Prentice-Dunn, S. (2015). Seeking balance in one's early career: Teaching, research, service, and private life. In D. S. Dunn (Ed.), *The Oxford handbook of undergraduate psychology education* (pp. 741–750). Oxford University Press.

Statistics Canada. (2019, November). *Number and salaries of full-time teaching staff at Canadian universities (final), 2018/2019*. Retrieved September 21, 2020, from https://www150.statcan.gc.ca/n1/daily-quotidien/191125/dq191125b-eng.htm

Szelényi, K., & Denson, N. (2019). Personal and institutional predictors of work-life balance among women and men of color. *The Review of Higher Education*, *42*(3), 633–665.

Toffoletti, K., & Starr, K. (2016). Women academics and work-life balance: Gendered discourses of work and care. *Gender, Work and Organization*, *23*(5), 489–504. https://doi.org/10.1111/gwao.12133

Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. Basic Books.

Warzel, C. (2020, May 26). *You are not working from home: How to make sure the rise in remote work doesn't mean the death of work-life balance*. The New York Times. https://www.nytimes.com/2020/05/26/opinion/work-from-home.html?action=click&module=Opinion&pgtype=Homepage

Wilk, K. E. (2016). Work-life balance and ideal worker expectations for administrators. *New Directions for Higher Education*, *2016*(176), 37–51. https://doi.org/10.1002/he.20208

Wolf-Wendel, L., & Ward, K. (2015). Academic mothers: Exploring disciplinary perspectives. *Innovative Higher Education*, *40*, 19–35. https://doi.org/10.1007/s10755-014-9293-4

Yeats, W. B. (2020). *The second coming*. https://poets.org/poem/second-coming (Original publication in 1919).

Ziker, J. (2014). *The long, lonely job of homo academicus*. The Blue Review. https://wayback.archive-it.org/8092/20190724180003/https://thebluereview.org/faculty-time-allocation

Received June 23, 2020
Revision received January 5, 2021
Accepted January 9, 2021 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 361–366
https://doi.org/10.1037/cap0000291

Toward an Ecological Science of Teaching

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The need for a primary emphasis on teaching is a necessary, and as yet unfulfilled, goal of psychological science. We argue that an ecological model focused specifically upon understanding and optimizing teaching practice must incorporate the necessary complexity inherent to the teaching and learning process. To do so, we must expand our scope beyond the simple exploration of main effects under controlled conditions to the exploration of dynamic interactions, including the identification of boundary conditions, and the assessment of potential side-effects across relevant variables and contexts. To do so, foci on internal and external validity must be re-balanced in a manner more productive for practical inferences and applications. With an eye on educational practice, we point out that statistically insignificant results, under certain circumstances, can yield very useful strategies for teaching. Therefore, researchers interested in practical applications for teachers should be encouraged to use active control groups in their studies when feasible. We also argue that practical significance must include context-relevant information, for example, a ratio between the degree to which the findings can be used in context without upsetting other learning objectives and the amount of benefit given the costs (both time and energy) of the intervention, as an essential component to evaluating the potential utility of teaching research. Thus, statistically significant results must be weighed with respect to both effect-size and the practicality of implementation by teachers in authentic educational contexts before being considered a candidate for use in the classroom.

Public Significance Statement
We have a Science of Learning. Why don't we have a Science of Teaching? While Psychological Science has a great deal to offer with respect to the nature and characteristics of the learner, we argue that it can do better to inform and impact educational practice. We articulate the need and parameters for an ecological Science of Teaching to point and design findings from Psychological Science toward usable knowledge for teaching.

Keywords: scholarship of teaching and learning, teaching, learning, science of learning education

Teachers, across many fields, are looking to psychology to improve their impact. And, rightly so. We are the science that focuses on what goes on within the human mind, where learning, meaning-making, and processing occur. We study the motivation, emotion, tools, characteristics, and capabilities of the learner. The interaction of biology, context, and intention is integral to many of our models as psychologists (Fischer et al., 2007). Yet, as eminent historian of psychology Ben Benjamin so eloquently pointed out, psychology has done relatively little to improve the quality of *educational practice* since its inception (Benjamin, 2010). Whether it be K-12, university, or adult education, he posed as a fundamental challenge to our field: "We are the science of education, so why aren't we acting like it?" (Benjamin, 2010, 2:58)

A science of education is a multifaceted effort. Mayer described it as comprised of at least three interacting components: The sciences of learning, the science of assessment, and the science of instruction (Mayer, 2011). Mayer describes the sciences of learning as "aimed at understanding how people learn. In particular, learning is a change in the learner's knowledge that is attributable to experience" (Mayer, 2008, p.761). The science of assessment is described as the scientific study of how to determine what people know (Mayer, 2018, p. 174). Mayer describes the science of instruction as a science " . . . aimed at understanding how to *help* people learn" (Italics by authors, Mayer, 2008, p. 762). As the term "instruction" is sometimes regarded as limiting education to cognitive goals and/or a specific pedagogical approach, we would propose to rebrand this to the *science of teaching*.

Looking Further: the Science of Learning and the Scholarship of Teaching and Learning

Whether it be in research or in practice, a focus on how people learn does not, necessarily, lead to better teaching. Biesta (2015) described how educational thinking has shifted its focus from teaching to learning, putting a bigger emphasis on the learner rather

This article was published Online First June 24, 2021.
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The authors would like to thank Steven Chew and Donna Coch for feedback on earlier versions of this manuscript.
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than the teacher, a shift also described by Meijer (2013) and Masschelein and Simons (2013). This recurring perspective in education and education-relevant research is sometimes at odds with other developmental theories that emphasize a more reciprocal and interactive perspective of teaching and learning with a stronger emphasis on the teacher influencing the learner in both formal and informal educational contexts across the life-span (e.g., Fischer & Bidell, 2006; Vygotsky, 1978). In this article, we reassert the need to consider the role of the teacher in facilitating the learner to do the work of learning. We further argue that, for knowledge about learning to be useable for those who teach, it must be interpreted, designed, and demonstrated to do so.

The Science of Learning

Daniel and Chew (2013, but also Nuthall, 2007) addressed important limitations to much of the Science of Learning literature with respect to leveraging it to guide teaching practice. These limitations tend to cluster around a few key areas. First, the design and testing of an intervention with the goal of determining a theoretically interesting and statistically significant difference often require different outcomes, designs, and controls, relative to developing and testing an ecologically valid, usable, and sustainable teaching intervention for general use. In the first case, the design is often heavily influenced by a quest for high levels of internal validity, may require high levels of support or expertise to implement, and may not target or assess issues directly relevant to practitioners, instead focusing on extension or issues of theoretical or methodological import.

Secondly, proposed interventions from the Science of Learning literature, while interesting and important, are seldom designed to be implemented by typically resourced teachers in representative teaching and learning contexts. Relatedly, many Science of Learning recommendations do not include the teacher or context (or student, for that matter) as a relevant variable, instead adopting the view of teacher as a mere delivery system. Yet, individual difference in teachers, students and contexts are a very real part of the teaching and learning interaction (e.g., Hardin, 2007; Hattie 2003; Huang & Moon, 2009; Wayne & Youngs, 2003).

Finally, the failure to consider "peripheral" contributors' interactions (e.g., motivation, emotion, arousal, etc.), side-effects, boundary conditions, and, in general, complexity limits the potential to apply findings from the Science of learning directly to teaching practice in complex and authentic contexts. Such limitations are a necessary result of scope and disciplinary boundaries inherent to research within a specific orientation, rather than neglect: As an extension of cognitive science, the Science of Learning is, first and foremost, a scientific exploration of the nature, mechanisms, and potentials of the human learner. Areas such as motivation or developmental level may not be core to this pursuit. Thus, the movement away from such specific focus on target variables toward the design of inclusive ecologically valid and evidence-based interventions for teachers derived from that knowledge may introduce a level of complexity that diverts from the primary goals of a science to explore the nature, mechanisms, and potentials of learning. In addition, ecologically valid designs require a skillset related to curricular design and knowledge of context beyond the training of many in this important field.

The Scholarship of Teaching and Learning

The Scholarship of Teaching and Learning (SoTL) literature, on the other hand, offers designed and usually successful interventions that, although often hyper-contextualized to a specific instructor, topic and class configuration, may be generalized to similar classrooms with some careful adaptation. However, SoTL research rarely explicitly links findings to relevant psychological constructs and findings as the source of their successful interventions (Daniel & Chew, 2013), limiting our ability to extend or situate the findings in relevant the psychological literature. Further, a teacher interested in replicating the impact found in SoTL research in a different course or context needs to know more than procedures, as those procedures may need to be adapted to new contexts. Rather, they need to identify the essential components and constructs necessary for the desired impact so as to implement the adaptation with a degree of fidelity. Not identifying the core constructs and mechanisms responsible for a successful intervention risks the potential for subverting the desired impacts when adapting across contexts, teachers, and learners. Without such knowledge, practitioners may not be aware which components to protect and which are amenable to change.

Teacher Is an Interaction

Unquestionably, studying the learner and the impact of particular practices are both necessary and worthy endeavors. However, we also need to know how a teacher can structure and activate learning in educational contexts. Neither a Science of Learning nor an SoTL perspective focuses much attention on the more complex and dynamic aspects of the teaching and learning interaction. In fact, neither elucidates the very important role of the teacher as a participant with agency and impact in this process, nor do they incorporate the recognition of the interacting social-emotional, structural, or contextual contributions teachers make to the teaching and learning process in their models, if present.

Hattie (2003), as well as many others, have described the important role of the teacher to make the difference in the classroom. For example, Hardin (2007) evaluated the introduction of presentation software across eight sections and four instructors. The results indicated an interaction between teacher and modality of presentation (with or without Powerpoint); incorporating presentation software enhanced the teaching of some teachers, harmed others, and had no impact for most. It is clear from studies like this that the teacher is, indeed, a variable to be reckoned with. The role of the teacher is an important component of the ecology of the learning process, that we must submit this role to legitimate and specific scientific inquiry that goes further than description (e.g., the influence of gender, age, experience, collective teacher efficacy), but focuses on teaching in context as a core variable.

A Science of (and for) Teaching

A Science of Teaching must begin with a few core assumptions. We offer, perhaps, the obvious proposition that teaching itself is worthy of investigation. Despite this seemingly indisputable statement, it is clear that the interactions central to teaching, beyond a teacher as a delivery-device perspective, have not been central to many areas of inquiry.

Relatedly, we propose that teaching and learning are often a complex interaction between the dynamic systems associated with

the teacher, context, material, and learner. Thus, a Science of Teaching must transcend the isolated main effects so prominent in the teaching and learning literature toward a richer and more complete model of the teaching process.

Models of the learner or recommendations for practice that do not take into account the interactive nature of cognition, emotion, etc. within the learner (e.g., Immordino-Yang & Damasio, 2007) can often encourage imbalanced models and side-effects in practice across domains (Immordino-Yang et al., 2019). For example, an intervention stressing a demanding cognitive task may increase learning, but reduce motivation or engagement. Another example is an intervention that positively impacts outcomes in foreign language learning may be ineffective in learning chemistry. Similarly, by recognizing that the necessary isolation of variables in laboratories and other controlled contexts may not be representative of the rich teaching and learning context, we can mitigate the risk of offering recommendations that subvert learning (Daniel & Poole, 2009), or, at least, do not encourage it (Brandmark, et al., 2020). The proposal to honor the interactive nature of teaching, context, and learner has implications for research and practice. How we move from controlled settings to more authentic ones (and back), including the need for translational models that allow for the gradual addition or subtraction of complexity (see Daniel, 2012 and Chew et al., 2010).

What Does This Mean for Research on Teaching?

Every science, especially one focused on practice, must balance priorities. For example, to view internal and external validity on a continuum, one could easily err on one extreme or the other of the continuum, with significant costs, as well as benefits, depending upon the goals of that research. Similarly, determining what information is significant for a researcher's goals to be achieved and how to arrive at that significance is an important question a Science of Teaching would need to address. Below, we provide suggestions for a few of these issues as a starting point for a broader discussion on the parameters of a Science of Teaching.

Validity

A Science of Teaching, we propose, would have to balance the goals of knowledge generation with practical import in a very different manner than, for example, a Science of Learning. Thus, a different balance of internal and external validity is necessary to move ideas toward promising practices (e.g., Kingstone et al., 2008). To do this, we must first acknowledge the complexity of the teaching and learning process. With that acknowledgment, high degrees of control (internal validity), with the goal of neatly isolating cause and effect, necessarily come at the expense of the potential for those findings to be useful in authentic educational contexts (external validity). In an ecological model, trade-offs between increasing control by decreasing complexity can compromise a true understanding of the interaction(s) and, important here, neutralize an ability to offer usable knowledge to teachers. Alternatively, a focus on ecological valid interventions and explanations would necessarily come at the expense of confident causal inferences. Thus, the encouragement of other mechanisms to develop an evidence base for such inferences, successive replications across contexts, for example, might be a strategy to offer additional explanatory power and thus should be encouraged by outlets and funders.

Significance: When Non-Significant Is

The typical set-up in much of the pedagogical research is a treatment versus no treatment (or "business as usual") design. This design, while common, is rather limited in the conclusions one may reach. Something versus nothing, at best, can merely demonstrate that doing something is better than not doing something (or not) (Willingham & Daniel, 2021).

While an active control group, for example comparing the new intervention to one already known to have high impact, would yield much more useful information for teachers, many researchers may not want to gamble with such a design. It is too risky for many researchers if one of the goals is to publish: If the new technique is not significantly better than the active control, it would not be a good candidate for publication in many outlets. This approach erroneously assumes that a constrained number of "best practices" exist and that the goal of the literature is to find the singular "king of the mountain." But, what if we found ANOTHER great strategy that worked JUST as well in the classroom? This would be a wonderful addition to the literature. "Just as well" as something great can be a fantastic contribution to teaching, learning, and science. In this case, insignificance would be a valuable outcome.

As mentioned above, the demonstration of equivalence, albeit statistically insignificant, can be incredibly significant to teaching. For example, the non-statistically significant finding that technique X works, as well as the known to be successful technique Y adds breadth and flexibility to the teaching arsenal. Such an emphasis better serves the teaching community by providing alternatives from which to draw and adapt to teaching style, context, etc.

For example, rather than comparing a new technique to business as usual, Jakobsen and Daniel (2019) recently compared a fairly well-documented college-level teaching strategy, team-based learning, with a "new" technique. The new technique worked just as well as the highly supported strategy. Such a finding can offer confidence to teachers that moving to the new technique has potential to be at least equivalent to their current practice, a level of confidence that a "something v. nothing" study cannot offer. In fact, if the new strategy fits their style or context better, it may even offer benefits beyond mere equivalence. Imagine that a comparison of online learning and offline learning yields a non-significant difference. This finding could mean that these approaches are equivalent in certain circumstances, making the next question: For what topics, in which circumstances, for which kind of pupils are there differences? Unfortunately, the use of active control groups in education research is fairly rare (e.g., Willingham & Daniel, 2021).

Rather than asserting statistical supremacy, a common-sense criteria for replacing pedagogical strategies and tools should be that the replacement be *at least* as effective with few, if any, subversive side-effects, when compared to its proposed predecessor (Daniel & Willingham, 2012; Gurung, 2017). For example, were we to find that less expensive electronic-textbooks were equivalent to more expensive print textbooks that would be a finding with tangible benefits.

In fact, until equivalence criteria have been consistently demonstrated in representative contexts, we would urge all teachers to be skeptical of adopting the newest and shiniest methods, as it could

result in providing inferior, but less expensive, tools to our most vulnerable students, with potentially devastating consequences. For example, Gurung (2017) recently found that Open Educational Resource (OER) textbooks were less effective learning tools compared to publisher-provided textbooks, particularly for students with lower American College Testing (ACT) scores, a test administered to impending high school graduates designed to measure readiness for college or university, many coming from the exact lower-income population we are targeting a price-point argument. Without demonstrating equivalence to printed textbooks, the adoption of certain OER products potentially harms at least some students and subverts the efforts of good teachers. However, demonstrating equivalence would provide options for a teacher potentially improving the learning experience. Equivalence, rather than supremacy, gives us an invaluable opportunity to responsibly enrich teaching and learning while avoiding potential unintended consequences. Research outlets and funders interested in developing successful teaching practices should encourage well done studies using relevant active control groups to promote the development of options for teachers.

Significance: When Statistically Significant Is Not Significant

Consistent, but relatively small differences can result in *statistical significance*, based on the concept of rejecting the null hypothesis (e.g., the results are likely not due to chance). So, for example, an educationally non-significant findings (1–2%) can be statistically significant but hold little potential impact for the classroom. Regardless of the *p* value, the costs for implementing an intervention with such small impact are often too high, impractical, or, in reality, a waste of time. As a teacher, I must be concerned with both whether the recommendation can be done in my context and with my resources as well as a general cost–benefit calculation when I entertain the idea of an intervention. The research may demonstrate statistical significance. But, are they *practically* significant with respect to implementation? Do our common measures of practical significance address such practical concerns for teachers?

Practical Significance: Effect-Size

The concept of *practical significance* is particularly important in educational research, including SoTL. Arguments for practical significance often revolve around a measure of *effect size*, with the logic being that larger effect sizes signify a more desirable impact on relevant measures. In other words, the measure of effect size can help a teacher answer the question: "Is it worth it?" Thus, an educator can use effect size as a more appropriate indicator of an intervention's utility in their teaching than simple statistical significance. For example, if a strategy demonstrates statistical differences in a study, this could mean that it consistently differs by a small percentage from the control. While consistent, the difference may not be meaningful in the classroom. Or, say you have two class activities for the same concept, one takes 5 min and other takes 20. Both lead to a significant amount of learning, but the 20-min activity leads to a significant, yet small improvement over the 5 min. Would the difference be worth the additional class time spent?

Even though statistical significance may not be practically significant to the teacher, this does not mean that small effects should be disregarded, for example, if the cost for implementing the intervention is also very low, or if the target population would meaningfully benefit. For the past 2 years there has been a lot of discussion about the effectiveness of growth mindset approaches with a large replication study by Yeager et al., (2019) and a double meta-analysis (Sisk et al., 2018) showing on average a rather small effect size. But this average effect size can hide both the fact that it can have negative effects for some students and that it can lead to a better result for a segment of the population (e.g., children from families with lower socioeconomic backgrounds in certain contexts). Further, it is likely that a number of strategically deployed, small impact, but easy to implement strategies, can, in concert with each other, provide significant learning impact. Thus, decisions based upon statistical measures of practical significance must be weighed with attention to nuance and context before confident implementation.

Practical Significance: Beyond Measures of Effect-Size

While the concept of effect-size is important, it is not sufficient on its own to guide decisions for implementation, and not the sole measure of practical significance in a teaching context. There are other practical considerations that must be considered by a teacher before implementing evidence-inspired interventions: Those involved in a cost–benefit analysis related to deployment (Wiliam, 2018). Because of the need to demonstrate impact, a teacher has additional concerns when moving from the literature to the classroom. After all, teaching is, ultimately, a practical pursuit. Thus, a Science of Teaching must honor both the complexity of the process, as well as the impact of that interaction. These practical considerations go beyond the available statistics for a given study and should be areas of discussion for a Science of Teaching. For example, one must be concerned with:

1. How that intervention might interact with other variables and learning goals in a course; whether the intervention may amplify or subvert other important aspects of my course;
2. How large the potential effect may be relative to the amount of work needed to achieve it;
3. Whether one has the resources to implement the intervention correctly;
4. Whether will it likely work in the given context?

Effective teachers often ask these questions implicitly, a Science of Teaching should give them support to arrive at an accurate conclusion.

Significance is not significant if the requirements to implementation are overly arduous, too expensive, too time consuming, require expertise or equipment beyond that available in my classroom, etc. A teacher, should be concerned with all of these variables, and more, simultaneously interacting within the learner and the complex interaction of the learner (and teacher!) with the context. Thus, measures of statistical, or even practical, significance may not provide the information a teacher needs to decide which interventions hold promise for a given teaching and learning endeavor. Research on teaching and learning would hold more promise for guiding high quality teaching if studies addressed the full, or at least probable, range of practical concerns relevant to practice in their reports.

The End of "Best Practices"

The goal of research on teaching should not, and could not, be a set of universal "best practices" that can be deployed across contexts, learners, and educators. An honoring of complexity and context also has deep implications for the practical goal of a Science of Teaching. If we acknowledge the dynamic and interactive nature of teaching and learning, the popular quest for "Best Practices" within a complex system becomes remarkably reductionistic. Such a "solutionistic" (i.e., Morozov, 2013) quest for an easy solution, or a small set of "Best Practices" within a complex system, though conceivable in a rich and mature literature, is ill-suited at this early stage of an ecological approach to understanding the process of teaching and possible applications derived from it.

The fact is, there is not, and cannot be, a single best way to teach (Daniel & Poole, 2009). Teachers are different, learners are different, contexts are different, and learning goals are different (and those differences all interact!). For example, feedback can be both effective and ineffective (Hattie & Timperley, 2007), and even if feedback has been given inspired by research, it does not necessarily mean that the pupils have actually learned (Wiliam, 2012). Active learning is good for some things, but not everything, and not for everyone at every moment (De Bruyckere et al., 2015; Holmes, 2016). The very fact that teachers who gravitate toward vastly different pedagogies remain effective in the classroom clearly demonstrates this quite clearly: Different things work differently for different people and "best" is not always "best." Or as De Bruyckere et al. (2019, p. 157) describe:

> . . . what works at 9 AM in one class may not work at 3 PM in another class. If that trouble-maker Peter is absent today, things may turn out differently than if he was present. For this reason, we must be constantly aware, as the designers of learning interventions, that if we use the available scientific evidence there is every possibility that what works in one context may not necessarily work in a different context (lesson, subject, age, school type, time of day, etc.).

Rather than an implausible set of "Best Practices," the practical goal of an ecological Science of Teaching would be to develop an *arsenal,* or *repertoire*, of effective techniques, approaches, and attitudes, in addition to the conditions under which they are optimally deployed (or avoided). Such an emphasis better serves the teaching community by providing alternatives from which to draw and adapt to teaching style, context, etc. It would also enrich and make more powerful theories and models related to the teacher and learner.

Conclusion

In this article, we proposed a new approach to the Science of Teaching. We build on an already a rich scientific literature that can be a powerful resource for rich teaching. While seldom a prescription for high quality practice, findings in the Science of Learning and SoTL literatures can erroneously be regarded as prescriptions for practice in a narrow vision of "evidence-based education" (De Bruyckere et al., 2019). Instead we argue that the present approach of science in this realm is not sufficiently powerful or synthetic to either encourage a useful model of the teaching and learning process, or to produce usable classroom practices that encourage fidelity and impact without unintended consequences.

The result of pedagogical research may (fingers-crossed) eventually provide guidance that incorporates the nuance inherent in the complex interactions involved in effective teaching. For now, teaching would benefit from removing a singular focus on *best practices*, instead turning its attention toward the development of a variety of evidence-backed strategies, or *promising practices*, that teachers can deploy across specified contexts, learners, goals, and styles. Researchers hoping to impact teaching practice should focus on identifying psychological principles that hold promise for practice (e.g., *promising principles)*, and designing from them *promising practices* that can be tested in authentic contexts (Daniel, 2012).

Rather than dogma, flexibility and experimentation are important tools for the responsible teacher to leverage the most appropriate evidence-backed strategies. A literature rich with possibilities is our best tool to inform this process. Therefore we strongly encourage journals and editors of outlets that include content with recommendations for educators to consider the value of often messier, but externally valid designs, active control groups and the result of statistical equivalence to an already demonstrated strategy as an important step in the evolution of a literature that serves both science and the classroom teacher.

Further, practical concerns, including measures of effect size and addressing the practical concerns of implementation should be considered essential components of studies that hope to influence teaching practice across the different interacting functions and contexts of education. Providing teachers with the tools and information needed to evaluate and implement *promising principles* is the core of what would make a Science of Teaching an inspirational source of truly innovative teaching and learning practice and the context to enrich theories and models of learning and development. This, we argue, can more effectively happen with attention to complexity within an ecological framework. In this way, a science *of* teaching would also become a science *for* teaching.

Résumé

Il est nécessaire de faire de l'enseignement un objectif, qui reste à atteindre, de la science de la psychologie. Nous soutenons qu'un modèle écologique axé spécifiquement sur la compréhension et l'optimisation de la pratique de l'enseignement doit inclure la complexité intrinsèque de l'enseignement et du processus d'apprentissage. Pour y arriver, nous devons élargir notre portée au-delà de la simple exploration des principaux effets dans des conditions contrôlées pour inclure l'exploration des interactions dynamiques, y compris la détermination des conditions limites et l'évaluation d'éventuelles répercussions parmi les variables et les contextes pertinents. En outre, l'importance accordée à la validité interne et externe doit être rééquilibrée de façon plus productive afin d'obtenir des conclusions et des applications pratiques. Du point de vue de la pratique pédagogique, nous mettons en relief que des résultats non significatifs sur le plan statistique peuvent, dans certains contextes, mener à des stratégies très utiles pour l'enseignement. Ainsi, les chercheurs s'intéressant aux applications pratiques pour les enseignants doivent être encouragés, lorsque cela est possible, à utiliser des groupes témoins actifs dans le cadre de leurs études. De plus, nous soutenons que la portée pratique doit inclure l'information pertinente selon le contexte, par exemple, le rapport entre le degré auquel les résultats peuvent être utilisés en contexte sans nuire aux autres objectifs d'apprentissage et l'importance des coûts (en temps et en énergie) de l'intervention, en tant qu'élément essentiel pour l'évaluation de l'utilité potentielle d'une recherche sur

l'enseignement. Ainsi, les résultats statistiquement fiables doivent être pondérés quant à l'ampleur de l'effet et à l'aspect pratique de leur mise en œuvre par les enseignants dans un véritable contexte pédagogique avant d'envisager leur usage en classe.

Mots-clés : science de l'enseignement et de l'apprentissage, enseignement, apprentissage, science de la pédagogie

References

Benjamin, L. T., Jr. (2010). *David Myers distinguished lecture on the science and craft of teaching psychological science*, 22nd Meeting of the Association for Psychological Science. https://www.youtube.com/watch?v=d7f5J9gRUBU

Biesta, G. (2015). Freeing teaching from learning: Opening up existential possibilities in educational relationships. *Studies in Philosophy and Education*, *34*(3), 229–243. https://doi.org/10.1007/s11217-014-9454-z

Brandmark, A., Byrne, M., O'Brien, K., Hogan, K., Daniel, D. B., & Jakobsen, K. V. (2020). Translating for practice: A case study of recommendations from the wakeful- rest literature. *Teaching of Psychology*, *47*(1), 92–96. https://doi.org/10.1177/0098628319889268

Chew, S. L., Bartlett, R. M., Dobbins, J. E., Hammer, E. Y., Kite, M. E., Loop, T. F., Mclntyre, J. G., & Rose, K. C. (2010). A contextual approach to teaching: Bridging methods, goals, and outcomes. In D. F. Halpern (Ed.), *Undergraduate education in psychology: A blueprint for the future of the discipline* (pp. 95–112). American Psychological Association. https://doi.org/10.1037/12063-006

Daniel, D. B. (2012). Promising principles: Translating the science of learning to educational practice. *Journal of Applied Research in Memory and Cognition*. *1*(4), 251–253. https://doi.org/10.1016/j.jarmac.2012.10.004

Daniel, D. B., & Chew, S. L. (2013). The tribalism of teaching and learning. *Teaching of Psychology*, *40*(4), 363–367. https://doi.org/10.1177/0098628313501034

Daniel, D. B., & Poole, D. A. (2009). Learning for life: An ecological approach to pedagogical research. *Perspectives on Psychological Science*, *4*(1), 91–96. https://doi.org/10.1111/j.1745-6924.2009.01095.x

Daniel, D. B., & Willingham, D. T. (2012). Electronic textbooks: Why the rush? *Science*, *335*(6076), 1569–1571. https://doi.org/10.1126/science.335.6076.1569

De Bruyckere, P., Kirschner, P. A., & Hulshof, C. (2019). *More urban myths about learning and education: Challenging eduquacks, extraordinary claims, and alternative facts.* Routledge. https://doi.org/10.4324/9781351132435

De Bruyckere, P., Kirschner, P. A., & Hulshof, C. D. (2015). *Urban myths about learning and education*. Academic Press.

Fischer, K. W., & Bidell, T. R. (2006). Dynamic development of action and thought. In R. M. Lerner & W. Damon (Eds.), *Theoretical models of human development. Handbook of child psychology*, pp. 313–399. Wiley.

Fischer, K. W., Daniel, D. B., Immordino-Yang, M. H., Stern, E., Battro, A., & Koizumi, H. (2007). Why mind, brain, and education? Why now? *Mind, Brain, and Education*. *1*(1), 1–2. https://doi.org/10.1111/j.1751-228X.2007.00006.x

Gurung, R. A. (2017). Predicting learning: Comparing an open educational resource and standard textbooks. *Scholarship of Teaching and Learning in Psychology*, *3*(3), 233–248. https://doi.org/10.1037/stl0000092

Hardin, E. E. (2007). Presentation software in the college classroom: Don't forget the instructor. *Teaching of Psychology*, *34*(1), 53–57. https://doi.org/10.1177/009862830703400112

Hattie, J. (2003). *Teachers make a difference, what is the research evidence?* Annual Conference on building teacher quality. Australian Council for Educational Research, Melbourne.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, *77*(1), 81–112. https://doi.org/10.3102/003465430298487

Holmes, J. D. (2016). *Great myths of education and learning*. Wiley. https://doi.org/10.1002/9781118760499

Huang, F. L., & Moon, T. R. (2009). Is experience the best teacher? A multilevel analysis of teacher characteristics and student achievement in low performing schools. *Educational Assessment, Evaluation and Accountability*, *21*(3), 209–234. https://doi.org/10.1007/s11092-009-9074-2

Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain and Education*, *1*(1), 3–10. https://doi.org/10.1111/j.1751-228X.2007.00004.x

Immordino-Yang, M. H., Darling-Hammond, L., Christina, R., & Krone, C. R. (2019). Nurturing nature: How brain development is inherently social and emotional, and what this means for education. *Educational Psychologist*, *54*(3), 185–204. https://doi.org/10.1080/00461520.2019.1633924

Jakobsen, K. V., & Daniel, D. B. (2019). Evidence-based choices for teachers: Team-based learning and interactive lecture. *Teaching of Psychology*, *46*(4), 284–289. https://doi.org/10.1177/0098628319872411

Kingstone, A., Smilek, D., & Eastwood, J. D. (2008). Cognitive ethology: A new approach for studying human cognition. *British Journal of Psychology*, *99*, 317–340. https://doi.org/10.1348/000712607X251243

Masschelein, J., & Simons, M. (2013). In defence of the school: A public issue. *Education*. Culture & Society Publishers.

Mayer, R. E. (2008). Applying the science of learning: Evidence-based principles for the design of multimedia instruction. *The American Psychologist*, *63*(8), 760–769. https://doi.org/10.1037/0003-066X.63.8.760

Mayer, R. E. (2011). *Applying the science of learning*. Pearson/Allyn & Bacon.

Mayer, R. E. (2018). Educational psychology's past and future contributions to the science of learning, science of instruction, and science of assessment. *Journal of Educational Psychology*, *110*(2), 174–179. https://doi.org/10.1037/edu0000195

Meijer, W. A. (2013). *Onderwijs, weer weten waarom*. SWP.

Morozov, E. (2013). *To save everything, click here: The folly of technological solutionism*. Public Affairs.

Nuthall, G. (2007). *The hidden lives of learners*. Nzcer Press.

Sisk, V. F., Burgoyne, A. P., Sun, J., Butler, J. L., & Macnamara, B. N. (2018). To what extent and under which circumstances are growth mindsets important to academic achievement? Two meta-analyses. *Psychological Science*, *29*(4), 549–571. https://doi.org/10.1177/0956797617739704

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Wayne, A. J., & Youngs, P. (2003). Teacher characteristics and student achievement gains: A review. *Review of Educational Research*, *73*(1), 89–122. https://doi.org/10.3102/00346543073001089

Wiliam, D. (2012). Feedback: Part of a system. *Educational Leadership*, *70*(1), 30–34.

Willingham, D. T., & Daniel, D. B. (2021). Making education research relevant: How researchers and give teachers more choices. *Education Next*, *21*(2), 10–15. https://www.educationnext.org/making-education-research-relevant-how-researchers-can-give-teachers-more-choices/

Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C., Tipton, E., Schneider, B., Hulleman, C. S., Hinojosa, C. P., Paunesku, D., Romero, C., Flint, K., Roberts, A., Trott, J., Iachan, R., Buontempo, J., Yang, S. M., Carvalho, C. M., … Dweck, C. S. (2019). A national experiment reveals where a growth mindset improves achievement. *Nature*, *573*(7774), 364–369. https://doi.org/10.1038/s41586-019-1466-y

Received July 2, 2020
Revision received March 24, 2021
Accepted March 28, 2021 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 367–376
https://doi.org/10.1037/cap0000279

COMMENTARY

Teaching Styles and Troublesome Students

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Some psychology professors attribute students' lack of motivation, dependency, irresponsibility, and overdeveloped sense of entitlement to the influence of overly permissive parenting. That may be partly true, but professors must share the blame if they tolerate or support the undesirable student actions and attitudes they bemoan. In this commentary I suggest that much as differing parenting styles are associated with differing developmental outcomes, different teaching styles may encourage different patterns of student behavior. I describe permissive-neglectful, permissive-indulgent, authoritarian, and authoritative teaching styles and the assumptions their practitioners appear to make about the proper roles, rights, and responsibilities of teachers and students. I suggest that a permissive-indulgent style tends to encourage troublesome student behavior and that authoritative teaching tends to discourage it. I describe some of the key elements of authoritative teaching and outline an agenda for research on teaching styles.

Public Significance Statement
This commentary suggests that overly permissive teaching policies do not encourage college and university students to exert their best efforts and, on the contrary, encourage them to behave in ways that are troublesome for teachers. The author suggests that, like firm but fair parents, teachers who adopt an authoritative teaching style tend to bring out the best in their students.

Keywords: teaching style, parenting style, troublesome students, authoritative teaching

Adults have been complaining about students, especially younger students, for thousands of years. In the 8th century B.C.E., the Greek poet Hesiod wrote that "I see no hope for the future of our people if they are dependent on frivolous youth of today, for certainly all youth are reckless beyond words . . . When I was young, we were taught to be discreet and respectful of elders, but the present youth are exceedingly disrespectful and impatient of restraint." In 1274, the French priest known as Peter the Hermit is quoted as saying that "the world is passing through troublous times. The young people of today think of nothing but themselves. They have no reverence for parents or old age. They are impatient of all restraint. They talk as if they knew everything, and what passes for wisdom with us is foolishness with them."

The same themes echo today in the views of many psychology faculty who compete for medals in what has been called the Misery Olympics of Teaching (Vargas, 2019). These Olympians say that too many students in the traditional 18–22 age group are disengaged, lacking in academic preparation and motivation to learn, disrespectful, irresponsible about completing assignments, overly dependent, and likely to cheat on tests or plagiarize papers, all while displaying an exaggerated sense of entitlement to good grades and special treatment (see, e.g., Altman et al., 2019; Boysen et al., 2020; Carkenord, 1994; Cizek, 1999; Jordan, 2003; Landrum, 2011; McGinley & Jones, 2014; Obeid & Hill, 2017; Sappington et al., 2002; Zinn, 2009). These professors particularly lament that today's students are nothing like the honest, motivated, responsible, independent, and humble undergraduates that *they* were back in the day! There is debate about whether undesirable student characteristics are more common now than in the past (e.g., Arnett, 2010; Eckersley, 2010; Greenberger et al., 2008; Roosevelt, 2009; Trzesniewski & Donnellan, 2010; Twenge, 2006, 2013; Twenge & Campbell, 2010; Wetzel et al., 2017), but there is no doubt that having troublesome students in class can make a professor's life more difficult.

Traditional wisdom suggests that these students come from homes where parents either failed to properly socialize them or, more likely, coddled them, overprotected them, and covered for them to such an extent that many of them enter grade school with high levels of anxiety, inflated self-esteem, an underdeveloped sense of responsibility, an overdeveloped sense of entitlement, minimal respect for authority, and a readiness to blame others for their own shortcomings (Julian, 2020; Lukianoff & Haidt, 2018). In Baumrind (1971) classification system, these childrearing practices exemplify the combination of high support and low demand that she called *permissive-indulgent* parenting (see Figure 1). These parents are affectionate, caring, and involved, but also extremely tolerant and exert little or no control or discipline. Baumrind contrasted permissive-indulgent parents with three other types commonly seen in Western cultures: *permissive-neglectful* (also known as

This article was published Online First April 8, 2021.
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Figure 1

Baumrind (1971) System of Classification Crosses Two Levels of Parental Support/Involvement With Two Levels of Discipline/Demand

DEMAND		SUPPORT/INVOLVEMENT	
		LOW	HIGH
	LOW	PERMISSIVE-NEGLECTFUL	PERMISSIVE-INDULGENT
	HIGH	AUTHORITARIAN	AUTHORITATIVE

uninvolved) parents, who show virtually no interest in their children, *authoritarian* parents, who tend to be harsh, demanding, intolerant, autocratic, and punitive, and *authoritative* parents, who tend to be firm but fair, making demands and imposing discipline in a caring atmosphere (Baumrind, 1971; Maccoby & Martin, 1983).

Permissive-indulgent, permissive-neglectful, and authoritarian parenting have been associated with a variety of problematic personal, social, and emotional characteristics that can play out in academic settings in the form of anxiety and low achievement, but also in irresponsibility, impulsivity, dependency, lack of persistence, unreasonable expectations and demands, and dishonesty. Authoritative parenting tends to be associated with the most adaptive social, emotional, and moral development, and with the fullest expression of children's intellectual capabilities (e.g., Eisenberg et al., 2006; Morris et al., 2013; Paulussen-Hoogeboom et al., 2008).

These associations have been identified through correlational research, not experiments, and some of the correlations, while statistically significant, are not terribly large. Further, because of the genetics and epigenetics of children's temperaments, the effects of those temperaments on parents' behaviors, discrepancies between children's and parents' perceptions, and other factors (Darling & Steinberg, 1993; Hou et al., 2020), the outcomes generally associated with various styles of parenting do not always appear (Feng et al., 2008; Houts et al., 2010; Kochanska et al., 2007). Nevertheless, the results of parenting research are consistent with the notion that permissive-indulgent parenting may play a role in laying the groundwork for many of the student attitudes and behaviors that psychology faculty find so stressful and disruptive.

The Impact of Teaching Styles

Fortunately, these attitudes and behaviors are not immutable. They can be influenced, for better or for worse, by social forces outside the home, including by the kinds of teaching that students encounter (e.g., Mullen & Tallent-Runnels, 2006; Paulson et al., 1998; Pellerin, 2005; Quiamzade et al., 2009; Snyder & Bassett, 2011; Walker, 2008, 2009; Wentzel, 2002). So regardless of how many troublesome students are out there, whether there are more of them or fewer of them today than in the past, or what exactly started them on the path to inappropriateness, teachers, including psychology teachers, have a significant amount of control over the extent to which troublesome students are troublesome for *us*. That's because we have control over our *teaching style*, the way we organize and teach our courses and the way we deal with our students. As few as 3 and as many as 13 teaching styles have been described in classification systems based on cognitive or educational theories, instructional designs, pedagogical methods, student–teacher role expectations, and other dimensions (Barrett et al., 2007; Behar-Horenstein et al., 2006; Collins & Pratt, 2011; Conti, 1990; Grasha, 1994; Kember, 1997; Leung et al., 2003; Mohanna et al., 2008; Mosston & Ashworth, 1986; Paquay et al., 2007; Persaud, 2019; Reinsmith, 1992; Trigwell & Prosser, 2004; Zhang, 2004), but I would like to highlight a system based on differences in the teacher–student relationship that parallel those between parents and children (Barnas, 2000; Bassett et al., 2013; Bernstein, 2013; Rogers et al., 2017). This system crosses two levels of teacher involvement/support with two levels of discipline/demand, yielding four teaching styles that echo Baumrind's parenting styles (see Figure 2).

According to this classification system, teachers who personify the *permissive-neglectful* do little more than provide students with the basics. They come to class, deliver the same lectures year after year, discourage questions, and make their escape with as little student contact as possible. They hold no office hours. They tend to view students as threatening, chronically dissatisfied customers. They make no serious effort to establish or maintain discipline in their courses, so when they encounter classroom misbehavior, such as talking or texting or even cheating on exams, they are likely to ignore it if they can. This arrangement—in which the teacher offers as little as possible and students are relegated to a passive role—eases the burden of teaching because there is no need to create, organize, or evaluate more elaborate methods. It is ideal for faculty who see teaching as a necessary evil in an otherwise comfortable academic position, or who face heavy teaching loads (perhaps on more than one campus), work–family conflicts, low pay, employment uncertainty, and other stressors that may have plunged their motivation for teaching into the subbasement.

Teachers who fit the classic *authoritarian* profile are similarly low on involvement, but more preoccupied than their permissive-neglectful colleagues with enforcing strict discipline. Like authoritarian parents, they offer students little or no opportunity for discussion or argument. Rules are rules, deadlines are deadlines, and there are no exceptions. These teachers expect high achievement and reward it with good grades, but they don't nurture it through

Figure 2

Four Teaching Styles. These Four styles Can Be Seen At All Levels of Education, Including in The College and University Classroom

STRENGTH OF DISCIPLINE		SUPPORT/INVOLVEMENT	
		LOW	HIGH
	LOW	PERMISSIVE-NEGLECTFUL	PERMISSIVE-INDULGENT
	HIGH	AUTHORITARIAN	AUTHORITATIVE

Note. A scale to assess the control and nurturance dimensions that appear to underlie these styles Has been developed and tested (Rogers et al., 2017).

personal attention or encouragement. Weakness or failure is ignored, other than to punish it with a low grade. Students' questions, complaints, evaluations, and requests for help are neither invited nor welcomed. The authoritarian style may be particularly appealing to teachers who experience anxiety about public speaking and the adequacy of their content knowledge. Those who see teaching and students as threats to their self-esteem may find that establishing and enforcing strict rules offers a comforting sense of protection. Others just enjoy having power. For them, teaching can be an intoxicating drug whose effects include the pleasure of superior status and dominion over others, perhaps for the first time in their lives.

Like prototypical authoritative parents, teachers who fit the *authoritative* profile employ a blend of high involvement and firm but fair discipline. They care about their teaching and their students, but they reward outcomes, not effort. These teachers see students as responsible adults, so although they are willing to help, they are careful not to create dependency or to let themselves be exploited or manipulated. They reward academic success with praise as well as high grades, they encourage students to try harder when they need to, and they grant requests for special consideration only when justified by confirmed conditions or circumstances, and in accordance with institutional policies. They think carefully about their rules and standards, announce them in advance, explain why they are necessary, and enforce them consistently (Baker et al., 2009; Bernstein et al., 2020; Walker, 2009). I will describe this teaching style in more detail below.

Permissive-indulgent teachers tend to be deeply involved with their students and, like "helicopter parents," perhaps too much so. They are devoted to teaching but may worry about doing it in ways that will create too much stress for students, stifle their personal growth, harm their self-esteem, or trigger anxiety or depression (see, e.g., Boysen et al., 2016; Kamenetz, 2016; Stokes, 2014). Their lectures and class activities tend to be planned and paced with the slowest and least academically prepared students in mind. The prototypical teacher in this category tends to see students as children who need help and support in the form of study sheets, lecture notes, and rewards for attending and participating in class and completing assigned readings. Permissive-indulgent teachers may invite students to influence course content and some even offer a menu of testing options that allow students to choose the one that best suits their perceived learning styles—ignoring scientific evidence that those *styles* are better characterized as *preferences* (Pashler et al., 2008; Willingham et al., 2015).

Permissive-indulgent teachers establish course requirements and deadlines, but tend to be flexible in enforcing them, and sometimes make special arrangements and allowances on a case-by-case basis. They are eager to help students succeed, even if it means lowering standards for success, including by offering certain individuals extra credit opportunities. Further, many believe that students' *efforts* to succeed are at least as deserving of reward as the *outcome* of those efforts, as embodied in test scores and other performance assessments. One observer described permissive-indulgent teachers as "codependent enablers" of their students' lack of motivation, irresponsibility, and other academic problems (Daniel, 2009).

These teachers have good intentions. Teaching provides a platform for satisfying their desire to be nurturing and supportive, to giving errant students another chance to prove themselves, to protect students' self-esteem, to help them to develop as individuals, and to focus on productive relationships rather than discipline (e.g., Schmier, 1997, 2012). A permissive-indulgent style can protect a *teacher's* self-esteem, too, because many of them believe that when students don't do well it is mostly the teacher's fault. A permissive-indulgent style also provides a way to avoid unpleasant conflicts overrules and grades because the rules can so easily be bent, especially for the most demanding or seemingly deserving students. This advantage is especially appealing to new teachers, who do not yet recognize the problems that can be created by too much permissiveness, who have too little confidence in themselves to stand their academic ground, or who may be unsure (often with good reason) that their department executive officer or dean will back them up if they adopt a more authoritative teaching style. Finally, there are permissive-indulgent teachers who expect that their style—especially if accompanied by a lenient grading system—will yield high student evaluations and improved chances for tenure, promotion, and pay raises. That expectation is not necessarily justified (Greenwald & Gillmore, 1997; Griffin, 2004; Johnson, 2002; Love & Kotchen, 2010; Marsh & Roche, 2000), but to the extent that a permissive-indulgent style reinforces undesirable student attitudes and behaviors, permissive-indulgent teachers may find themselves spending an inordinate amount of time dealing with the needs, demands, and difficulties of troublesome students (Buskist & Benassi, 2012; Mullen & Tallent-Runnels, 2006; Quiamzade et al., 2009; Snyder & Bassett, 2011).

The parenting-related classification system described above is surely flawed and incomplete, if only because its categories are probably not discrete. Many, perhaps most, teachers display elements of more than one style from time to time and from situation to situation. Further, teaching styles may morph over time within the same teacher as a result of experience, fatigue, changing circumstances, or other factors (see Table 1, for some research questions that need to be answered in order to evaluate the validity of the system).

Flawed though the system may be, you probably nevertheless recognize these four main styles and chances are that you can instantly name at least one teacher who clearly falls into each category. The four styles are personified in various combinations and in various proportions in classrooms around the world, but I believe that psychology courses in North America are dominated by some version of the permissive-indulgent style. This assertion is based partly on the teaching practices of colleagues I have observed over several decades, partly on what I hear psychology faculty talk about and worry about, partly on what they write about in teaching of psychology journals (see Table 2) and on teaching-related websites (e.g., Basken, 2020), and partly on the results of an admittedly unscientific survey that I will describe later.

Teaching Styles Across Decades and Borders

The popularity, if not dominance, of permissive-indulgent teaching in North America contrasts sharply with the authoritarian teaching style that ruled the educational scene decades ago. When I started grade school in 1949, teachers could be downright scary. Shouting at errant students, administering corporal punishment, and making them stand facing a corner of the classroom were accepted methods of keeping order. The same atmosphere prevailed in high school, where instruction focused on lectures, rote memorization, questions directed randomly at individuals who

Table 1

Here Just a Few of the Research Questions That Need to Be Answered About the Parenting-Oriented Teaching Style System Described Here, as Well as About the Control and Nurturance Dimensions That Are Hypothesized to Underlie It (Rogers et al., 2017)

1. How accurately do the four proposed teaching style categories map onto observable patterns of teaching behavior?
2. If the four teaching styles are not discrete, what combinations or profiles most commonly appear in relation to particular aspects of teaching (e.g., classroom management, rule enforcement, student support, and the like)?
3. What is the distribution of teaching styles or teaching style profiles in higher education in general and in particular disciplines?
4. To what extent are different teaching styles or profiles related to students' short- and long-term academic achievement and to the appearance of undesirable student behavior?
5. To what extent does the impact of a particular teaching style or profile depend on students' personality characteristics, cultural background, and experiences and expectations?
6. To what extent are teaching styles or profiles shaped by the behavior of the students that teachers encounter over time?
7. To what extent does the use of various teaching styles or profiles relate to teachers' own experiences as students, to their personality characteristics, to the parenting styles to which they were exposed, and the ones they use with their own children?

Note. The answers should be useful for better understanding current teaching practices and guiding professors' decisions about future ones.

were expected to answer correctly based on assigned readings or to go to the blackboard to work on math problems or diagram sentences. There were lots of graded writing assignments and other homework, as well as challenging exams for which there were no review sessions or retakes. Are these the constructed memories of a cranky old geezer? I wondered about that, too, so I contacted friends and colleagues of my generation living all over North America and asked them to reminisce about their grade school, high school, and college and university teachers. Their replies suggest that if my memories are constructed, they constructed the same ones. Here are just three examples of their college and university experiences[1]:

> Tests were never easy; they always required serious studying and preparation.

> The vast majority of my college instructors didn't give a damn about me or my feelings. They certainly weren't afraid of me or worrying about hurting my feelings. My undergraduate advisor once asked me if I was stupid or just didn't give a shit.

> College was a make it or break it by yourself experience. We were on our own to take notes; find the keys to learning; and be prepared for exams. Professors did not seem to care if you were in class or not. There was no collaboration with other students.

My classes in college during the early 1960s focused solely on lectures, exams, and term papers, and with the exception of lab courses, active learning was unknown. Authoritarian teaching continued when I was in graduate school in the mid-1960s. Lectures and readings and papers dominated the first 2 years, after which more active learning opportunities appeared in the form of seminars and research projects and extensive writing assignments. All my professors were kind and helpful, yet an authoritarian atmosphere prevailed. Re-do's did not exist. The faculty reviewed graduate students' grades at the end of the first year and if you were deemed not to have performed at an appropriate (though not publicly specified) level, you were summarily dismissed. There was no appeal. Curricular decisions were made in ways that would today seem capricious. For example, at the end of my second year, I received a note saying that effective immediately, graduation requirements now included writing a *Psychological Bulletin*-style position paper on a topic related to my planned area of doctoral research. These days, such a requirement would likely apply only to incoming students, but back then it applied to everyone. It was actually an excellent requirement because, for most students, it became the introduction section of their dissertations, but the announcement nevertheless came as a shock, with no warning ...or opportunity for discussion.

It was not until late in the 1960s that authoritarian teaching styles in higher education were seriously challenged. The rise of youth culture, the sexual revolution, the civil rights movement, protests against the Vietnam War, and other social forces emboldened undergraduate and graduate students to put pressure on university faculty to change their traditional ways. With encouragement from some of the many young assistant professors hired in psychology departments in the 60s, students began demanding the right to evaluate their teachers, to have courses that addressed topics that were "relevant" to their lives and societal concerns, to be consulted

Table 2

A Sampling of Recent Articles in Teaching of Psychology and Scholarship of Teaching and Learning in Psychology

"What's on the Test?": The Impact of Giving Students a Concept-List Study Guide
A Comparison of Two In-Class Anxiety Reduction Exercises Before a Final Exam
Instructors' Use of Trigger Warnings and Behavior Warnings in Abnormal Psychology
A Program to Improve Student Engagement at Research-Focused Universities
Should Students Have the Power to Change Course Structure?
Incentivizing Multiple Revisions Improves Student Writing
Embrace Chattering Students
Individual and Group Credit for Class Participation
A Brief Instructional Intervention to Increase Students' Motivation on the First Day of Class
Two Studies of Reading Compliance Among College Students
Building Emotional Rapport with Students in Statistics Courses

Note. These titles reflect a belief among many psychology faculty in North America that It Is important to support students as well as teach them. Those who also believe that students cannot succeed without that support seem especially likely to adopt a permissive-indulgent teaching style.

[1] Many thanks to Whit Daily, Ed Delson, Ann Harris, Mose Hazo, Dave Hoffman, John Loeb, Donna Kaplan, Ross Parke, Lou Penner, Sandy Senior, and Red Smith for their recollections. I regret that I don't have space to include all their stories.

about curricular decisions, and in general to be taken into consideration as human beings as well as students. I saw the change beginning just as I completed my doctoral degree in the spring of 1968, when a group of brave graduate students requested a first-ever meeting with the department's faculty at which they could air their grievances about the way things were being done. At one point in the meeting, a student suggested that faculty-student communication could be improved through periodic *T-group* sessions—the training, or encounter, groups that were then just gaining popularity. After an awkward silence, one professor politely ventured to say that "I don't see how drinking tea is going to help."

Teaching styles at all levels of education are obviously much different now, in North America at least. Most of the grade school and high school teachers of the 1950s and 1960s would be instantly fired today. Teachers hesitate to touch or hug children, let alone strike them, and they are vulnerable to disciplinary action if they come anywhere near violating ever-stricter codes of teacher conduct. Indeed, there are those who worry that exposing home-schooled children to potentially more authoritative or authoritarian teaching could put them at risk for physical or psychological harm (O'Donnell, 2020). In higher education, teachers are particularly vulnerable to complaints and protests if they do anything that even one student interprets as insensitive or hurtful or violent or racist, as those words are defined on campuses today (Lukianoff & Haidt, 2018). An authoritative teaching style is tolerated, and even preferred by some students, but a permissive-indulgent style is safer, and I think that is another source of its popularity. For example, about half of all teachers in higher education provide "trigger warnings" before presenting potentially upsetting course material (Kamenetz, 2016; National Coalition Against Censorship, 2015), despite evidence that such warnings are not significantly helpful, even to students with a history of trauma (Bellet et al., 2018; Boysen et al., 2019; Jones et al., 2020; Sanson et al., 2019) and may make students hypersensitive to—and less capable of coping with—negative life events (Lukianoff & Haidt, 2018; McNally, 2014).

Is a permissive-indulgent style also typical of psychology professors these days? I could not find any data on the relative prevalence of their teaching styles, so using my international contact list and that of the Society for the Teaching of Psychology's DIV2PSYCHTEACHER mail group, I invited colleagues in psychology departments around the world to complete a 20-item survey called "How do you teach?" I received 106 responses from faculty who have been teaching for 2 to 50 years.[2] About 80% of them described using teaching methods that are heavy on permissive-indulgent elements, including supporting students' exam preparation by providing study guides, lecture notes, copies of previous exams, and/or samples of high-quality papers; making case-by-case decisions about the consequences of missed exams or assignment deadlines; showing leniency in cases of academic dishonesty; offering formal advice on study skills, time management, and stress management; and giving students trigger warnings, and the option to leave or skip a class (one respondent reported no longer covering topics that might be distressing).

Not surprisingly (to me, at least), those whose responses placed them most clearly in the permissive-indulgent category were also the ones who described dealing with irresponsible and unmotivated students as the most annoying and stressful aspect of teaching. One professor said "I get annoyed when students don't put in the effort to figure things out for themselves .... I also get really disheartened when it feels like I want their success more than they want it ... ." And yet a few permissive-indulgent respondents interpreted some of my questions as suggesting that they were not being indulgent *enough*. When asked if they give time management advice, or enhance trigger warnings with the option to skip class, these teachers said things like "no, but I will now."

Although a permissive-indulgent style dominated the survey replies, almost all respondents appear to adopt a *hybrid style* that includes at least some authoritative elements. For example, 95% reported using an absolute scale for scoring exams and assigning final grades; 15% said they allow no deadline extensions or make-up exams without certified documentation, or at all; 24% give no trigger warnings; and 46% aggressively pursue every case of academic dishonesty. Only about 5% of respondents reported elements of authoritarian or permissive-neglectful teaching, such as not providing a syllabus or reviewing exam results or allowing challenges to scoring, holding no office hours, inviting no student evaluations once tenure was achieved (or ignoring data collected by their institution), and basing final grades on only one or two exams.[3] As you might expect, these teachers said that they spend nearly all of their class time giving lectures, but so did several others whose styles are clearly authoritative or permissive-indulgent. Indeed, across all respondents, the mean amount of class time devoted to lecturing was 57.1%; individual estimates ranged from 5% to 99% and distributed themselves in a roughly normal curve. If future research finds these data to be broadly representative, time spent lecturing may not turn out to be a useful indicator of teaching style.

The upshot of all that I have said here is that teaching styles have changed over the years, that different teachers adopt different styles, and that some styles are more common in some countries than in others. The choice of teaching style is typically shaped by our preferences and experiences, by the modeling and mentoring of our teachers and colleagues, by how-to books (e.g., Bernstein et al., 2020; Boysen, 2019; Forsyth, 2003; Svinicki & McKeachie, 2010) and by the trends described in literature on the scholarship of teaching and learning (e.g., Bernstein, 2018; Buskist & Groccia, 2012). Are we making good choices? It depends on what you mean by "good." In terms of facilitating student learning, there is probably no single "best" teaching style. There is evidence that, for some students, an authoritarian style is associated with superior learning outcomes (e.g., Dever & Karabenick, 2011). In my own case, whatever writing abilities I have are rooted in the hyper-authoritarian English class exercises and demanding homework inflicted upon me in grade school by my all-time favorite teacher, Miss Inez M. Purcell. Many other students say that they prefer, feel more empowered by, and learn more from authoritative teachers, but those self-reports are not necessarily reflected in their test performance or course grades (Bassett et al., 2013; Cakir, 2015; Rogers et al., 2017). However, when it comes to discouraging unreasonable demands from chronically troublesome students—thereby freeing more time for the fun

[2] Responses came mainly from North America, but also from Brazil, France, Germany, Israel, Italy, The Netherlands, Portugal, Russia, and the U.K. The small number of responses obviously limits the generalizability of the results, but the patterns described below suggest interesting research questions. The survey items are available from the author.

[3] Almost all of these responses came from Europe, thus confirming the impressions I formed while consulting in several countries there.

parts of teaching—my 40-plus years of teaching psychology have convinced me that an authoritative style is by far the best option.

Authoritative Teaching Methods

The cornerstone of authoritative teaching is treating students as responsible adults. This means giving them clear and comprehensive information about your course, including your teaching philosophy and rules, what you will be covering, how you will cover it, and an outline of their rights and obligations. It also means keeping your end of the bargain and holding students responsible for keeping theirs.

Establishing your role as an authoritative teacher begins on the first day of class when you distribute your syllabus. Describe it as a contract between you and your students and review it in detail. This review can serve as an introduction and illustration of your teaching methods and goals. If one of your goals is to promote independent learning, critical thinking, or teamwork, mention that your lectures will be frequently supplemented by class discussions and group activities in which everyone is expected to participate. If advance reading or other preparation is required in order to benefit from these discussions and activities, say so, but you don't have to remind students to complete assigned readings, or award points for doing so. Make the assignments, explain their importance, and let students who fail to complete them discover and deal with the consequences.

When reviewing course requirements and how final grades will be determined, give students a chance to ask questions. Present course information and answer questions in a friendly, matter-of-fact manner, without apology. Be honest about the amount of work that will be required to do well in your class. Support students' confidence by explaining that those who complete that work usually get high grades. Especially in introductory psychology, tell students that there will not be enough class time to address all the concepts, theories, applications, and other information that you expect them to learn. Spell out what this means, namely that though you will spend class time *teaching*, the responsibility for *learning* lies with them, and that much of that learning will have to take place independently or in student-organized study groups. Above all, make it clear that your grading system rewards achievement, not effort. Finally, let students know that your office hours, email address, and other contact details are listed on the syllabus because part of your job is to answer questions, discuss course material, offer advice, recommend supplemental information sources, and provide other kinds of help to those who ask for it.

Spending part of the first day of class reviewing the syllabus and establishing expectations has the added advantage of heading off or at least minimizing many of the student behaviors that professors complain about. Does class attendance matter to you? Should students raise a hand to be recognized before commenting or asking a question? Is eating or drinking in class permitted? How about using electronic devices in class? Describe your policies and point out where they appear in the syllabus. Pay special attention to how you will handle requests for make-up exams, questions about the scoring of exam items, requests for extra credit or special arrangements, and complaints about grades. Do not assume that students will know your rules about plagiarism or other aspects of academic dishonesty; standards that seem intuitively obvious to you may be new to them. The more explicit your written rules and policies, the fewer difficulties there will be when you apply them. Students generally prefer predictability and structure, and they want that structure to come from you, not from the results of class votes or compromises hashed out in public between the teacher and the class's most aggressive or demanding members (Bernstein et al., 2020; Scholl-Buckwald, 1985).

Entering an authoritative learning environment should be like joining a gym. In exchange for a fee, and an agreement to abide by certain rules and policies, members gain access to a wide array of exercise facilities, as well as to the help, advice, and supervision of fitness experts, and the company and support of other members with similar goals. Everything they need to succeed is available to them, and though the least fit members may initially need the most help, individual results ultimately depend almost entirely on whether, how, and how diligently each member takes advantage of what the gym has to offer.[4]

Some faculty hesitate to adopt an authoritative teaching style because of fear that students will punish them with low course evaluations (Stroebe, 2016, 2020). As mentioned earlier, that concern may be exaggerated (Greenwald & Gillmore, 1997; Griffin, 2004; Johnson, 2002; Love & Kotchen, 2010; Marsh & Roche, 2000). Many students who encounter authoritative teachers are glad to have had the experience (Hativa, 2013a, 2013b; Marsh & Roche, 2000; McKeachie, 1997; Richardson, 2005).

Some Concluding Thoughts

In addition to discouraging problematic student attitudes and behaviors, an authoritative teaching style offers an advantage shared to some extent with authoritarian teaching, namely that by challenging students to take responsibility for their own learning, you push them to explore the limits of their academic ability. Authoritative teachers don't allow pessimistic expectations about student performance to become self-fulfilling prophesies. They maintain their standards. They do not water down course content or reduce demands for achievement, and they certainly do not make such adjustments on an individual basis.

It is obviously and legally necessary to alter assessment procedures or other aspects of courses for students with documented physical or cognitive disabilities, but giving in to individual students' requests for special treatment based on their perceived learning styles or assessment preferences or sense of entitlement is inappropriate and can be counterproductive. Authoritative teachers promote their students' success—in higher education and beyond—by helping them understand that to survive, thrive, and prosper in the world outside academia they will have to adjust to that world's demands, not the other way around. Students will never discover how much they can accomplish unless they are required to try, so we do them no favors by making their academic lives too easy.

Most students will rise to the challenges set for them by authoritative teachers (e.g., Timpson & Bendel-Simso, 1996), but what if they can't, or won't? As already mentioned, many teachers worry that their students will not succeed without the support provided by a permissive-indulgent style, but in my view, this worry reflects a tendency to take too much responsibility for what should be the

[4] This analogy was suggested to me by Alison Hagood during a discussion at the 2009 National Institute on the Teaching of Psychology, St. Pete Beach, Florida.

students' job. Authoritative teachers help students who need help, but without enabling dependency. They offer encouragement and advice to motivated students who may lack confidence or need guidance in finding help with study skills or stress management, but they may also advise unqualified or inadequately prepared students to drop a course rather than set themselves up for failure. They also recognize that students who are unwilling to do what it takes to succeed in a course are going to fail that course.

When authoritative teachers encounter students whose underperformance stems from undefined career goals or lack of genuine interest in higher education, they do not hesitate to suggest a different academic major or even a different life plan. Many students enter higher education only because they don't know what else to do, because their families pushed them toward a certain career, or because of more general societal pressure to pursue a college or university degree. These factors help to explain why at least 30% of U.S. college and university students change majors at least once (National Coalition Against Censorship, 2015) and, especially for students with marginal academic credentials, why the average dropout rate from U.S. colleges and universities is the highest in the industrialized world (National Center for Education Statistics, 2020; Symonds et al., 2011). Unfortunately, many college and university dropouts come to think of themselves as failures and may experience negative mental health consequences, when the truth is that they may simply have made unwise educational choices.

Such outcomes are especially sad because one need not have a college or university degree, let alone a degree in psychology, to live a good life, and not everyone who enters higher education belongs there (Carlson, 2016). Though the median annual income of college and university graduates is about 67% higher than those whose formal education ends after high school, and their estimated lifetime income may be about a million U.S. dollars more (Baum et al., 2010), a large part of that difference reflects the fact that many people who were not motivated to go beyond high school may also not have the motivation (or capacity) to be successful at one of the many high-paying occupations that do not require a bachelor's degree. Studies that control for those factors and for the value of the U.S. dollar over time suggest that the average lifetime income advantage for college graduates is actually closer to 220,000 U.S. dollars (Selingo, 2013; Stossel, 2011; Tamborini et al., 2015).

Motivated high school graduates can find a path to success in jobs that require no additional education or, at most, one or 2 years of postsecondary training. In fact, about 66% of all jobs in the United States are open to those without a bachelor's degree (Steinberg, 2010; Symonds et al., 2011; U.S. Bureau of Labor Statistics, 2020). Plumbers, electricians, heating ventilation and air conditioning (HVAC) technicians, carpenters, beauticians, salespeople, travel agents, realtors, and bartenders, servers and chefs in upscale restaurants, for example, can earn more than many college and university graduates in their age group and—especially if they own their own businesses—may enjoy greater autonomy (e.g., Carnevale et al., 2017; Carnevale & Cheah, 2018; Limitone, 2019).

Nor is money, though important, the sole measure and determinant of subjective well-being and a good life (e.g., Diener et al., 2010; Diener & Seligman, 2004; Maslow, 1971). Helping young people to understand this, to legitimize a wider range of options, and to think carefully about their options before settling on a career path is a vital service that parents and teachers alike can provide.

Résumé

Certains professeurs de psychologie attribuent le manque de motivation, la dépendance, l'irresponsabilité et le sentiment que tout est dû des étudiants à l'influence d'un style parental trop permissif. C'est peut-être vrai en partie, mais les professeurs doivent partager la responsabilité s'ils tolèrent ou soutiennent les actions et attitudes indésirables des étudiants qu'ils déplorent. Dans ce commentaire, je suggère que, tout comme les styles de parentalité différents sont associés à des résultats de développement différents, différents styles d'enseignement peuvent encourager différents modèles de comportement des élèves. J'y décris les styles d'enseignement permissif-négligent, permissif-indulgent, autoritaire et faisant autorité, ainsi que les hypothèses que leurs praticiens semblent faire à propos des rôles, des droits et des responsabilités appropriés des enseignants et des étudiants. Je suggère qu'un style permissif-indulgent tend à encourager le comportement des élèves difficiles et que l'enseignement qui fait autorité tend à le décourager. Je décris certains des éléments clés de l'enseignement qui fait autorité et je présente un programme de recherche sur les styles d'enseignement.

Mots-clés : style d'enseignement, style parental, élèves difficiles, enseignement faisant autorité

References

Altman, J. D., Prittie, B. A., & Forbach, G. B. (2019). Disparity in expectations of reward for effort expended among students, professors, and employers. *Teaching of Psychology*, *46*, 197–207. https://doi.org/10.1177/0098628319848875

Arnett, J. J. (2010). Oh, grow up!: Generational grumbling and the new life stage of emerging adulthood—Commentary on Trzesniewski & Donnellan (2010). *Perspectives on Psychological Science*, *5*, 89–92. https://doi.org/10.1177/1745691609357016

Baker, J. A., Clark, T. P., Crowl, A., & Carlson, J. S. (2009). The influence of authoritative teaching on children's school adjustment: Are children with behavioural problems differentially affected? *School Psychology International*, *30*(4), 374–382. https://doi.org/10.1177/0143034309106945

Barnas, M. (2000). "Parenting" students: Applying developmental psychology to the college classroom. *Teaching of Psychology*, *27*, 276–278.

Barrett, K. R., Bower, B. L., & Donovan, N. C. (2007). Teaching styles of community college instructors. *American Journal of Distance Education*, *21*, 37–49. https://doi.org/10.1080/08923640701298738

Basken, P. (2020). U.S. colleges adopt pass-fail rules, stirring wider reform: Pandemic-driven grading shifts illuminate long-accepted inequities. *Times Higher Education*. Retrieved April 6, 2020, from https://www.timeshighereducation.com/news/us-colleges-adopt-pass-fail-rules-stirring-wider-reform?utm_source=THE+Website+Users&utm_campaign=c3affce218-EMAIL_CAMPAIGN_2020_04_08_10_48&utm_medium=email&utm_term=0_daa7e51487-c3affce218-64452045

Bassett, J. F., Snyder, T. L., Rogers, D. T., & Collins, C. L. (2013). Permissive, authoritarian, and authoritative instructors: Applying the concept of parenting styles to the college classroom. *Individual Differences Research*, *11*, 1–11.

Baum, S., Ma, J., & Payea, K. (2010). *Education pays 2010: The benefits of higher education for individuals and society*. The College Board Advocacy and Policy Center.

Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monographs*, *4*, 1–103 (part 2).

Behar-Horenstein, L. S., Mitchell, G. S., Notzer, N., Penfield, R., & Eli, I. (2006). Teaching style beliefs among U.S. and Israeli Faculty. *Journal of Dental Education*, *70*, 851–856. https://doi.org/10.1002/j.0022-0337.2006.70.8.tb04151.x

Bellet, B. W., Jones, P. J., & McNally, R. J. (2018). Trigger warning: Empirical evidence ahead. *Journal of Behavior Therapy and Experimental Psychiatry*, *61*, 134–141. https://doi.org/10.1016/j.jbtep.2018.07.002

Bernstein, D. A. (2013). Parenting and teaching: What's the connection in the classroom? *Psychology Teacher Network*, *23*, 1–6.

Bernstein, D. A. (2018). Does active learning work? A good question, but not the right one. *Scholarship of Teaching and Learning in Psychology*, *4*, 290–307. https://doi.org/10.1037/stl0000124

Bernstein, D. A., Frantz, S., & Chew, S. (2020). *Teaching psychology: A step by step guide (3e)*. Routledge.

Boysen, G. A. (2019). *Becoming a psychology professor: Your guide to landing the right academic job*. American Psychological Association.

Boysen, G. A., Isaacs, R. A., Chicosky, R. L., & Delmore, E. E. (2020). Intense dislike of students: Frequency, causes, effects, and management among college teachers. *Scholarship of Teaching and Learning in Psychology*. Advance online publication. https://doi.org/10.1037/stl0000200

Boysen, G. A., Isaacs, R. A., Tretter, L., & Markowski, S. (2019). Trigger warning efficacy: The impact of warnings on affect, attitudes, and learning. *Scholarship of Teaching and Learning in Psychology*.

Boysen, G. A., Wells, A. M., & Dawson, K. J. (2016). Instructors' use of trigger warnings and behavior warnings in abnormal psychology. *Teaching of Psychology*, *43*, 334–339. https://doi.org/10.1177/0098628316662766

Buskist, W., & Benassi, V. A. (Eds.). (2012). *Effective college and university teaching: Strategies and tactics for the new professoriate*. Sage Publications. https://doi.org/10.4135/9781452244006

Buskist, W., & Groccia, J. E. (Eds.). (2012). *Evidence-based teaching: New directions in teaching and learning*. Jossey-Bass.

Cakir, S. G. (2015). Authoritative approach and student empowerment among university students. *Procedia: Social and Behavioral Sciences*, *186*, 151–154. https://doi.org/10.1016/j.sbspro.2015.04.078

Carkenord, D. M. (1994). Motivating students to read journal articles. *Teaching of Psychology*, *21*, 162–164. https://doi.org/10.1177/009862839402100309

Carlson, S. (2016, May 1). Should everyone go to college? For poor kids, "college for all" isn't the mantra it was meant to be. *The Chronicle of Higher Education*. https://www.chronicle.com/article/should-everyone-go-to-college/

Carnevale, A. P., & Cheah, B. (2018). *Five rules of the college and career game*. Georgetown University Center on Education and the Workforce. https://cew.georgetown.edu/cew-reports/5rules/#full-report

Carnevale, A. P., Garcia, T. I., & Gulish, A. (2017). *Career pathways: Five ways to connect college and careers*. Georgetown University Center on Education and the Workforce. https://cew.georgetown.edu/cew-reports/careerpathways/

Cizek, G. J. (1999). *Cheating on tests: How to do it, detect it, and prevent it*. Lawrence Erlbaum. https://doi.org/10.4324/9781410601520

Collins, J. B., & Pratt, D. D. (2011). The teaching perspectives inventory at 10 years and 100,000 respondents: Reliability and validity of a teacher self-report inventory. *Adult Education Quarterly*, *61*, 358–375. https://doi.org/10.1177/0741713610392763

Conti, G. J. (1990). Identifying your teaching style. In M. W. Galbraith (Ed.), *Adult learning methods: A guide to effective instruction*. Krieger.

Daniel, D. B. (2009, January 6). When helping hurts: Teaching as codependency [Paper presentation]. The 31st annual National Institute on the Teaching of Psychology, St. Petersburg Beach, Florida.

Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, *113*, 487–496. https://doi.org/10.1037/0033-2909.113.3.487

Dever, B. V., & Karabenick, S. A. (2011). Is authoritative teaching beneficial for all students? A multi-level model of the effects of teaching style on interest and achievement. *School Psychology Quarterly*, *26*, 131–144. https://doi.org/10.1037/a0022985

Diener, E., Ng, W., Harter, J., & Arora, R. (2010). Wealth and happiness across the world: Material prosperity predicts life evaluation, whereas psychosocial prosperity predicts positive feeling. *Journal of Personality and Social Psychology*, *99*, 52–61. https://doi.org/10.1037/a0018066

Diener, E., & Seligman, M. E. P. (2004). Beyond money: Towards an economy of well-being. *Psychological Science in the Public Interest*, *5*, 1–31. https://doi.org/10.1111/j.0963-7214.2004.00501001.x

Eckersley, R. (2010). Commentary on Trzesniewski and Donnellan (2010): A transdisciplinary perspective on young people's well-being. *Perspectives on Psychological Science*, *5*, 76–80. https://doi.org/10.1177/1745691609357014

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In W. Damon & R. M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Social, emotional, and personality development* (6th ed., Vol. 3, pp. 646–718). Wiley.

Feng, X., Shaw, D. S., Kovacs, M., Lane, T., O'Rourke, F. E., & Alarcon, J. (2008). Emotion regulation in preschoolers: The roles of behavioral inhibition, maternal affective behavior, and maternal depression. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *49*, 132–141.

Forsyth, D. R. (2003). *The professor's guide to teaching: Psychological principles and practices*. American Psychological Association.

Grasha, A. F. (1994). A matter of style: The teacher as expert, formal authority, personal model, facilitator, and delegator. *College Teaching*, *42*(4), 142–149. https://doi.org/10.1080/87567555.1994.9926845

Greenberger, E., Lessard, J., Chen, C., & Farruggia, S. P. (2008). Self-entitled college students: Contributions of personality, parenting, and motivational factors. *Journal of Youth and Adolescence*, *37*, 1193–1204. https://doi.org/10.1007/s10964-008-9284-9

Greenwald, A. G., & Gillmore, G. M. (1997). Grading leniency is a removable contaminant of student ratings. *American Psychologist*, *52*, 1209–1217. https://doi.org/10.1037/0003-066X.52.11.1209

Griffin, B. W. (2004). Grading leniency, grade discrepancy, and student ratings of instruction. *Contemporary Educational Psychology*, *29*, 410–425. https://doi.org/10.1016/j.cedpsych.2003.11.001

Hativa, N. (2013a). Can faculty misinterpretation and misuse of student ratings results lead to the "dumbing down" of college education? *Tomorrow's Professor, Tips Message #1258*. http://cgi.stanford.edu/~dept-ctl/tomprof/posting.php?ID=1258

Hativa, N. (2013b). *Student ratings of instruction: Recognizing effective teaching*. CreateSpace Independent Publishing Platform.

Hou, Y., Benner, A. D., Kim, S. Y., Chen, S., Spitz, S., Shi, Y., & Beretvas, T. (2020). Discordance in parents' and adolescents' reports of parenting: A meta-analysis and qualitative review. *American Psychologist*, *75*, 329–348. https://doi.org/10.1037/amp0000463

Houts, R. M., Caspi, A., Pianta, R. C., Arseneault, L., & Moffitt, T. E. (2010). The challenging pupil in the classroom: The effect of the child on the teacher. *Psychological Science*, *12*, 1802–1810. https://doi.org/10.1177/0956797610388047

Johnson, V. E. (2002). Teacher course evaluations and student grades: An academic tango. *Chance*, *15*, 9–16. https://doi.org/10.1080/09332480.2002.10554805

Jones, P. J., Bellet, B. W., & McNally, R. J. (2020). Helping or harming? The effect of trigger warnings on individuals with trauma histories. *Clinical Psychological Science*, *8*(5), 905–917. https://doi.org/10.1177/2167702620921341

Jordan, A. E. (2003). Implications of academic dishonesty for teaching in psychology. *Teaching of Psychology*, *30*, 216–219. https://doi.org/10.1207/S15328023TOP3003_03

Julian, K. (2020). What happened to American childhood? *The Atlantic*. Retrieved May, from https://www.theatlantic.com/magazine/archive/2020/05/childhood-in-an-anxious-age/609079/

Kamenetz, A. (2016, September 7). Half of professors in NPR Ed survey have used "trigger warnings." *National Public Radio*. www.npr.org/

sections/ed/2016/09/07/492979242/half-of-professors-in-npr-edsurvey-have-used-triggerwarnings

Kember, D. (1997). A reconceptualization of the research into university academics' conceptions of teaching. *Learning and Instruction*, *7*, 255–275. https://doi.org/10.1016/S0959-4752(96)00028-X

Kochanska, G., Aksan, N., & Joy, M. E. (2007). Children's fearfulness as a moderator of parenting in early socialization: Two longitudinal studies. *Developmental Psychology*, *43*, 222–237. https://doi.org/10.1037/0012-1649.43.1.222

Landrum, R. E. (2011). Faculty perceptions concerning the frequency and appropriateness of student behaviors. *Teaching of Psychology*, *38*, 269–272. https://doi.org/10.1177/0098628311421328

Leung, K. K., Lue, B. H., & Lee, M. B. (2003). Development of a teaching style inventory for tutor evaluation in problem-based learning. *Medical Education*, *37*, 410–416. https://doi.org/10.1046/j.1365-2923.2003.01493.x

Limitone, J. (2019, June 7). *Electrician shortage creates potential for six-figure jobs. Fox Business News*. https://www.foxbusiness.com/economy/electrician-shortage-six-figure-salary-job

Love, D. A., & Kotchen, M. J. (2010). Grades, course evaluations, and academic incentives. *Eastern Economic Journal*, *36*, 151–163. https://doi.org/10.1057/eej.2009.6

Lukianoff, G., & Haidt, J. (2018). *The coddling of the American mind: How good intentions and bad ideas are setting up a generation for failure*. Penguin.

Maccoby E. & Martin J. (1983) Socialization in the context of the family: Parent-Child interaction. In P. H. Mussen, (Ed.), *Handbook of child psychology* (pp. 1–10) Wiley.

Marsh, H. W., & Roche, L. A. (2000). Effects of grading leniency and low workload on students' evaluation of teaching: Popular myth, bias, validity, or innocent bystanders? *Journal of Educational Psychology*, *92*, 202–228. https://doi.org/10.1037/0022-0663.92.1.202

Maslow, A. H. (1971). *Toward a psychology of being*. Van Nostrand.

McGinley, J. J., & Jones, B. D. (2014). A brief instructional intervention to increase students' motivation on the first day of class. *Teaching of Psychology*, *41*, 158–162. https://doi.org/10.1177/0098628314530350

McKeachie, W. J. (1997). Good teaching makes a difference-And we know what it is. In R. P. Perry & J. C. Smart (Eds.), *Effective teaching in higher education: Research and practice* (pp. 396–411). Agathon.

McNally, R. J. (2014, May 20). *Hazards ahead: The problem with trigger warnings, according to the research*. Pacific Standard. https://psmag.com/education/hazards-ahead-problem-trigger-warnings-accordingresearch-81946

Mohanna, K., Chambers, R., & Wall, D. (2008). *Your teaching style a practical guide to understanding, developing and improving*. Radcliffe.

Morris, A. S., Cui, L., & Steinberg, L. (2013). Parenting research and themes: What we have learned and where to go next. In R. E. Larzelere, A. S. Morris, & A. W. Harrist (Eds.), *Authoritative parenting: Synthesizing nurturance and discipline for optimal child development* (pp. 35–58). American Psychological Association. https://doi.org/10.1037/13948-003

Mosston, M., & Ashworth, S. (1986). *Teaching physical education*. Merrill.

Mullen, G. E., & Tallent-Runnels, M. K. (2006). Student outcomes and perceptions of instructors' demands and support in online and traditional classrooms. *The Internet and Higher Education*, *9*, 257–266. https://doi.org/10.1016/j.iheduc.2006.08.005

National Center for Education Statistics. (2020). *Fast facts: Graduation rates*. https://nces.ed.gov/fastfacts/display.asp?id=40

National Coalition Against Censorship. (2015). *What's all this about trigger warnings?* http://ncac.org/wp-content/uploads/2015/11/NCAC-Trigger

O'Donnell, E. (2020, May-June). *The risks of homeschooling*. Harvard Magazine.

Obeid, R., & Hill, D. B. (2017). An intervention designed to reduce plagiarism in a research methods classroom. *Teaching of Psychology*, *44*, 155–159. https://doi.org/10.1177/0098628317692620

Paquay, L., Altet, M., Bru, M., Pastré, P., Robert, A., & Tupin, F. (2007). Quel est l'intérêt du concept d'organisateurs des pratiques enseignantes pour la formation des enseignants? *Recherche et Formation*, *56*, 139–153. https://doi.org/10.4000/rechercheformation.1004

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest*, *9*, 105–119. https://doi.org/10.1111/j.1539-6053.2009.01038.x

Paulson, S. E., Marchant, G. J., & Rothlisberg, B. A. (1998). Early adolescents' perceptions of patterns of parenting, teaching, and school atmosphere. *The Journal of Early Adolescence*, *18*, 5–26. https://doi.org/10.1177/0272431698018001001

Paulussen-Hoogeboom, M. C., Stams, G. J. J. M., Hermanns, J. M. A., Peetsma, T. T. D., & van den Wittenboer, G. L. H. (2008). Parenting style as a mediator between children's negative emotionality and problematic behavior in early childhood. *The Journal of Genetic Psychology*, *169*, 209–226. https://doi.org/10.3200/GNTP.169.3.09-226

Pellerin, L. A. (2005). Applying Baumrind's parenting typology to high schools: Toward a middle-range theory of authoritative socialization. *Social Science Research*, *34*, 283–303. https://doi.org/10.1016/j.ssresearch.2004.02.003

Persaud, C. (2019). *Teaching styles: The ultimate guide*. https://tophat.com/blog/teaching-styles/

Quiamzade, A., Mugny, G., & Falomir-Pichastor, J. M. (2009). Epistemic constraint and teaching style. *European Journal of Psychology of Education*, *24*, 181–190. https://doi.org/10.1007/BF03173010

Reinsmith, W. A. (1992). *Archetypal forms in teaching: A continuum*. Greenwood Press.

Richardson, J. (2005). Instruments for obtaining student feedback: A review of the literature. *Assessment & Evaluation in Higher Education*, *30*, 387–415. https://doi.org/10.1080/02602930500099193

Rogers, D. T., Bassett, J. F., Collins, C. L., & Snyder, T. L. (2017). Development of the Teacher Control and Nurturance Scale: Assessing student perception of the underlying dimensions of teaching style. *Scholarship of Teaching and Learning in Psychology*, *3*, 101–115. https://doi.org/10.1037/stl0000081

Roosevelt, M. (2009, February 18). *Student expectations seen as causing grade disputes* (p. A15). The New York Times.

Sanson, M., Strange, D., & Garry, M. (2019). Trigger warnings are trivially helpful at reducing negative affect, intrusive thoughts, and avoidance. *Clinical Psychological Science*, *7*(4), 778–793. https://doi.org/10.1177/2167702619827

Sappington, J., Kinsey, K., & Munsayac, K. (2002). Two studies of reading compliance among college students. *Teaching of Psychology*, *29*, 272–274. https://doi.org/10.1207/S15328023TOP2904_02

Schmier, L. (1997). *Random thoughts II: Teaching from the heart*. Atwood Publishing.

Schmier, L. (2012). *Random thoughts IV: The passion of teaching*. New Forums Press.

Scholl-Buckwald, S. (1985). The first meeting of the class. In J. Katz (Ed.), *Teaching as though students mattered: New directions for teaching and learning* (pp. 13–21). Jossey Bass.

Selingo, J. J. (2013, April 26). *The diploma's vanishing value: Bachelor's degrees may not be worth it, but community college can bring a strong return* (p. C3). The Wall Street Journal.

Snyder, T. L., & Bassett, J. F. (2011, February 26). Permissive, authoritarian, and authoritative professors: Applying the concept of parenting styles to the college classroom [Poster presentation]. The Southeastern Conference on the Teaching of Psychology, Atlanta, Georgia.

Steinberg, J. (2010, May 16). *Plan B: Skip College*. The New York Times, WK1.

Stokes, M. (2014). *In defense of trigger warnings*. The Chronicle of Higher Education. http://chronicle.com/blogs/conversation/2014/05/29/in-defense-of-trigger-warnings/

Stossel, J. (2011, July 6). *The college scam*. Fox News Opinion.

Stroebe, W. (2016). Why good teaching evaluations may reward bad teaching: On grade inflation and other unintended consequences of student evaluations. *Perspectives on Psychological Science*, *11*, 800–816. https://doi.org/10.1177/1745691616650284

Stroebe, W. (2020). Student evaluations of teaching encourages poor teaching and contributes to grade inflation: A theoretical and empirical analysis. *Basic and Applied Social Psychology*, *42*, 276–294. https://doi.org/10.1080/01973533.2020.1756817

Svinicki, M. S., & McKeachie, W. (2010). *McKeachie's teaching tips: Strategies, research and theory for college and university teachers*. Wadsworth/Cengage Learning.

Symonds, W. C., Schwartz, R. B., & Ferguson, R. (2011). *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century. Report issued by the Pathways to Prosperity Project.* Harvard Graduate School of Education.

Tamborini, C. R., Kim, C. H., & Sakamoto, A. (2015). Education and lifetime earnings in the united states. *Demography*, *52*, 1383–1407. https://doi.org/10.1007/s13524-015-0407-0

Timpson, W. M., & Bendel-Simso, P. (1996). *Concepts and choices for teaching: Meeting the challenges in higher education*. Magna Publications, Inc.

Trigwell, K., & Prosser, M. (2004). Development and use of the approaches to teaching inventory. *Educational Psychology Review*, *16*, 409–424. https://doi.org/10.1007/s10648-004-0007-9

Trzesniewski, K. H., & Donnellan, M. B. (2010). Rethinking "generation me": A study of cohort effects from 1976–2006. *Perspectives on Psychological Science*, *5*, 58–75. https://doi.org/10.1177/1745691609356789

Twenge, J. M. (2006). *Generation me: Why today's young Americans are more confident, assertive, entitled—and more miserable than ever before*. Free Press.

Twenge, J. M. (2013). Teaching generation me. *Teaching of Psychology*, *40*, 66–69. https://doi.org/10.1177/0098628312465870

Twenge, J. M., & Campbell, W. K. (2010). Birth cohort differences in the monitoring the future dataset and elsewhere: Further evidence for generation me—Commentary on Trzesniewski & Donnellan (2010). *Perspectives on Psychological Science*, *5*, 81–88. https://doi.org/10.1177/1745691609357015

U.S. Bureau of Labor Statistics. (2020). *Occupational outlook handbook*. https://www.bls.gov/ooh/fastest-growing.htm

Vargas, L. (2019, June 11). Complaining about students is toxic. *Education Week*. https://www.edweek.org/tm/articles/2019/06/12/complaining-about-students-is-toxic-here-are.html

Walker, J. M. (2008). Looking at teacher practices through the lens of parenting style. *Journal of Experimental Education*, *76*, 218–240 .Winter. Special issue: The role of interpersonal relationships in student motivation. https://doi.org/10.3200/JEXE.76.2.218-240

Walker, J. M. (2009). Authoritative classroom management: How control and nurturance work together. *Theory into Practice*, *48*, 122–129. https://doi.org/10.1080/00405840902776392

Wentzel, K. R. (2002). Are effective teachers like good parents? Teaching styles and student adjustment in early adolescence. *Child Development*, *73*, 287–301. https://doi.org/10.1111/1467-8624.00406

Wetzel, E., Brown, A., Hill, P. L., Chung, J. M., Robins, R. W., & Roberts, B. W. (2017). The narcissism epidemic is dead; long live the narcissism epidemic. *Psychological Science*, *28*, 1833–1847. https://doi.org/10.1177/0956797617724208

Willingham, D. T., Hughes, E. M., & Dobolyi, D. G. (2015). The scientific status of learning styles theories. *Teaching of Psychology*, *42*, 266–271. https://doi.org/10.1177/0098628315589505

Zhang, L. F. (2004). Thinking styles: University students' preferred teaching styles and their conceptions of effective teachers. *The Journal of Psychology*, *138*, 233–252. https://doi.org/10.3200/JRLP.138.3.233-252

Zinn, T. E. (2009). But I really tried!: Helping students link effort and performance. *APS Observer*, *22*, 27–30.

Received May 29, 2020
Revision received December 30, 2020
Accepted December 30, 2020 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 377–384
https://doi.org/10.1037/cap0000304

Learning How to Learn from Digital Textbooks: Evidence-Informed Recommendations for Instructors and Students

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Digital textbooks have increased in popularity and are becoming a standard part of higher education. The digital textbooks of today are qualitatively different from the early days of converting print texts to pdfs for students to read. Currently, many digital textbooks are designed and developed in a digital environment allowing for the inclusion of interactive features to promote engagement and learning. Digital textbooks have the unique advantage of using technology to capitalize on evidence-informed principles from learning science to create a product that can improve learning outcomes. In this article, I draw on my experience as an author of a digital-first textbook, long-time instructor, and scholarship of teaching and learning researcher to discuss how students can successfully learn from digital textbooks. I explain how learning science is used to develop engaging, evidence-based textbooks and how students can take advantage of these features. Finally, I provide a set of guidelines for instructors with respect to the implementation and use of digital textbooks. When instructors and students use a digital textbook in a way consistent with how it was developed, the textbook can become an integral part of a successful course.

Public Significance Statement
Most students in higher education will use a digital textbook in some of their courses. Compared to print textbooks, digital textbooks have more opportunities to be developed in accordance with how people learn. When instructors and students understand how digital textbooks are designed and meant to be used, students can experience significant improvements in learning.

Keywords: digital textbooks, learning science, scholarship of teaching and learning, learning from textbooks, evidence-informed learning strategies

Digital textbooks (sometimes referred to as etexts) have grown in popularity since 2012 (deNolyelles & Raible, 2017) and their potential to transform education has been frequently discussed (Benoit, 2018; Govindarajan & Srivastava, 2020; Makarova & Makarova, 2018). The global pandemic that emerged midsemester in 2020 required immediate action. Rapidly changing circumstances forced a stable system of instruction, the majority of which was face-to-face, to quickly pivot to emergency remote teaching (Hodges et al., 2020). Lessons learned from this experience and uncertainty about future instruction is now propelling administrators and instructors to reexamine age-old education practices.

Whether we like it or not, we live in a digital world and our student population reflects that reality. Despite an 8% decrease in undergraduate enrollment in the United States between 2010 and 2018 (McFarland et al., 2019), students enrolling in online classes, or exclusively online programs, continues to increase (Lederman, 2018). In 2018, 34% of students participated in fully online courses (McFarland et al., 2019), which does not include the number of students enrolled in hybrid/blended classes on campus. Courses with a significant online component tend to make use of various educational technologies to increase engagement and facilitate learning (Hew, 2016). Digital course materials are well-positioned to support online learning, even though there has been a general hesitancy to embrace digital textbooks (Doan, 2017; Rokusek & Cooke, 2019). Reading from print textbooks has always been an integral part of higher education. Many instructors and students have struggled to adjust to reading without holding a physical book in their hands. However, as digital textbooks have become more sophisticated and interwoven into the fabric of a course, both instructors and students are adjusting and recognizing the added value digital textbooks can bring to the learning experience (Alfiras & Bojiah, 2020).

The Rise of Digital Textbooks

The move toward digital textbooks began slowly but has accelerated in recent years with major publishers partnering with ed tech companies and committing to "digital-first" initiatives. In the United States college market, Pearson Education reported over 50% of its annual sales now come from digital products (Ritchie, 2019). Commercial publishers, faculty, and students all agree that the price of print textbooks rose to unacceptable levels and became a barrier to academic success for some students (Beile et al., 2020; Martin et al., 2017). Digital textbooks eliminate the used-book market by requiring each student to purchase access, thereby enabling

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publishers to sell these products at a much lower price point (McKenzie, 2018). In addition to the lower cost, digital textbooks are always available and accessible, often interactive, include digital reading tools (e.g., highlighting, notes, glossary), and do not have the burden of needing to be carried.

This is the point where people often think, "But I thought students preferred print textbooks?" or "I thought people learn better from print than they do from digital?" The digital versus print debate has existed since online reading became commonplace. First generation etexts were no more than scanned print books that were converted to pdfs and placed online. It appears that these early attempts to create digital materials may have shaped students' and instructors' perceptions about the utility of these products. Students do indicate a preference for print when the "digital" version is a static pdf document (Singer & Alexander, 2017; Subrahmanyam et al., 2013). However, in the past 5 years digital textbooks have become significantly more sophisticated and represent a qualitatively different product from the "pdf etext" days. In fact, surveys of students have shown consistent increases in students' preference for digital textbooks (deNolyelles & Raible, 2017), especially if the materials are interactive (Hall, 2019; Pollari-Malmi et al., 2017), free (i.e., open educational resources) or low-cost (Anderson & Cuttler, 2020). In fact, a recent survey of over 800 students from the Introductory Psychology program at my institution revealed how students felt about digital materials *after* they used those materials in a course. When asked if they could choose between a print textbook or the digital, interactive book they used, 90% of the students indicated a preference for the digital textbook. Furthermore, over 90% of the students reported the digital, interactive textbook as a useful and integral part of their course (Hudson et al., 2019). All data points indicate that digital textbooks are here to stay, so it will serve our students best if we move away from the "digital vs. print" debate and instead focus on teaching students strategies they can use to maximize their learning from digital textbooks. The most successful learning strategies come from the fields of cognitive psychology and learning science. Of note, these evidence-informed strategies do not change as a result of the medium that presents the information. However, interactive, digital textbooks have unique features that, when used appropriately, can lead to increased and more efficient learning.

How Interactive Digital Textbooks Capitalize on Learning Science: Guidelines for Students

Print textbooks have obvious constraints: They are limited to presenting information on a static piece of paper. Over the years, print textbook authors have attempted to distinguish their product by the style of art, flashy photos, and special feature boxes. Unfortunately, this continual addition of information can clutter the page and produce cognitive overload for students (Mostyn, 2009; Nyachwaya & Gillaspie, 2016), which interferes with their ability to learn. Interactive, digital textbooks have a wide variety of multimedia options to convey information. In this medium, authors and designers must also factor in cognitive load and the unique way information on a screen can lead to eyestrain (Coles-Brennan et al., 2019).

As an author of an interactive, digital textbook for Introductory Psychology, I recognize my bias and how that shapes my enthusiasm for digital textbooks. However, as someone who has also been in the unique position of authoring in a digital-first environment (meaning was title was developed specifically to be digital), I am hoping to share what I know about how these products are created and how instructors and their students can leverage them to improve learning outcomes. One final caveat: Most of my experience in digital learning comes from working with only one publisher, so I can only draw on that experience. I am certain other publishers and authors of Open Educational Resources use different, and possibly equally effective, approaches in their development process. Regardless of the publisher, there are many features that have become standard in digital texts and the guidelines provided should be broad enough to be easily adapted to the varying digital platforms.

The most successful approaches use principles from learning science and build them into the digital reading and activities. There is a rich literature from cognitive psychology and learning science outlining evidence-informed strategies and techniques that when implemented correctly, lead to successful learning (Ambrose et al., 2010; Brown et al., 2014; Roediger & Pyc, 2012). Although there are many evidence-informed strategies, I will briefly describe five strategies that enhance or support learning, have substantial empirical support, and have been replicated over time.

Distributed Practice

Decades of research has demonstrated the value of repeatedly studying information over time rather than all at once (Benjamin & Tullis, 2010; Cepeda et al., 2009). Students know this of course, but despite this knowledge, many will continue to complete assignments at the last minute and cram before exams. Some instructors have attempted to change this studying behavior by capitalizing on the distributed practice principle in various ways including, spacing out assignments, giving regular quizzes, and/or constructing cumulative exams throughout the semester.

Digital textbooks chunk information by organizing it in modules and/or learning objectives. Often, this information is followed by a quiz or other graded activity. Although this setup may not appear much different from a traditional print textbook, with digital texts instructors can decide to set a due date for the entire chapter or for a section within a chapter. Once the due date passes, the assignments are automatically graded, providing students with prompt feedback and consequences for not completing assignments on the schedule set by the instructor. Therefore, instructors have the flexibility to encourage distributed practice by spacing out due dates and assignments made more conducive by an online system.

Student Tip. Prior to beginning a new chapter, read through the learning objectives and see how they are organized. Compare this to your calendar and schedule times throughout the week to work on sections of the chapter. The always present access of the text is an advantage of digital textbooks, which means you can plan your work/study time while you have a few minutes between classes, are riding public transportation, or are taking a quick break at work. If your digital textbook has notifications, be sure to enable them so you will always know when assignments are due.

Retrieval Practice

Retrieval practice, or what is sometimes referred to as the *testing effect*, is one of the most robust scientific findings in cognitive science and education (Roediger & Karpicke, 2018; Uner &

Roediger, 2018). Retrieval practice involves any activity the requires the learner to recall previously learned information. Answering quiz questions is a common method of retrieval practice and has been repeatedly demonstrated to lead to improved learning (Ambrose et al., 2010; Dunlosky et al., 2013; Thomas et al., 2018).

Digital textbooks have many opportunities to encourage retrieval practice. Quiz questions, journal prompts (e.g., students privately reflect on a concept), or shared writing activities (e.g., where a critical thinking question is posed and students engage in a discussion) are all typical strategies to encourage students to engage in retrieval practice. In most cases, these activities should be tied to a small number of points to encourage students to complete them. Even low-stakes assignments convey importance and if we want students to be successful, we must use our currency (i.e., points/grades) to encourage the behavior we would like to see (Whisenhunt & Hudson, 2019).

Oftentimes, when students see a quiz, they think "test," and in their defense, for most of their academic career that has probably been true. The impact of retrieval practice on learning is such a robust empirical finding that students should start to view formative assessment as part of the learning process itself. The digital text I use allows students three attempts at each multiple-choice question. This way if a student answers incorrectly, they have an opportunity to seek out information and answer again. In this context, the act of "looking for the answer" is not cheating, it is the process of learning.

Student Tip. As you are reading your digital textbook, always be one the lookout of opportunities to test your knowledge and complete them in as many forms as you can find. Typically, there are many opportunities other than official quizzes, to think about and retrieve information from your memory. With respect to quizzes, start to shift the way you view these assessments: Rather than seeing them as a hurdle to jump over, view them as an important part of the learning process. The act of having to retrieve that information from memory to answer the quiz question is the process of learning. It can be helpful to keep a "Notes" section in each chapter of your digital textbook. If you find that you are having trouble with a particular concept, take a note about it and how you are going to remember it in the future. You may even want to write some quiz questions yourself and add them into your notes section. To write a good multiple choice question, particularly an applied question, you must understand the content.

Interleaving

Interleaving content involves alternating between different concepts within a session of studying/learning (Brown et al., 2014; Dunlosky et al., 2013; Kornell et al., 2010). Interleaving includes aspects of both distributed practice and retrieval practice and encourages the learner to discriminate between concepts. Unfortunately, this strategy is counterintuitive for most students. Part of the reason interleaving does not feel natural for students is because teachers do not often introduce new content or skills in an interleaved fashion. The typical example of interleaving involves learning math skills (Rohrer et al., 2014). Students are often taught, and then practice, specific operations in isolation, or in a blocked fashion, but are then tested in a way that mixes all the concepts into one exam. Students need to understand that interleaving *feels* difficult, and learning *feels* slow, but that is a sign that the strategy is likely working to promote long-term learning.

Typical textbooks organize information into discrete chapters that are often presented in siloes (Halonen et al., in press). It is not unusual for print textbooks to include cross-references to other chapters, but it is unusual for students to actually turn the pages to that other chapter and read about a related concept. In a digital textbook, cross-references can be hyperlinked, which makes it easier for students to navigate back and forth between sections.

Student Tip. Most people are used to skipping over hyperlinked material in their digital textbooks unless they are really interested in a particular topic. Pay attention to these cross-references not only because it can help your own understanding of the content, but it can also be a form of interleaving. Switching between information from different chapters feels laborious, but this interleaving of concepts can lead to greater gains in learning. After reading a cross-referenced section, ask yourself, "Why did the author cross-reference this? What connection can I make between these two concepts?"

Elaborative Processing

Elaborative processing involves the general idea that learning is most likely to occur with information that is expanded upon in a meaningful way. Elaboration of content involves the important processes of constructing meaning, making connections to previously learned material, and finding personal relevance in the content. Elaborative, or deep processing takes time and practice, but when students engage in elaborative processing while reading, they are much more likely to retain the information (Ambrose et al., 2010; Craik & Lockhart, 1972).

Digital textbooks have much more opportunity to guide students into elaboratively processing material. For example, easy to use highlighting and notetaking features organize information and can keep notes aligned with the content in the chapter. Furthermore, interactive activities are a novel tool to encourage active engagement with the concepts and improve learning (Stelzer et al., 2009). Interactive features are not just meant to break up the narrative and give students a break from reading. As a digital textbook author, technology afforded me the opportunity to ask, "What is the best way to teach this specific content?" The answer to that question is not always through a narrative explanation. Interactive exercises can include retrieval practice, critical thinking, applied practice, and interleaving of other related concepts.

Student Tip. Highlighting is one of the features students desire most in a digital textbook (Sheen & Luximon, 2017). However, you need to be careful because highlighting can easily be a shallow form of processing and therefore ineffective for learning. I encourage my students to take a note alongside every highlight. The note should answer the question, "Why did I highlight this?" In the notes, try to avoid using word-for-word phrases from the text itself. Putting information into your own words involves elaborative processing and is much more likely to lead to long-term retention of material.

With respect to interactive activities, it is very important not to view interactives as optional, which will increase your likelihood of skipping them. Regardless of whether the activity is graded or not, remind yourself that it is there to help you engage in elaborative processing, which will help you to internalize and learn the information.

Metacognition

Many students who do learn to engage in elaborative processing while reading still have difficulty articulating what cognitive

processes they are using and whether their strategies have been effective. In other words, they are not thinking about how they are processing and learning the information. This lack of insight often translates into poor metacognition, or "what we know about what we know" (Brown et al., 2014, p. 16). Poor metacognition can lead to detrimental academic habits and have negative consequences on academic performance (Gurung et al., 2010; Richmond et al., 2015). Students who demonstrate good metacognition know when to stop studying and tend to be able to accurately predict their grade on an upcoming exam (Miller & Geraci, 2011). Providing students with timely feedback on performance can help improve their metacognitive skills (Agarwal & Bain, 2019). Many activities in digital textbooks are autograded, which provides students with the immediate feedback that can help improve their metacognitive skills.

Student Tip. As a student, sometimes you do not even realize that you did not understand a concept until you see your grade on an exam or assignment. Improving metacognition is a way to gather this feedback while you still have the opportunity learn it. One strategy to test whether or not you understand a concept involves summarizing a subset of material. Since most chapters are organized by learning objectives, use them to help check your understanding. After you have read an entire learning objective, go back and phrase the learning objective as a question and attempt to answer it. You can capture your answer as a note in your digital textbook for future guidance as you study. If you are able to answer that question, then you can have some confidence that you understand the material contained in that section.

Another method to enhance your metacognitive skills involves the approach to answering quiz questions in your digital textbook. In a situation where quiz questions allow for multiple attempts, first try to answer the question without looking up any information in the text or in your notes. Read the question and then ask yourself if you know the answer and if so, reflect on how confident you are in your choice. If you are correct and were confident, then move on to the next question. If your answer was incorrect, or you were not confident in your response, then search for the concept in the text, reread that particular section, and take the time to understand why a particular answer is the best choice.

Summary

Over 100 years of laboratory and classroom research has demonstrated the powerful impact distributed practice, retrieval practice, interleaving, elaborative processing, and metacognition can have on learning (Agarwal & Roediger, 2018). So why don't all students take advantage of these empirically supported strategies? Unfortunately, these skills are not innate. In fact, most students do not enter college with any experience in using these strategies for learning (Cazan, 2013; Karpicke et al., 2009). However, these skills can be taught and may be enhanced when using digital textbooks, and when they are presented effectively, can having a meaningful and lasting impact on a student's life (Cathey et al., 2016; Chew, 2011; McCabe et al., 2021; Putnam et al., 2016).

Guidelines for Instructors: Capitalizing on Digital Textbook Features to Improve Student Learning

Instructors we play a central role in determining whether students meet the learning outcomes associated with our course. Of course, students must put in the time and effort, but how we design our class, choose and assign course materials, and engage with students plays a significant role in student success (Hudson et al., 2014, 2015; Joosten et al., 2019; Martin et al., 2019). Students must understand that learning any new skill takes practice. Unfortunately, effective learning strategies are not intuitive. In fact, students tend to gravitate toward using the most ineffective learning strategies because they seem easy (Baier et al., 2011; Bell & Limber, 2009). These can be difficult habits to break and sometimes take significant practice before the results are evident on exam grades. Explaining the rationale behind the design of digital textbooks and how learning science supports the features and structure of the textbooks can help students feel they are making good use of their time. If instructors choose to assign a digital textbook, here are some specific recommendations regarding its setup and implementation:

Do Your Homework

Take the time, ideally the semester before your course starts, to become familiar with the standard tools and features and any other digital aspects specific to the title you are using. Do not just acknowledge they exist, but actually use the tools. This step will make it easier for you to communicate with students and understand any of the idiosyncrasies of the program. Make it your goal to understand the purpose of each and every feature of the textbook. Ask yourself, "Why did the author choose to present the information this way? How could my students take advantage of this feature to elaborate and consolidate their learning?" If you don't understand the purpose or functionality of the tool or feature be sure to ask your publisher's representative or the textbook author for an explanation.

Understand the Learning Design That Supports the Digital Text

Seek out information that describes the design of the underlying platform. Did learning science and empirically supported decisions guide the design choices and creation of tools? It should be easy to find this information online. If it is not easy to locate, then ask your publisher's representative, or their manager, or the director of field marketing, or the title's editor/portfolio manager. If no one can answer your questions, then this itself is an important piece of information and you may want to rethink your choice of course materials.

Be Transparent

The way an instructor introduces, discusses, and uses a product has an important impact on the acceptability and satisfaction for the student (Gelderblom et al., 2019). On the first day of class, communicate why you chose the materials you did, some of your favorite features, and how you think the product will help the students in your course. One of my favorite aspects of teaching from the digital text I authored is the ability to let students in on the "back story." I like to tell them about the things that did not work and why we made a particular decision to deliver that content in that specific way. Students seem much more eager to take advice and engage with the materials if they understand how they were developed and the reasons behind the requirements.

Model the Behavior You Would Like to See

In one of the first classes, be sure to spend some time walking through the digital textbook with students. Point out some of the features you have already mentioned and remind them of their importance for learning. Model the reading/studying strategies you would like to see from your students. For example, I demonstrate how I, if I was a student, would approach reading the chapter. I point out how I would use the learning objectives to preview the reading and as a quiz after I read the section to see if I understood the content. I show students what I would highlight and more importantly, why I would highlight some text and not others. I explain to my students that they should never have a highlight that does not have a corresponding note. Those notes should start with "The reason I highlighted this is because . . . ." I explain to them how this process forces them to engage more deeply with the material, which will lead to learning. In the digital text I use, the instructor has the capability to highlight and take notes in the text, which is subsequently pushed out to all students in the class. Early in the semester I model highlighting and note-taking behavior by taking notes in the chapter as if I was a student. Over the course of the semester, I take fewer and fewer notes to encourage them to include more notes of their own.

Explicitly Teach About the Concept of Metacognition

Introducing students to the research on metacognition can benefit their academic performance (Perry et al., 2019) and provide them with insight into the learning process. For example, understanding the correlation between metacognitive awareness and academic performance can provide students with an explanation for the "I thought I knew everything but still got a D on the exam" phenomenon. Chew (2011) has an excellent series of videos on YouTube called "How to Get the Most Out of Studying" and the first video in the series explicitly discusses metacognition and why it is important. Once students understand the concept of metacognition, ask them to identify features in their digital text that can help them to develop their metacognitive muscles. Using immediate feedback from retrieval practice, challenging themselves with interactive activities, even working with digital flashcards can provide meaningful feedback about when they should stop studying. The literature has been somewhat mixed with respect to how digital textbooks influence metacognition. The evidence suggests that digital reading (compared to print) does not harm metacognitive monitoring and regulation (Norman & Furnes, 2016), but may not improve metacognition if it is merely an indirect feature of a digital program (Thadani & Bouvier-Brown, 2016). However, when students take a more active role and practice metacognitive strategies within a digital textbook their metacognitive monitoring appears to improve (Ryu, 2017).

Use the Data Analytics Built Into the Digital Text to Identify Struggling Students

Many digital textbooks have built-in learning analytics that can provide instructors with a glimpse into their students' study habits. From auto-graded assessments to capturing the number of minutes spent reading a section or engaging in an activity, data analytics can be used to hypothesize about potential difficulties or barriers to learning. In addition, when used appropriately, data analytics can predict academic achievement (Junco & Clem, 2015). Imagine you have two students visit you during your office hours. Both students are currently failing your class. You ask the students to show you their digital text while you access the data analytics on the instructor side. Student A has no highlights or notes and is not participating in any online group discussions. When student A completes the quizzes in the digital text, they are finishing them in minutes and are getting most of the questions correct on the first try. Conversely, student B has many highlights and notes, appears to be spending hours in the chapter each week (based on the data analytics), and is completing all required assignments. Student B appears to spend an appropriate amount of time on the quizzes but obtains relatively low scores. These two students may appear to have the same issue because they are both failing the class. However, the information obtained from the digital textbook paints a very different picture. The discussion you have, and the advice you give these two students is likely to be very different based on the information you were able to gather from the digital textbook. In my experience, when students are made aware of the kind of information the instructor can glean from their account, they are appreciative of the time the instructor takes to analyze and use the data to provide recommendations. At the beginning of the semester, I always show my students all the different types of analytics I can obtain from their account. This transparent approach tends to reduce any unsettling feelings of being "spied on" by their professor.

Summary

Digital textbooks are becoming increasingly more sophisticated. User-friendly platforms, tailored student data analytics, and integrated interactive experiences are bringing the textbook back to the center of the course. If instructors truly understand the intent and purpose behind the design of digital textbooks, then they are in an excellent position to communicate this information to their students. Providing recommendations for reading and studying from digital textbooks based on learning science will help students achieve success in their current and future courses.

Conclusion

Digital technology is a part of modern-day education. As of 2019, over 60% of school districts have implemented programs that ensure each middle school or high school student regularly uses a digital device for learning (Bentley, 2019). Digital textbooks are blending into the educational landscape and researchers are suggesting it is time to move away from the digital versus print debate (Ross et al., 2017). Instead, we should teach our students about learning science and how to apply evidence-based principles to their use of digital textbooks.

There is however, still much work to do with respect to digital textbooks and their role in education. There are still many questions, including some that are theoretical (e.g., Can technology shape student behavior?), empirical (e.g., Are open educational resources as effective as publisher developed materials for student learning and retention?), ethical (e.g., How much, if at all, should artificial intelligence be used in digital textbooks?), and practical (e.g., How do we keep textbook prices reasonable and ensure all students have access to high quality materials?) Researchers in the scholarship of teaching and learning are well-positioned to tackle these, and other, important questions. As the answers are discovered, they will need to be communicated to those teaching because instructors will always be in the best position to educate students about evidence-based

learning strategies. Although the process of product development, empirical testing, and dissemination of results is laborious, this investment of time and effort will yield many years of returns for all students who can benefit from learning how to learn.

Résumé

Les manuels numériques ont gagné en popularité et sont en train de devenir un élément standard de l'enseignement supérieur. Les manuels numériques d'aujourd'hui sont qualitativement différents de ceux des premiers jours où les textes imprimés étaient convertis en fichiers PDF pour être lus par les étudiants. Aujourd'hui, de nombreux manuels numériques sont conçus et développés dans un environnement numérique, ce qui permet d'inclure des fonctions interactives pour promouvoir l'engagement et l'apprentissage. Les manuels numériques ont l'avantage unique d'utiliser la technologie pour tirer parti des principes de la science de l'apprentissage afin de créer un produit qui peut améliorer les résultats d'apprentissage. Dans cet article, je m'appuie sur mon expérience d'auteur d'un manuel numérique, d'instructeur de longue date et de chercheur en science de l'enseignement et de l'apprentissage pour discuter de la façon dont les étudiants peuvent apprendre avec succès des manuels numériques. J'explique comment la science de l'apprentissage est utilisée pour développer des manuels attrayants et fondés sur des données probantes et comment les élèves peuvent profiter de ces caractéristiques. Enfin, je propose un ensemble de lignes directrices à l'intention des enseignants concernant la mise en œuvre et l'utilisation des manuels numériques. Lorsque les enseignants et les étudiants utilisent un manuel numérique d'une manière cohérente avec la façon dont il a été développé, le manuel peut devenir une partie intégrante d'un cours réussi.

Mots-clés : manuels numériques, sciences de l'apprentissage, bourse d'enseignement et d'apprentissage, apprentissage à partir de manuels, stratégies d'apprentissage fondées sur des données probantes

References

Agarwal, P. K., & Bain, P. M. (2019). *Powerful teaching: Unleash the science of learning*. Jossey-Bass. https://doi.org/10.1002/9781119549031

Agarwal, P. K., & Roediger, H. L., III. (2018). Lessons for learning: How cognitive psychology informs classroom practice. *Phi Delta Kappan*, *100*(4), 8–12. https://doi.org/10.1177/0031721718815666

Alfiras, M., & Bojiah, J. (2020). Printed textbooks versus electronic textbooks: A study on the preference of students of Gulf university in kingdom of Bahrain. *International Journal of Emerging Technologies in Learning (iJET)*, *15*(18), 40–52. https://doi.org/10.3991/ijet.v15i18.15217

Ambrose, S. A., Bridges, M. W., DiPietro, M., & Lovett, M. C. (2010). *How learning works: Seven research-based principles for smart teaching* (pp. 179–187). Jossey Bass.

Anderson, T., & Cuttler, C. (2020). Open to open? An exploration of textbook preferences and strategies to offset textbook costs for online versus on-campus students. *The International Review of Research in Open and Distributed Learning*, *21*(1), 40–60. https://doi.org/10.19173/irrodl.v20i5.4141

Baier, K., Hendricks, C., Gorden, K. W., Hendricks, J. E., & Cochran, L. (2011). College students' textbook reading, or not. *American Reading Forum Annual Yearbook*, *31*, 1–8. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.693.258&rep=rep1&type=pdf

Beile, P., deNoyelles, A., & Raible, J. (2020). Analysis of an open textbook adoption in an American history course: Impact on student academic outcomes and behaviors. *College & Research Libraries*, *81*(4), 721–736. https://doi.org/10.5860/crl.81.4.721

Bell, K. E., & Limber, J. E. (2009). Reading skill, textbook marking, and course performance. *Literacy Research and Instruction*, *49*(1), 56–67. https://doi.org/10.1080/19388070802695879

Benjamin, A. S., & Tullis, J. (2010). What makes distributed practice effective? *Cognitive Psychology*, *61*(3), 228–247. https://doi.org/10.1016/j.cogpsych.2010.05.004

Benoit, A. M. (2018). Textbook affordability and student acceptance of eTextbooks: An institutional case-study. *The Canadian Journal for the Scholarship of Teaching and Learning*, *9*(2), 1–27. https://doi.org/10.5206/cjsotl-rcacea.2018.2.3

Bentley, K. (2019, September 10). *What is holding back the rise of digital textbooks?* Center for Digital Education. https://www.govtech.com/education/k-12/what-is-holding-back-the-rise-of-digital-textbooks.html

Brown, P. C., Roediger, H. L., & McDaniel, M. A. (2014). *Make it stick: The science of successful learning*. Harvard University Press. https://doi.org/10.4159/9780674419377

Cathey, C. L., Visio, M. E., Whisenhunt, B. L., Hudson, D. L., & Shoptaugh, C. F. (2016). Helping when they are listening: A midterm study skills intervention for introductory psychology. *Psychology Learning & Teaching*, *15*(3), 250–267. https://doi.org/10.1177/1475725716646319

Cazan, A. M. (2013). Teaching self regulated learning strategies for psychology students. *Procedia: Social and Behavioral Sciences*, *78*, 743–747. https://doi.org/10.1016/j.sbspro.2013.04.387

Cepeda, N. J., Coburn, N., Rohrer, D., Wixted, J. T., Mozer, M. C., & Pashler, H. (2009). Optimizing distributed practice: Theoretical analysis and practical implications. *Experimental Psychology*, *56*(4), 236–246. https://doi.org/10.1027/1618-3169.56.4.236

Chew, S. L. (2011, August 16). *How to get the most out of studying*. Samford University. https://www.youtube.com/watch?v=RH95h36NChI&t=1s

Coles-Brennan, C., Sulley, A., & Young, G. (2019). Management of digital eye strain. *Clinical & Experimental Optometry*, *102*(1), 18–29. https://doi.org/10.1111/cxo.12798

Craik, F. I., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior*, *11*(6), 671–684. https://doi.org/10.1016/S0022-5371(72)80001-X

deNolyelles, A., & Raible, J. (2017). *Exploring the use of e-textbooks in higher education: A multiyear study*. Educause Review. https://er.educause.edu/articles/2017/10/exploring-the-use-of-e-textbooks-in-higher-education-a-multiyear-study

Doan, T. (2017). Why not OER? *Portal*, *17*(4), 665–669. https://doi.org/10.1353/pla.2017.0039

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, *14*(1), 4–58. https://doi.org/10.1177/1529100612453266

Gelderblom, H., Matthee, M., Hattingh, M., & Weilbach, L. (2019). High school learners' continuance intention to use electronic textbooks: A usability study. *Education and Information Technologies*, *24*(2), 1753–1776. https://doi.org/10.1007/s10639-018-9850-z

Govindarajan, V., & Srivastava, A. (2020, June 2). *A post-pandemic strategy for U.S. Higher Ed*. Harvard Business Review. https://hbr.org/2020/06/a-post-pandemic-strategy-for-u-s-higher-ed

Gurung, R. A., Weidert, J., & Jeske, A. (2010). Focusing on how students study. *Journal of the Scholarship of Teaching and Learning*, *10*, 28–35. https://scholarworks.iu.edu/journals/index.php/josotl

Hall, L. A. (2019). "I didn't enjoy reading until now": How youth and adults engage with interactive digital texts. *Research in the Teaching of English*, *54*(2), 109–130.

Halonen, J. S., Thompson, J. L., Whitlock, K. H., Landrum, R. E., & Frantz, S. (in press). Measuring meaningful learning in introductory psychology: The IPI student learning outcomes. In R. A. R. Gurung & G. Neufeld (Eds.), *Transforming introductory psychology: Expert advice on teacher training, course design, and student success* (pp. 57–80). American Psychological Association.

Hew, K. F. (2016). Promoting engagement in online courses: What strategies can we learn from three highly rated MOOCS. *British Journal of Educational Technology*, *47*(2), 320–341. https://doi.org/10.1111/bjet.12235

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, March 27). The difference between emergency remote teaching and online learning. *Educause Review*. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Hudson, D. L., Whisenhunt, B. L., & Cathey, C. L. (2019). *Student evaluations of an interactive, digital textbook for introductory psychology* [Unpublished raw data]. Missouri State University.

Hudson, D. L., Whisenhunt, B. L., Shoptaugh, C. F., Rost, A., & Fondren-Happel, R. N. (2014). Redesigning a large enrollment course: The impact on academic performance, course completion and student perceptions in introductory psychology. *Psychology Learning & Teaching*, *13*(2), 107–119. https://doi.org/10.2304/plat.2014.13.2.107

Hudson, D. L., Whisenhunt, B. L., Shoptaugh, C. F., Visio, M. E., Cathey, C., & Rost, A. D. (2015). Change takes time: Understanding and responding to culture change in course redesign. *Scholarship of Teaching and Learning in Psychology*, *1*(4), 255–268. https://doi.org/10.1037/stl0000043

Joosten, T., Cusatis, R., & Harness, L. (2019). A cross-institutional study of instructional characteristics and student outcomes: Are quality indicators of online courses able to predict student success? *Online Learning Journal*, *23*(4), 354–378. https://doi.org/10.24059/olj.v23i4.1432

Junco, R., & Clem, C. (2015). Predicting course outcomes with digital textbook usage data. *The Internet and Higher Education*, *27*, 54–63. https://doi.org/10.1016/j.iheduc.2015.06.001

Karpicke, J. D., Butler, A. C., & Roediger, H. L., III. (2009). Metacognitive strategies in student learning: Do students practise retrieval when they study on their own? *Memory*, *17*(4), 471–479. https://doi.org/10.1080/09658210802647009

Kornell, N., Castel, A. D., Eich, T. S., & Bjork, R. A. (2010). Spacing as the friend of both memory and induction in young and older adults. *Psychology and Aging*, *25*, 498–503. https://doi.org/10.1037/a0017807

Lederman, D. (2018, November 7). *Online education ascends*. Inside Higher Ed. https://www.insidehighered.com/digital-learning/article/2018/11/07/new-data-online-enrollments-grow-and-share-overall-enrollment

Makarova, E. A., & Makarova, E. L. (2018). Blending pedagogy and digital technology to transform educational environment. *International Journal of Cognitive Research in Science, Engineering and Education*, *6*(2), 57–66. https://doi.org/10.5937/ijcrsee1802057M

Martin, F., Ritzhaupt, A., Kumar, S., & Budhrani, K. (2019). Award-winning faculty online teaching practices: Course design, assessment and evaluation, and facilitation. *The Internet and Higher Education*, *42*, 34–43. https://doi.org/10.1016/j.iheduc.2019.04.001

Martin, M., Belikov, O., Hilton, J., III, Wiley, D., & Fischer, L. (2017). Analysis of student and faculty perceptions of textbook costs in higher education. *Open Praxis*, *9*(1), 79–91. https://doi.org/10.5944/openpraxis.9.1.432

McCabe, J. A., Friedman-Wheeler, D. G., Davis, S. R., & Pearce, J. (2021). "SET" for success: Targeted instruction in learning strategies and behavior change in introductory psychology. *Teaching of Psychology*, *48*(3), 257–268. https://doi.org/10.1177/0098628320979865

McFarland, J., Hussar, B., Zhang, J., Wang, X., Wang, K., Hein, S., Diliberti, M., Forest Cataldi, E., Bullock Mann, F., & Barmer, A. (2019). *The condition of education 2019*. National Center for Education Statistics. https://files.eric.ed.gov/fulltext/ED594978.pdf

McKenzie, L. (2018, May 1). Are etextbooks affordable now? *Inside Higher Ed*. https://www.insidehighered.com/digital-learning/article/2018/05/01/publishers-race-reduce-costs-digital-textbooks

Miller, T. M., & Geraci, L. (2011). Training metacognition in the classroom: The influence of incentives and feedback on exam predictions. *Metacognition and Learning*, *6*(3), 303–314. https://doi.org/10.1007/s11409-011-9083-7

Mostyn, G. (2009). An application of contemporary learning theory to online course textbook selection. *Journal of Online Learning and Teaching*, *5*(4), 649–660.

Norman, E., & Furnes, B. (2016). The relationship between metacognitive experiences and learning: Is there a difference between digital and non-digital study media? *Computers in Human Behavior*, *54*, 301–309. https://doi.org/10.1016/j.chb.2015.07.043

Nyachwaya, J. M., & Gillaspie, M. (2016). Features of representations in general chemistry textbooks: A peek through the lens of the cognitive load theory. *Chemistry Education Research and Practice*, *17*(1), 58–71. https://doi.org/10.1039/C5RP00140D

Perry, J., Lundie, D., & Golder, G. (2019). Metacognition in schools: What does the literature suggest about the effectiveness of teaching metacognition in schools? *Educational Review*, *71*(4), 483–500. https://doi.org/10.1080/00131911.2018.1441127

Pollari-Malmi, K., Guerra, J., Brusilovsky, P., Malmi, L., & Sirkiä, T. (2017, November). *On the value of using an interactive electronic textbook in an introductory programming course* [Conference session]. Proceedings of the 17th Koli Calling International Conference on Computing Education Research, Lieksa, Finland. https://doi.org/10.1145/3141880.3141890

Putnam, A. L., Sungkhasettee, V. W., & Roediger, H. L., III. (2016). Optimizing learning in college: Tips from cognitive psychology. *Perspectives on Psychological Science*, *11*(5), 652–660. https://doi.org/10.1177/1745691616645770

Ritchie, G. (2019, July 16). *Pearson signals demise of the college textbook in digital drive*. Bloomberg. https://www.bloomberg.com/news/articles/2019-07-16/pearson-signals-demise-of-the-college-textbook-in-digital-drive

Roediger, H. L., III., & Karpicke, J. D. (2018). Reflections on the resurgence of interest in the testing effect. *Perspectives on Psychological Science*, *13*(2), 236–241. https://doi.org/10.1177/1745691617718873

Roediger, H. L., III., & Pyc, M. A. (2012). Inexpensive techniques to improve education: Applying cognitive psychology to enhance educational practice. *Journal of Applied Research in Memory and Cognition*, *1*(4), 242–248. https://doi.org/10.1016/j.jarmac.2012.09.002

Rohrer, D., Dedrick, R. F., & Burgess, K. (2014). The benefit of interleaved mathematics practice is not limited to superficially similar kinds of problems. *Psychonomic Bulletin & Review*, *21*(5), 1323–1330. https://doi.org/10.3758/s13423-014-0588-3

Rokusek, S., & Cooke, R. (2019). Will library e-books help solve the textbook affordability issue? Using textbook adoption lists to target collection development. *The Reference Librarian*, *60*(3), 169–181. https://doi.org/10.1080/02763877.2019.1584597

Ross, B., Pechenkina, E., Aeschliman, C., & Chase, A. M. (2017). Print versus digital texts: Understanding the experimental research and challenging the dichotomies. *Research in Learning Technology*, *25*(1976), 1–12. https://doi.org/10.25304/rlt.v25.1976

Ryu, J. (2017). The effects of digital textbooks on college EFL learners' self-regulated learning. *Multimedia-Assisted Language Learning*, *20*(4), 99–126. https://doi.org/10.15702/mall.2017.20.4.99

Sheen, K. A., & Luximon, Y. (2017). Student perceptions on future components of electronic textbook design. *Journal of Computers in Education*, *4*, 371–393. https://doi.org/10.1007/s40692-017-0092-7

Singer, L. M., & Alexander, P. A. (2017). Reading across mediums: Effects of reading digital and print texts on comprehension and calibration. *Journal of Experimental Education*, *85*(1), 155–172. https://doi.org/10.1080/00220973.2016.1143794

Stelzer, T., Gladding, G., Mestre, J. P., & Brookes, D. T. (2009). Comparing the efficacy of multimedia modules with traditional textbooks for learning introductory physics content. *American Journal of Physics*, *77*(2), 184–190. https://doi.org/10.1119/1.3028204

Subrahmanyam, K., Michikyan, M., Clemmons, C., Carrillo, R., Uhls, Y. T., & Greenfield, P. M. (2013). Learning from paper, learning from screens: Impact of screen reading and multitasking conditions on reading and writing among college students. *International Journal of Cyber Behavior, Psychology and Learning*, *3*(4), 1–27. https://doi.org/10.4018/ijcbpl.2013100101

Thadani, V., & Bouvier-Brown, N. C. (2016). Textbook-bundled metacognitive tools: A study of LearnSmart's efficacy in general chemistry. *Journal on Excellence in College Teaching*, *27*(2), 77–95. https://digitalcommons.lmu.edu/cgi/viewcontent.cgi?article=1008&context=psyc_fac

Thomas, R. C., Weywadt, C. R., Anderson, J. L., Martinez-Papponi, B., & McDaniel, M. A. (2018). Testing encourages transfer between factual and application questions in an online learning environment. *Journal of Applied Research in Memory and Cognition*, *7*(2), 252–260. https://doi.org/10.1016/j.jarmac.2018.03.007

Uner, O., & Roediger, H. L., III. (2018). The effect of question placement on learning from textbook chapters. *Journal of Applied Research in Memory and Cognition*, *7*(1), 116–122. https://doi.org/10.1016/j.jarmac.2017.09.002

Whisenhunt, B. L., & Hudson, D. L. (2019, April). Shaping student behavior: Creating an environment that results in student learning [Conference session]. The 99th Annual Western Psychological Association Conference on Teaching, Pasadena, CA.

Received June 27, 2020
Revision received July 19, 2021
Accepted July 20, 2021 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 385–390
https://doi.org/10.1037/cap0000306

Reenvisioning Undergraduate Teaching in Psychology Through Structural Competency and Radical Justice

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Psychology as a discipline faces growing criticism of being out of touch with the social justice struggles of people who are marginalized and disempowered. To meaningfully respond to this criticism, we must educate the current generation of students in psychology to take on the identity of agents of justice. This involves training to meet the needs of those living with racism and other forms of oppression, and those residing in communities at risk. In this article, we present a new model for teaching undergraduate psychology based on the structural competency paradigm. The teaching model we present is grounded in the assumption that psychology students must be trained to be structurally competent if they are to be ethically and practically prepared for the realities awaiting them in their career trajectories. We discuss various teaching challenges and how our teaching model, informed by the tenets of structural competency and radical justice, can equip psychology undergraduates with the knowledge and skills to become not only intellectually engaged thinkers but also leaders of social change.

Public Significance Statement
We describe some of the challenges involved in teaching psychology to undergraduate students in a manner that acknowledges the impact of poverty, racism, and other forms of oppression in people's lives. We provide practical guidelines for teaching in this manner, including classroom teaching techniques that can help students to understand that they can play a role in addressing systemic oppression.

Keywords: structural competency, social justice, undergraduate teaching

In this rapidly changing world, psychology has a role to play and that role is vastly different from the traditional research and practice many professionals were trained in. We argue that these changes necessitate a fundamental shift in how we teach psychology and that this shift must be guided by the aims of radical justice. We further argue that we must educate the current generation of students in psychology to take on the identity of agents of justice. This involves training through teaching methods that recognize the needs of individuals who are living in poverty and the needs of individuals who are experiencing systemic oppression. It also involves modeling in the classroom the sorts of behaviors and attitudes that we hope our students will project and live by after they graduate. We present a new model for teaching undergraduate psychology based on techniques of advocacy-engaged learning and on the structural competency paradigm. The teaching model we present is grounded in the assumption that psychology students must be trained to be structurally competent if they are to be ethically and practically prepared for the realities awaiting them in their career trajectories.

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The widespread social and economic changes that are transforming professional and educational landscapes require a radical reenvisioning of psychology teaching that positions our graduates as agents of change across such domains as politics, environmental justice, progressive education, international human rights, and the nonprofit sector. We discuss various training challenges and show how our teaching models, informed by the tenets of structural competency and radical justice, can equip psychology graduates with the knowledge and skills to become not only intellectually engaged thinkers but also leaders of social change. Although much of our focus is specifically on teaching from an antiracist stance, we believe that our teaching strategies and recommendations could be adapted to address disparities that are rooted in a vast range of inequitable institutional policies and practices in education settings and in society at large, with implications for other disenfranchised groups.

For the purposes of this article, we define radical justice as social analysis and action that have at their core the assumption that a free and just society cannot be achieved without disassembling and reinventing in fundamental ways key structures, institutions, and practices in the realms of health, relationships, social policy, and education. An example of radical justice in action is an instance where students and faculty might come together to demand that senior administration at their university carry out an overhaul of their system for reporting sexual harassment and assault on campus. Radical justice differs from a more general support for social justice causes in that it is more radical—and therefore more directive and

active—in fighting the mechanisms that perpetuate the marginalization and oppression of groups and individuals who are disempowered. Therefore, in the example of policies about sexual violence on campus, a more general approach would be a campaign to make students aware of existing policies and procedures, whereas a radical justice approach would additionally demand changes to the policies themselves to better protect the rights and safety of students.

Structural competency is defined as a knowledge base and skillset aimed at developing a responsiveness to the social ills that give rise to physical, emotional, and psychological suffering, especially in communities of color and communities dealing with the effects of poverty (Metzl & Hansen, 2014). Structurally competent educators, scientists, and practitioners are equipped with the awareness and practical techniques required to directly challenge the structures that lead to this suffering, and to train students in these techniques as well. The structural competency paradigm differs from the social determinants of health approach that has been influential in public health and allied fields in how it applies ideas of equity. Specifically, the structural competency approach takes the notion that health is shaped by social factors and extends that notion to argue that the enterprises of education and training are not ethical unless they educate students and trainees to actively reshape those factors (Downey & Gómez, 2018). In this way, the structural competency model emphasizes that strategies for tackling social problems must be integrated into training programs. Through this emphasis, the structural competency paradigm demonstrates that radical justice has a place in the classroom context.

Our reenvisioning in this article builds on the work of scholars over the past 50 years, who have documented racism in psychology and ushered in multiculturalism as a critical paradigm shift for the field (Guthrie, 1976, 2004; Pedersen, 2001; Sue, 2010). Their work has informed the ethical codes and guidance set forth over the past decade by organizations including the Canadian Psychological Association (2017), the American Psychological Association (APA) (2017), and the American Counseling Association (2014), which now reflect a fuller consideration of the workings of oppression. Among that consideration is a more far-reaching understanding of the work that psychologists can and should do. For instance, the APA (2017) Multicultural Guidelines state that "[p]sychologists seek to promote culturally adaptive interventions and advocacy within and across systems" and recognize that "[a]dvocacy extends into systems-level change." However, like Collins and Arthur (2010), who argued for a broader, and more inclusive definition of culture within the multiculturalism movement, we argue that the current moment requires a broader, and more inclusive understanding of where and how inequality manifests. This means problematizing not only the interactions between individuals (i.e., locating inequality in relationships between individuals or groups of individuals) but also in the systems and institutions that serve as contexts for those interactions. Indeed, it requires an acknowledgment that the systems and institutions in which relationships unfold are organized around multiple layers of power differentials (e.g., males vs. females; professors vs. students; masters-level instructors vs. those with doctorates; native English speakers vs. those for whom English is a second language), and that—at the level of context—such differentials take shape in sometimes subtle and intricate ways.

In writing this article, we reflected on our roles as instructors with experience in teaching psychology at various levels and in both in-person and virtual contexts. One of us is a white woman, and one of us is a woman of color. However, we both are gender conforming and we both have the privilege of education and income and a certain stature by virtue of being part of academia. These realities shape our experiences as instructors and play out in the classroom in ways that we sometimes see and sometimes do not see. We have blind spots and biases. We have been socialized, raised, and educated in a racist society. Our discussion of structural competency and radical justice is built upon our own knowledge but also upon the experiences that we have had as educators, as scholars, and—equally importantly—as inhabitants of an unfair and unjust world.

We have also reflected on the fact that psychology as a discipline does not routinely introduce trainees to concepts such as white privilege (the assumption that being white allows increased access to power and resources in our society), systemic oppression (the processes through which certain groups are denied such access), and antiracism (the fight to address race-based oppression). Relatedly, it is worth noting that most instructors are not trained in the skills necessary for dealing with racism and oppression in the classroom, nor are they trained in facilitation skills. Therefore, we would like to emphasize that the techniques that we present in this article are best implemented after instructors have received some sort of training or preparation. Such preparation can include the following: (a) offering required trainings about different forms of biases so that instructors can become more aware of the blind spots and misconceptions about others that can influence their teaching, (b) creating in-person and virtual support communities for faculty to come together and discuss challenges they face in dealing with difficult issues in the classroom and ways of overcoming those challenges, and (c) inviting students into these trainings to share their insights into the sorts of classroom environments that would allow them to feel more comfortable discussing challenging issues. Combining these approaches can be a productive endeavor as research indicates that layering different approaches can provide a basis of support and knowledge that together allow instructors to feel capable of creating space in the classroom for the discussion of sensitive topics (Sukhera et al., 2018).

Structural Competency and Radical Justice in Undergraduate Psychology Teaching

The structural competency paradigm originated in medical training with the goal of integrating into that training an analysis and understanding of the ways that health problems are the result of inequitable institutional, social, and political practices. These practices include racial discrimination in housing and healthcare, workplace discrimination, and lack of access to safety and healthy food in poor communities and communities of color (Metzl & Hansen, 2014; Schneider, 2013). These factors lead to illnesses such as cancer, respiratory disease, obesity, and a range of mental health problems. Although the idea of structural competency began within medical training, there are fundamental tenets of this paradigm that apply readily to teaching in psychology.

One tenet is the belief that what happens to people in an unjust world can be exacerbated by what happens to them within unjust institutions and organizations. And, beyond that, those injustices are perpetuated by common decision-making practices in organizations, practices that can actively undermine efforts to support learners, workers, and community members. The structural competency paradigm was developed in part to spur attention to social ills

that have gone unrecognized within various institutions (Ali & Sichel, 2014). Institutions of higher education are among those that have ignored the realities and implications of racism and poverty for too long. Importantly, structural competency requires us to examine societal structures and to move beyond the mere description of cultural diversity and difference toward actively working to counteract oppression in its many forms.

We believe the structural competency paradigm can be useful in redefining undergraduate teaching in psychology because it provides a framework for integrating into our teaching methods an understanding and analysis of radical justice. We conceive radical justice to be an orientation that takes as its primary focus the need to identify and counteract forces of oppression, even when the efforts necessary in these endeavors are drastically disruptive to usual modes of operation. The modes of operation in the teaching of psychology, for instance, are premised on an unequal distribution of power that not only privileges the most powerful faculty members, but also disempowers students who do not have the social capital or confidence to advocate for themselves when it comes to negotiating deadlines and details of assignments or appealing their grades.

Radical justice also involves positioning ourselves as instructors in a way that keeps us open to criticism from students who have been systematically neglected by and often silenced by the education system. This openness cultivates a vulnerability that, while uncomfortable, can be liberating and allow us to see new dimensions in our teaching practice. As we will now discuss, a stance that integrates structural competency and radical justice creates opportunities for teaching that benefit from an inquisitive consideration of the deep and systemic nature of oppression in our lives, in the lives of our students, and in academia.

Principles of Teaching Based on Structural Competency and Radical Justice

When we consider the ways that we can change our teaching to reflect the changing needs of our students, we see that there are many biases and belief systems that can be detrimental to student learning. These generally include systems that repeat and reflect the biases and sources of oppression at play in society at large. In this section, we describe three principles that we have found helpful in informing teaching approaches that fulfill the tenets of both structural competency and radical justice. We have found these guiding principles to apply to a range of topics, activities, and types of courses in psychology.

Contending With White Privilege and Racial Trauma

It is very common in the classroom to have complex dynamics play out between students. These dynamics can become even more complex when they emerge from identities such as race. It is also common to have dynamics at play between students and instructors that relate to race. As Sue and colleagues demonstrate in their discussion of race- and culture-based microaggressions, these interactions can take different forms, manifest across multiple types of contexts, and affect all who are involved (Sue, 2010; Sue et al., 2007). In our experience, we have found it helpful to keep these dynamics in mind not only during class discussions but also during lectures and in the planning of each class section. The principle we rely on here is the need to always have an awareness and plans in mind in relation to two experiences in particular: White privilege and racial trauma.

We need to understand classroom dynamics (between instructors and students, and between different groups of students) as reflecting oppressive structures that exist in the world. The trauma of racism and other forms of oppression need to be acknowledged and not minimized. Students of color often feel more at ease in a class when the instructor describes her or his own experiences of racism. At the same time, we must remember, as a general principle, to avoid making the class conversation about our own identities at the expense of taking in the reality of the whole room. Instructors must avoid excessive self-disclosure and lengthy discussions about themselves. There can be a fine line between being open about our own experiences and running the risk of self-indulgence.

Self-Reflection and Critical Consciousness

In *The Little Book of Race and Restorative Justice*, Davis (2019) describes restorative justice as "a paradigm shift in the way we think about and do justice—from a justice that harms to a justice that heals" (p. 24). Pointing out that Western systems of justice focus on harming people who harm others, she urges us to instead draw upon indigenous approaches that center restitution, reconciliation, repairing, and rebuilding relationships. By focusing on the goal of healing—rather than on punishment—we can create environments that are conducive to our students' self-reflective processes, and their ability to intervene in and correct inequitable systems and structures. Adopting such a stance in the context of antiracist, structurally competent psychology education necessitates a two-pronged approach.

First, students must be able to (a) recognize inequitable social systems and the roots of mental and physical health problems in systemic inequity, and (b) perceive themselves as capable to act to counter and repair these problems. Freire (1973) described this as a process of developing "critical consciousness." In Freire's conceptualization, critical consciousness is a process through which disadvantaged individuals learn to critically analyze social systems and act to change them. However, in the context of antiracist, structurally competent psychology education, critical consciousness entails the engagement of *all* individuals—not only members of disadvantaged communities—in acknowledging and acting to change racist and inequitable systems.

Second, related to promoting students' ability to recognize inequity and act against it to promote healing, self-reflection is a critical component of antiracist, structurally competent education. Each student brings their own unique lens to the classroom, and in order for them to effectively understand the ways in which social systems privilege some and oppress others, they need to acknowledge these forces in their own lives. By providing opportunities for our students to do so we cultivate our students' thoughtfulness, and support them in acknowledging the interconnected nature of communities, in which every individual can play a role in promoting equity and justice.

Equitable Educational Models

It is important for an instructor to model egalitarian relationships (i.e., relationships in which the perspectives of both parties are valued) within the classroom whenever possible. It should also be noted that the instructor's role will look different depending on such factors as the size of the class (e.g., a small seminar vs. a large introductory lecture class), the level of the course (e.g., intermediate vs. advanced), and the specific topic or course content. It should also be noted that there are different requirements around the need for an

instructor to play a more directive role when conveying information as opposed to conducting an open class discussion. It can be difficult to find a balance between egalitarianism and creating good boundaries so that a class can function properly and so that educational goals can be met. There is typically a need for the instructor to be in a position of authority in order to establish classroom norms and to model responsible and respectful behavior. At the same time, instructors need to operate with caution when navigating the line between being authoritative (which involves providing informed guidance) and authoritarian (which involves exerting power over others). As we will see in the next section, modeling egalitarian relationships and dynamics in the classroom is important because it is a key way of demonstrating what those dynamics can look like in the real world.

Examples of Teaching Strategies and Techniques

In this section, we will present some specific teaching strategies and teaching techniques that are derived from the principles of structural competency and radical justice outlined above. Our goal here is to provide some concrete ideas and guidance around the sometimes-contentious use of techniques that are deliberately designed to expose and disturb the balances of power within the classroom and the overarching assumptions about the world that find their way into our teaching practices. In particular, we will focus on assumptions that reflect deep-rooted oppression that situates people within or outside of spaces of privilege and power.

Decentering Whiteness in the Classroom

We have used various approaches to address racial dynamics within the classroom. One approach that we have found useful is attempting to "decenter whiteness" by adopting modes of teaching that do not conform to the typical large group teaching model. For example, we divide the class into groups (either groups of the students' own choosing or groups that we assign) and we give them topics to discuss within their groups. We then have the groups report on their discussions, but we choose who from each group does the reporting in order to allow students who are usually silent to speak on behalf of their group. Similarly, we will take time in class to wait before calling on the first student who raises their hand in answer to a discussion question. The typical pattern in which white students are generally the first to speak during discussions of race, and male students are generally the first to speak during discussions of gender, can sometimes be avoided by making it obvious that you are waiting for a more quiet student to respond.

To avoid putting unexpecting and potentially shy or uncomfortable students on the spot, we are explicit and open about our plans to employ these tactics from the very beginning of the course. When we announce that we will be using these practices throughout the semester, we share our rationale. When we make this announcement, we make it clear that if a student still does not want to be called upon, they are encouraged and welcomed to let us know in any way in which they are most comfortable (e.g., via email; in-person after class) and we will respect their wishes. Additionally, we found it to be helpful to have a deliberate and open discussion about these practices and processes. In particular, with the current growing attention paid to issues of race in our society, it is easier than in the past to openly ask the class for strategies that they can think of to avoid having certain students speak more and certain students feel silenced. This conversation should be allotted a fair amount of time because sometimes larger issues come up which students will want to explore together as a group. Overall, the goal of these approaches is to center the experiences of students who typically find themselves on the margins, while ensuring all students feel comfortable and understand why we choose to employ unconventional and possibly unfamiliar classroom practices.

Self-Reflection in Action

In order to model for students a stance of radical justice, instructors must themselves engage in a constant, iterative process of self-reflection. Such a self-reflective process entails explicitly acknowledging race and racism, while listening deeply and being willing to tolerate the discomfort of sitting on the razor's edge between what is known and what we do not yet know. In order to create environments that are conducive to our students' self-reflection, enabling them to understand their own positionality and the layers of race-based privilege and oppression in their own lives, we must ourselves engage in reflective processes. Instructors can additionally promote students' self-reflection through classroom-based discussions, using the Socratic method to support students in deepening and broadening their understanding of themselves, their own identities, actions, and positionalities, and through reflective writing assignments.

In our classrooms we have done this by creating opportunities for students to not only reflect on their own identities, but also their own experiences in our classes and communities. A "fishbowl" setup is one way of promoting such reflective learning. Students form a circle, and a subgroup, sitting in the middle, engages in a discussion about an antiracist topic. Afterward, the students in the center of the circle have an opportunity to process their experiences of being in the discussion. Then, the other students are given a chance to reflect on their own reactions. Students in our classes frequently share that they appreciate the comments of their peers and find that the classroom discussions spark their own thinking. However, and of critical importance, students are not put in positions of educating each other. Rather, the focus is on each student developing their own understanding of themselves, of the world, and of inequitable social structures that give rise to disadvantage with deleterious outcomes for people and communities.

The "Professor for a Day" Model

This model is an example of temporarily disrupting the dynamics in the classroom. The approach in this model involves inviting one student per class session to play the role of the instructor by teaching one specific topic within a class session. The student is not graded on their lecture/discussion. The student is expected to read the relevant required material from the course syllabus and can read any additional relevant sources in preparation for teaching their topic. The selection of which student will "teach" which topic is random. For a large class, this process will necessarily not be able to include all students in the class. However, students are not given the option in a large class to request to be the "professor for a day" because generally the most privileged and least silenced students would be the ones to make such a request.

The student-taught segment of the class will typically last for approximately 15 min. At the end of that time, the student instructor

is asked to reflect on the experience, paying particular attention to the experience of having to guide the discussion (e.g., deciding whom to call on and how to respond to students' comments and questions) and to the experience of having authority over the class. The rest of the students in the class then have the opportunity to comment on how it felt to be taught by that student and are encouraged to reflect on how they might have perceived the student instructor in certain ways due to the color of their skin, their gender, etc. The goal of this exercise is to get students talking about classroom dynamics as they relate to race and gender in a self-referential way that is not graded and to have the student instructor see how challenging it can be to conduct a class session while attending to issues of race and gender.

Advocacy-Engaged Teaching

Classroom-based discussions and writing assignments can be helpful in promoting knowledge about inequitable systems and the structural sources of common problems and experiences. However, in order to promote critical action, psychology education should additionally entail opportunities for action and activism (Ali & Sichel, 2014, 2020). It is important to try whenever possible to build into our courses the opportunity for students to partner with real-world organizations that are working to support disadvantaged groups. This approach is consistent with the call for professionals in our field to take up the mantel of "psychologist—activists," by engaging in activism and employing participatory methods to promote social justice and address inequity at multiple levels of society through both personal and professional activities (Nadal, 2017). An example is a course that we have been involved with that uses as its textbook an edited volume with some chapters written by various local community-based organizers and service providers who are doing work that is consistent with the tenets of structural competency and radical justice (Way et al., 2018). In this course, students read one chapter each week. The author(s) of the chapter come to class and lead a discussion with the students about the social justice issues in their chapter. This discussion is primarily a Question and Answer session in which students attempt to glean as much knowledge as they can about the author(s)' organization and its work and the ways that the work is aligned with social justice needs within the respective communities that are described in the chapter.

Our hope for this course is to further strengthen the structural competency and radical justice elements through a redesign of the second half of the course. The students would work in small groups to choose from the organizations from which the author visitors came, and they would design group projects based on the site they have chosen. The project would require them to visit their selected organization's site and to learn from the clients and community members who frequent the site about the work and about the community needs. The project would culminate with an advocacy-engaged initiative that the students would be required to codesign and coexecute with community members and members of the organization. Through this project, the students would learn not only about an unfamiliar community, but also about the real-world challenges inherent in working for positive change.

Challenges and Obstacles

Whereas the examples we have given of approaches to teaching that embrace progressive, liberatory principles hold great potential to transform the learning of students in psychology, we are also aware that there will be resistance to such approaches. Broadly, this resistance will typically take the form of either (a) a reluctance to let go of teaching and learning practices that have become comfortable and familiar to both learners and instructors, (b) skepticism about the effectiveness of approaches that subvert the power differential between learners and instructors, or (c) pushback from politically oriented groups that do not support the discussion of race or related issues in the classroom. These challenges can play out differently—and can require different strategies to refute—depending on whether they are posed primarily by students or primarily by faculty colleagues.

In terms of challenges from students, we see that privileged students are often resistant to giving up power within the classroom. They often are not only closed to negative feedback from instructors (especially about the persistence of their voice during class discussions), but also from their classmates (especially classmates who are perceived as inhabiting a lower status). Similarly, in terms of faculty members, we see that instructors are often uncomfortable looking at the ways that they might be perpetuating oppressive practices in the classroom. This issue can be especially problematic in teaching observations of faculty during the faculty evaluation and tenure review processes, times at which faculty are likely to be more defensive because of the stress of being observed and evaluated. We need to be sensitive to these issues with our students and with our colleagues, and we must be vigilant of such defensiveness in ourselves, as well.

Adapting This Model for Online Instruction

An additional set of challenges in implementing the model we have outlined relates to the difficulties posed by the advent of widespread online learning across universities. This challenge requires new approaches to learning that capture the necessary feeling of connection among class members. In considering these challenges, we must consider the needs of learners across the spectrum of identities, backgrounds, and experiences. Faculty discussions about safety and privacy in online learning environments can be very helpful. We also must remember that teaching virtually is not an excuse to disregard issues and race, gender, and justice, even when they are harder to identify and observe.

One method that we have found helpful in creating a sense of connection—and thereby creating more openness and less defensiveness when tackling difficult issues in class—is to allow students to humanize themselves to each other at the very beginning of the course. We have done this by having each student create a "This is Me" miniprofile to share at the start of the course where they can state their identities, interests, and positionalities in any domains that they choose (e.g., their pronouns, their family backgrounds, ethnicities, interests, hobbies). These miniprofiles can include photos and can be uploaded onto a course web page. The first "assignment" for the course has students read their fellow students' profiles and post positive, inquisitive, and/or affirming comments on the profiles if they choose to. The instructor also creates their own "This is Me" profile and posts that before the course begins so that they can share it with the class at the start of the course as an example of what can be included in the profile. We have found that this simple initiation into a space of sharing and curiosity about each other can break down barriers between students and set the stage for conversations about ideas and opinions that could easily have gone unexplored in an online learning environment.

Concluding Thoughts

Although this is a difficult time for professors and universities on many fronts, it is also a time of great possibility in terms of whom we educate and how. The advent of widespread online instruction has opened up new approaches to teaching that can potentially reach students who previously were excluded from higher education. Similarly, as social and political pressures grow around the world to acknowledge the realities of racism, climate change, and other pressing issues, educators in psychology have a responsibility to prepare our students to meaningfully join efforts to create real, sustainable changes in workplaces, schools, hospitals, and corporations. Educators also have a responsibility to maintain an awareness of social issues that impact our students, and to be informed about the radical social justice issues that our students care about.

Psychology has a unique role to play here, given that our discipline takes the study of racism, in-group/out-group dynamics, and attitude change to be within our intellectual and scientific purview. As such, there is much we can and should embrace as we begin to transform our models of teaching. The structural competency paradigm is gaining popularity in mental health and in allied fields (Ali & Sichel, 2014; Fullilove & Cantal-Dupart, 2016). We believe that this popularity is part of a broader shift in research, training, and scholarship that reflects not only a belief system that values a diversity of voices, but one that actively takes on the challenges of radical justice and social change. Psychology as a discipline must be part of meeting those challenges as a service to our students and as a service to ourselves as well.

Résumé

En tant que discipline, la psychologie est de plus en plus critiquée pour son éloignement des luttes pour la justice sociale des gens qui sont marginalisés et privés de pouvoir. Pour répondre adéquatement à cette critique, il faut éduquer la génération actuelle d'étudiants en psychologie pour qu'ils deviennent des agents de la justice. Cela inclut une formation pour être en mesure de répondre aux besoins de ceux et celles qui font face au racisme et à d'autres formes d'oppression et des personnes qui vivent dans des collectivités à risque. Dans cet article, les auteurs présentent un nouveau modèle pour l'enseignement de la psychologie, basé sur le paradigme de la compétence structurelle. Le modèle d'enseignement proposé s'appuie sur la notion que les étudiants en psychologie doivent être formés pour acquérir une compétence structurelle qui leur permettra d'être préparés, d'un point de vue éthique et pratique, aux réalités qu'ils rencontreront au cours de leur carrière. Les auteurs discutent des difficultés de l'enseignement et de la façon dont leur modèle pour l'enseignement, reposant sur les principes de la compétence structurelle et de la justice radicale, peut aider les étudiants du premier cycle en psychologie à acquérir les compétences et les connaissances qui leur permettront de devenir des penseurs engagés et des leaders du changement social.

Mots-clés : compétence structurelle, justice sociale, enseignement au premier cycle

References

Ali, A., & Sichel, C. E. (2014). Structural Competency as a Framework for Training in Counseling Psychology. *The Counseling Psychologist*, *42*(7), 901–918. https://doi.org/10.1177/0011000014550320

Ali, A., & Sichel, C. E. (2020). Radicalizing advocacy in service settings: Using structural competency to address tensions between social action and psychological practice. *Psychological Services*, *17*(S1), 22–29. https://doi.org/10.1037/ser0000382

American Counseling Association. (2014). *ACA code of ethics*. https://www.counseling.org/resources/aca-code-of-ethics.pdf

American Psychological Association (APA). (2017). *Multicultural guidelines: An ecological approach to context, identity, and intersectionality*. http://www.apa.org/about/policy/multicultural-guidelines.pdf

Canadian Psychological Association. (2017). *Canadian Code of Ethics for Psychologists* (4th ed.). https://cpa.ca/docs/File/Ethics/CPA_Code_2017_4thEd.pdf

Collins, S., & Arthur, N. (2010). Culture-infused counselling: A fresh look at a classic framework of multicultural counselling competencies. *Counselling Psychology Quarterly*, *23*(2), 203–216. https://doi.org/10.1080/09515071003798204

Davis, F. (2019). *The little book of race and restorative justice*. Good Books.

Downey, M. M., & Gómez, A. M. (2018). Structural competency and reproductive health. *AMA Journal of Ethics*, *20*(3), 211–223. https://doi.org/10.1001/journalofethics.2018.20.3.peer1-1803

Freire, P. (1973). *Education for critical consciousness*. Continuum.

Fullilove, M. T., & Cantal-Dupart, M. (2016). Medicine for the city: Perspective and solidarity as tools for making urban health. *Journal of Bioethical Inquiry*, *13*(2), 215–221. https://doi.org/10.1007/s11673-016-9713-5

Guthrie, R. V. (1976). *Even the rat was white: A historical view of psychology*. HarperCollins.

Guthrie, R. V. (2004). *Even the rat was white: A historical view of psychology* (2nd ed.). Pearson Education.

Metzl, J. M., & Hansen, H. (2014). Structural competency: Theorizing a new medical engagement with stigma and inequality. *Social Science & Medicine*, *103*(x), 126–133. https://doi.org/10.1016/j.socscimed.2013.06.032

Nadal, K. L. (2017). "Let's get in formation": On becoming a psychologist-activist in the 21st century. *American Psychologist*, *72*(9), 935–946. https://doi.org/10.1037/amp0000212

Pedersen, P. B. (2001). Multiculturalism and the paradigm shift in counselling: Controversies and alternative futures. *Canadian Journal of Counselling*, *35*(1), 15–25. https://dev.journalhosting.ucalgary.ca/index.php/rcc/article/view/58661

Schneider, M. (2013, March). *Structural competency: Framing a new conversation on institutional inequalities and sickness* [Conference presentation]. MHS/NYU Structural Competency Conference, New York, NY USA.

Sue, D. W. (2010). *Microaggressions in everyday life: Race, gender, and sexual orientation*. Wiley.

Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A. M. B., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist*, *62*(4), 271–286. https://doi.org/10.1037/0003-066X.62.4.271

Sukhera, J., Wodzinski, M., Teunissen, P. W., Lingard, L., & Watling, C. (2018). Striving while accepting: Exploring the relationship between identity and implicit bias recognition and management. *Academic Medicine*, *93*(11S), S82–S88. https://doi.org/10.1097/ACM.0000000000002382

Way, N., Ali, A., Gilligan, C., & Noguera, P. (2018). *The crisis of connection: Its roots, strategies, and solutions*. New York University Press.

Received July 1, 2020
Revision received August 2, 2021
Accepted August 3, 2021 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 391–399
https://doi.org/10.1037/cap0000284

Indigenizing the Introduction to Psychology Course: Initial Course Content Suggestions and Call for Collaboration

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In the wake of the report from the Truth and Reconciliation Commission of Canada (TRC), educators have been called to move to indigenize the curriculum in Canadian institutions. This is a challenge in scientific fields where the epistemological underpinnings in Western and Indigenous knowledge differ significantly. The overall framework of knowledge and how it is gathered is paradigmatically different in these two cultures—from the Traditional Ways of Knowing in Indigenous culture to the tradition of European Empiricism—which makes it challenging to reconcile. However, it is possible to include Indigenous material in university courses as a first step toward indigenization. This article presents an initial collection of course content for integrating Indigenous material into an Introduction to Psychology course through the presentation of research and class discussions. After presenting this initial content, a call for collaboration is presented for developing an open-source database of materials that educators of all levels could draw on in seeking to indigenize their curricula.

Public Significance Statement
The Report of the Truth and Reconciliation Commission of Canada calls us to indigenize the curriculum in higher education. This article represents an attempt to respond to this call in introductory psychology courses. This article includes a call for collaboration from any academics who wish to contribute to developing an open-access source of materials that can be used in psychology courses. It is my hope that through this collaboration we, as a field, will be able to come together and improve the material we are using to teach students.

Keywords: teaching psychology, indigenization, introduction to psychology

In 2015, the Truth and Reconciliation Commission of Canada (TRC) issued their report (Sinclair, 2015). This report included 94 Calls to Action, which we as Canadians are called to respond to by taking the suggested actions. Calls 62–65 pertain to funding, research, and the inclusion of Indigenous knowledge and pedagogy into mainstream education (Root et al., 2019). Specifically, Call 62.ii. tells us to: "Provide the necessary funding to post-secondary institutions to educate teachers on how to integrate Indigenous knowledge and teaching methods into classrooms" (Sinclair, 2015, p. 7). While I have not sought or acquired funding to do so, I made a personal decision to respond to this call during the recently concluded 2019–2020 academic year by integrating aspects of Indigenous knowledge, research done with Indigenous populations, and other Indigenous methods in my teaching of Introduction to Psychology (PSYC1003; PSYC1004 at UNB Saint John). I now wish to share this course content and to invite interested collaborators to work toward a truly integrated curriculum. In addition to being a response to the Calls to Action in the TRC, this project is an effort to act against the tendency for Eurocentric peoples to devalue and demean knowledge that has been gained through processes other than those accepted by European cultures. As we work to decolonize and indigenize academia, we must acknowledge the current state of systemic racism and the myriad problems that stem from it.

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I have no known conflict of interest to disclose.

I begin by acknowledging that the University of New Brunswick is on the traditional unsurrendered and unceded territory of Wolastoqey. I also acknowledge that I am approaching this research as a non-Indigenous person of European descent and that I am doing my utmost to respond to the Calls to Action of the Truth and Reconciliation Commission of Canada (Sinclair, 2015). Finally, throughout this article, I wish to invite collaboration and communication from the wider academic community. What follows is an exploration of an initial attempt to indigenize the curriculum of an Introduction to Psychology course, but I am fully aware that there are many different examples that could be used, and I am happy to explore them all with interested parties. In the conclusion of this article, there is a link through which I invite people to contribute additional pieces of knowledge and examples. While this process will certainly be a long and ongoing one, I wish to also acknowledge the assistance of Stephanie Francis, whose patience and engagement in lengthy discussions around an earlier version of this article have helped to improve it significantly as the beginning of this process.

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In Canada, the academy has traditionally been a place where systemic racism against Indigenous groups leads to an environment that is either "inhospitable, if not openly hostile, to many Indigenous People for three main reasons: Lack of relevance, lack of respect, and lack of knowledge about Indigenous issues" (Kuokkanen, 2007, p. 52). This means that although we conduct our research, teaching, and service on unceded lands, we are not taking into account the knowledge and the Ways of Knowing that Indigenous Peoples have acquired over centuries. Indigenizing education means that we consider how the content in our courses reflects the presence of Indigenous Peoples where we live, as well as considering the contribution of Indigenous knowledge in our field (Brant Castellano, 2014). Decolonization in an academic setting involves the process of undoing the effects that colonization has had on an oppressed group—in this case, Indigenous Peoples (Attas et al., n.d.). In this particular instance, this includes placing a renewed and increased value on traditional Indigenous Knowledge and Ways of Knowing. In addition to decolonization, the process of indigenization requires an inclusion of Indigenous values, perspectives, and knowledge in an educational context (Cull et al., 2018). That is what this project is seeking to do: Including topical information, knowledge, and perspectives of Indigenous Peoples in the curriculum of an Introduction to Psychology course, and to begin the process of creating a more comprehensive and complete set of information that could be included in future iterations of this course.

Chung (2016) reminds us that it is incumbent upon educators to take up the calls from the TRC, as Indigenous Peoples need to experience reconciliation at all levels of their lives, including in higher education. While this can be a challenge, especially for people from settler populations such as myself, it is something that we must work on including in our curriculum on an ongoing basis. Schmidt (2019) discusses ongoing challenges in decolonizing the curriculum as a non-Indigenous person such as feelings of self-doubt and discomfort. She found that Mi'kmaw individuals she spoke to said that it "is the spirit in which the professor works that is more important" (Schmidt, 2019, p. 69). As long as we acknowledge our privilege and the fact that our own perspective has necessarily been shaped by that privilege, we can make a genuine effort to work toward Indigenization of the curriculum.

In reconciling the knowledge of Indigenous Peoples and Western knowledge, there is an important concept known as Two-Eyed Seeing (Bartlett et al., 2012). This refers to seeing the world through two different perspectives simultaneously, with one eye focused on Western science, and the other looking at Indigenous science. In preparing this course material, I found this concept to be helpful in understanding the coexistence of the two types of knowledge. Specifically, this made it possible for me to personally reconcile presenting some perspectives in the course that are *not* derived from Western scientific practices. As we will see through this article, some topics lend themselves to this type of examination better than others. However, at the beginning of each chapter of the course, I spend some time going over the History of [the topic]. In a similar way to this discussion of traditional Knowledge in Western psychology, I now discuss content stemming from traditional Indigenous knowledge. In the introductory lecture for the semester, I make sure to inform students that they should work to think critically about anything they learn in their higher educational experience. As such, we discuss things from Western and Indigenous traditions and the contributions that both of these types of knowledge can provide in our study of psychology.

It is also important, at this stage, to consider the cultural and scientific heterogeneity present in the Indigenous Peoples that live in Canada. There is often a tendency among settler populations to consider Indigenous Peoples as a monocultural group, but to do so is certainly errant. As an example of the degree of heterogeneity that exists among these groups, there are as many as 633 Nations listed among the First Nations—and this is only one of four major Indigenous groups identified in Canada (Voyageur & Calliou, 2000/2001). The assumption that there are minimal cultural differences between these bands is just another example of the colonial mindset that exists in many settler populations in Canada, and is something that it is important to avoid in creating a decolonized curriculum. As such, when putting forward examples to discuss in class contexts, it is important to identify the specific group of Indigenous People that are being discussed. For example, in this article we discuss language specifically in terms of the Maliseet–Passamaquoddy language, rather than generally referring to "Indigenous languages." Conversely, there are also situations in which we can talk about general issues surrounding Indigenous Peoples, such as the negative effects seen on them across Canada in terms of social determinants of health. This is also true among Western scientific perspectives—for example, there are numerous schools of thought when it comes to Psychology, and many of these are connected to different geographical regions such as Europe, North America, etc. What is important in the context of this article and its associated mission is that we treat Indigenous Peoples as having as much (or more!) heterogeneity between them as we do in considering our settler populations.

The University of Regina has a webpage providing 100 ways of indigenizing and decolonizing the curriculum (Pete, 2017), ranging from low-level things that can be done in a class to revolutionary changes across academe. This project represents an attempt to address point number 85: Developing a list of material resources to share throughout a program. This will require knowledge-gathering exercises and implementations at many levels, including extensive consultation with Indigenous experts from various groups around the country. As much as possible, we should acknowledge the contribution and importance of Indigenous teachings while integrating them with the Eurocentric elements of the curriculum. According to Pidgeon (2016), Indigenous inclusion requires us to embrace, rather than merely tolerate, Indigenous knowledge in the classroom. In the long run, this should also include targeted recruitment of instructors and faculty members who have roots in Indigenous groups, but for the time being including Indigenous perspectives is a critical first step to providing a socially just curriculum to the next generation of Canadians (Pratt & Danyluk, 2019). In addition, it will be of paramount importance to engage in consultations with Indigenous Elders and other leaders in order to gather more examples embedded in the fabric of the Indigenous groups. What follows is an initial set of modules for integrating Indigenous material into an Introduction to Psychology course.

Curriculum Elements

The full initial list of topics along with one useful reading for each is displayed in Table 1. In the following sections, I outline in more detail the premise for each topic, the relationship to Western

Table 1
Course Content Examples for Indigenizing Curriculum in Introduction to Psychology

Chapter	Topic	Example	Citation
1	History of psychology	Indigenizing the curriculum	Pete, 2017
2	Research methods in psychology	Indigenous science	Cajete & Leroy, 2000
3	Biological bases of behavior	Pruning and plasticity	Gordon, 2004
4	Sensation and perception	Perceptual variability	Segall et al., 1966
5	Variations in consciousness	Nonhuman consciousness	Hornborg, 2013
6	Learning	Experiential learning	Battiste et al., 2002
7	Human memory	Memory in oral tradition	Kelly, 2016
8	Language and thought	Word order and relativism	Francis, n.d.
9	Intelligence and testing	Cultural issues in testing	De-Plevitz, 2006
10	Motivation and emotion	Display rules in Inuit	Briggs, 2000
11	Human development	Parenting styles and goals	Cheah & Chirkov, 2008
12	Personality	Desirable traits in Dakota	Bryde, 1971
13	Social behavior	Stereotypes in education	Riley & Ungerleider, 2012
14	Stress, coping, and health	Indigenous medicine	Graham & Stamler, 2010
15	Psychological disorders	Indigenous mental health	Nelson & Wilson, 2017
16	Treatment of disorders	Traditional healing practices	Brasfield, 2001

Note. Chapter numbers are with reference to Weiten and McCann (2016) *Psychology: Themes and Variations, 5th edition*. Nelson Education. However, there is a high degree of overlap between information covered in Introduction to Psychology textbooks, so this material can be used in any such course.

psychological research, and a discussion question (or two) for each topic. I would also like to point out that using discussion groups within a university class is, in and of itself, akin to traditional Indigenous talking circles.[1] Contrary to the traditional "lecture" format used in Western universities, allowing all participants in a class to contribute to an ongoing discussion increases participants' attention and engagement in class setting.

History and Theories of Psychology

In this chapter, we discuss the historical background of Psychology, as well as the various theoretical perspectives that different researchers have taken (and continue to take), historically speaking. These include older perspectives such as structuralism and functionalism, as well as more modern ones such as behaviorism and cognitivism. Within this introductory lecture, I also include an introduction to the indigenization of the curriculum (Pete, 2017). The discussion of theory is introduced by a consideration of the many different lenses through which one can view the world. While the different Western theories discussed all share a commonality in the use of empirical data, we discuss that even the idea of empiricism is a theoretical construct. The Breath of Life theory (Blackstock, 2007) holds that everything in the world is connected in a way that cannot be accounted for by empiricist theories. By taking a relational worldview, we are able to observe these connections and understand the world in a fundamentally different way.

I also talk about how the history of colonization affects Indigenous people overall, with an emphasis on Canadian examples. This leads naturally into a discussion of how the predominantly non-Indigenous curricula in higher education may negatively affect Indigenous students. During this section, I also discuss the fact that we will be including Indigenous content throughout the course and ask the students to think about how we might decolonize our curriculum in each topic of the course. Discussion is led by questions such as: How much do you know about Indigenous history and science? Why do you think that many education systems in Canada don't teach/learn much about Indigenous cultures?

Research Methods

In this chapter, we discuss research methodologies that are used in psychological research, discussing issues such as reliability, validity, research ethics, and some basic statistics. All of this is grounded in the overall Western scientific method, involving theory-driven hypotheses being tested through empirical research. While the Western scientific method is the dominant one used in university psychology departments, there are other ways of learning about the world, such as traditional Indigenous Ways of Knowing. In fact, truly Indigenizing research methodologies means taking a completely different epistemological approach to how research is conducted. In his book *Research is Ceremony*, Wilson (2008) addresses the idea that Indigenous epistemology and ontology surround the idea of relationality. That is not to say we need to study relationships, but rather that relationships *are* the reality that is to be studied in the world. While Western science uses the scientific method, this does not mean Western scientists have a monopoly on learning about the world. Indigenous science is not based on "discoveries" but rather "coming to know" things in the natural world (Cajete & Leroy, 2000). We do not need to have eureka moments, but rather journey into understanding (Aikenhead & Ogawa, 2007). In Indigenous science, knowledge is gleaned through being in a peaceful relationship with nature. In turn, a peaceful relationship with that knowledge is what leads to wisdom, which is an important trait to be found in Elders (S. Francis, personal communication, October 16, 2020). An example discussed in this chapter is of how Mayan peoples have been cultivating (and genetically selecting) corn for over 9,000 years.

It is also possible here to consider qualitative research methods, which may serve as a kind of middle ground between Western science and Indigenous science. Qualitative research in psychology often takes the form of interviews or observational research with the intention of gathering richer information than simply numerical data. Wilson (2008) discusses research as a form of ceremony.

[1] I thank an anonymous Reviewer for pointing this out.

He defines ceremony as a way through which we build relationships between ourselves and the universe, and asserts that this is also the intention of research. Employing qualitative research techniques is more similar to the Ways of Knowing employed in many Indigenous cultures, where information is gathered through observation of the world, discussions with others, and story-telling. Discussion is led based on questions such as: How does the Western scientific framework affect the ways in which we might interact with the natural world and the kinds of knowledge we gain? How do we know something is true in Western Science? What about in Indigenous Science?

Biological Psychology

In this chapter, we discuss how neural pruning and plasticity affect our development. Our brain is shaped by the experiences we go through in our lives. This is true during development from before birth, through adolescence, and into adulthood. The idea that our life experiences shape our brain is illustrated in the way that different cultures have differing perspectives on any number of things. Many of the things we think about in our lives are cultural inventions rather than basic functions. Number systems are one of these, and they are not universal around the world. Many places now use base-10 (including most Western locations), but computers use base-2 or base-16. Using base-10 is sensible because we have 10 fingers, and this allows us to count a full set of 10 on our fingers before looping back to 11. However, some relatively isolated Indigenous groups use different counting numbers. A classic example of this is the Piraha peoples, who live in the Amazon region of Brazil. Rather than using a base-10 counting system, they have numbers for 1, 2, and "many" (Gordon, 2004). Discussion is led based on questions such as: How would using a counting system like this affect your brain and your behavior?

Sensation and Perception

In this chapter, we spend a large amount of time at the beginning of class discussing the differences between sensation and perception, making the point that sensation happens in a similar way for most people, but that perception is highly dependent on an individual's previous experiences. One of the examples of this is the cross-cultural universality (or lack thereof) of the Müller-Lyer illusion (Muller-Lyer, 1889). This illusion involves two lines of the same length being presented to participants, where one of them has angles facing inward at each end, and the other has angles facing outward. In Western populations, people tend to perceive the line with outward angles as being longer, and one explanation for the existence of this effect is that this mimics an internal corner of a room (i.e., the connection between floor and wall across from your location), while the other line mimics an external corner (Gregory, 1966). As both lines project the same size of the retinal image, our brain uses depth cues to decide that the outward angled line is further away and therefore has an absolute size that is greater. While this was previously thought to be universal, research by Segall et al. (1966) showed that in numerous non-Western indigenous groups the illusion was severely weakened, or did not exist at all. These groups included the Hanunoo (in present-day Philippines), Dahomey (Guinea Coast), Yuendumu (Australia), Bete (Cote D'Ivoire), and Songe (Congo). This shows that perception of line length in this situation is based on previous experience, as the indigenous groups tested were ones who do not build square houses, and as such do not have the same association with angles facing toward/away from themselves like Western individuals do. Discussion is led based on questions such as: How can we "believe our eyes" given what we know about cultural effects on perception? How can we incorporate other people's perceptions of things, given that we know we don't see things the same as others?

Variations in Consciousness

In this chapter, we discuss consciousness not as a binary on/off switch, but rather as a continuum, which can be understood by examining the multiple stages of sleep. We also discuss consciousness as not being a strictly human trait and the differing levels of consciousness that can be correlated with cortical volume in animal species. From this point, we examine the idea that in many Canadian Indigenous worldviews, there is thought to be a kinship with animals, and that they can convey wisdom (Hornborg, 2013). If animals can share wisdom, they must have consciousness: "the thoughtful mutuality of knowledge, language, and custom developed among species over many years" (Bradshaw, 2010, p. 408). Because of this, there are also specific protocols around the treatment of animal bodies, even when they are being hunted and eaten (Legge & Robinson, 2017). According to Marshall and Marshall (2015, as cited in Rowett, 2018), one must always maintain respect, reverence, reciprocity, and responsibility with nature. In Mi'kmaw culture, for example, animals are said to sacrifice themselves to feed their human "brothers" (Robinson, 2013). Once an animal has been successfully hunted, the hunters will present prayers and tobacco as offerings to nature, and will also only take what is needed for survival and at appropriate times of the season. In doing so, they are maintaining the balance found in nature. The sharing of tobacco is even sometimes extended to plants that are being harvested, which demonstrates the belief that all living things—animal or plant—have a kinship with humans and a consciousness (Mitchell, 2018). Discussion is led with questions such as: How might this understanding of consciousness change how you behave? Does it change your thoughts on eating meat (one way or the other)?

Learning

In this chapter, we discuss the basics of learning through classical and operant conditioning. We also discuss higher forms of learning through observation and formal education. In Western settings, education is "outsourced" to highly trained teachers/professors. North American Indigenous groups also educate their children, but historically this education was much more distributed across the society, through telling stories and modeling of behavior, and hands-on learning (Matthew, 2001). Stories, and the inclusion of metaphors within those stories, are a hallmark of many Indigenous learning experiences, both in Canada as well as among peoples around the world. Using these stories allows listeners to learn whatever they can from them, and internalize their learnings by applying it directly to their own lives (Wilson, 2008). Experiential learning is only recently becoming a buzzword in our educational system, but it was being done centuries ago in Indigenous groups (Coates, 2018). As Battiste et al. (2002) explain: Knowledge is a process derived from Creation, and as such, it has a sacred purpose.

It is inherent in and connected to all of nature, to its creatures, and to human existence. Learning is viewed as a lifelong responsibility that people assume to understand the world around them and to animate their personal abilities. The colonialist mindset in Settlers led to children being removed from their homes, sent to residential schools, stripped of their language, identity, and dignity. This was a dark time in Canadian history, and also one that was based on a lack of understanding of non-European educational methodologies. The discussion here is led with questions such as: Why do you think Settlers did this? What short- and long-term negative effects has this had on the psychology of Indigenous Peoples?

Human Memory

In this chapter, we cover a wide variety of information pertaining to human memory. In the discussion of working memory, we discuss the limitations of memory span in humans, which is generally thought to be around seven items (Miller, 1956). If we are asked to remember more than a handful of things, we tend to want to make notes and write them down rather than relying on our brain. So how do completely oral cultures, which many Indigenous cultures are, manage to remember as much as they do? One technique is essentially using the method of loci, which involves linking memory items to well-known locations in the world. For example, at Uluru in Australia, each bump in the rock is linked to specific pieces of traditional knowledge (Kelly, 2016). The same is true of Stonehenge and Easter Island.

Mi'kmaq peoples traditionally use beadwork on clothing to commemorate past family members and experiences, such as men's hunting caps or women's peaked caps, which are given to people when they become of age (Stephanie Francis, personal communication, October 16, 2020). The intention of the cap is also to contain ancestral wisdom in the space above the head. Also in Mi'kmaq culture, there is a role on the Grand Council called the *putús*, who serves the council by carrying the memories of the family—they create visual histories on pieces of clothing that allow for the collective memories to be maintained. Other Indigenous groups use star maps for the same thing, by mapping constellations and stars onto real-life locations. This shows us that well before Western psychologists presented methods of loci as a mnemonic technique, many Indigenous cultures were already using it. The discussion here is led by questions such as: How does your understanding of memory change when you understand how Indigenous groups have been using memory for many centuries? Does this change your perspective from Chapter 2 on how Indigenous Science and Western Science interact?

Language and Thought

In this chapter, we discuss the different levels of language, including phonemes, morphemes, words, and syntax. We also spend a good amount of time discussing differences between languages in syntax, such as English having a subject-verb-object order (i.e., Mark ate the cookie), while other languages have different orders (e.g., subject-object-verb in German syntax, this sentence would be Mark the cookie ate). If you put the words in the wrong order for a given language, it will lead the listener to either be confused or to get the completely wrong meaning for the sentence. For example, saying that "Mark hugged Paul" has a different meaning to "Paul hugged Mark." In the Maliseet–Passamaquoddy language, verb order is relaxed and in most simple sentences you can put words in any order and it will still make sense to a listener. Additionally, we discuss the concept of linguistic relativism, wherein the existence of different words (or meanings) or lack thereof in different languages can lead to different patterns of thought (e.g., Whorf's linguistic relativism; Casasanto, 2008). In some Indigenous languages such as Maliseet–Passamaquoddy, there are words that cannot be used without being possessive. For example, words referring to body parts and relatives must be said in reference to some entity (Francis, n.d.). You cannot just be "a mother," you have to be Jonathan's mother. Additionally, personal pronouns in Maliseet–Passamaquoddy are not gendered—the pronoun is the equivalent of they/them rather than he/she. The discussion here is led by questions such as: If we accept some level of linguistic relativism, how would these language differences affect your mental processing of human relationships? How does this relate to the general worldview of connectedness that many Indigenous cultures have?

Intelligence

In this chapter, we discuss the conceptualization of intelligence, as well as different theories and methodologies employed for intelligence testing. Intelligence testing has long been known to be a flawed measure of human performance, as it is disadvantageous to a large number of underrepresented groups (Gottfredson & Saklofske, 2009; Snyderman & Rothman, 1987). Indigenous groups are no exception to this rule, and the Truth and Reconciliation Report outlines the problematic use of culturally inappropriate assessment tools in evaluating the intelligence of individuals in these groups. Intelligence tests that have been developed in a Western educational setting for use in similar settings place value on skills that are useful in those educational settings. For example, an emphasis on reading comprehension is something that is important at all levels of Western education but may be completely unnecessary in a group following oral traditions. Due to this issue, Indigenous children are often found to have low IQs, and even diagnosed with developmental disabilities, based on tests that they have not been properly prepared to perform well on (De-Plevitz, 2006). This phenomenon may occur due to the reliance of the tests themselves on verbal demands which, when combined with the effects of poverty and lack of explicit English language training, can lead to artificially decreased scores on IQ tests.

In response to the Truth and Reconciliation Report, the Canadian Psychological Association has compiled a task force report with action points to alleviate these issues with the assessment. (Danto et al., 2018). For example, they state that rather than using standardized IQ tests, psychologists should include assessments involving direct observation of the person being assessed in various contexts such as their home, school, workplace, etc. Additionally, using an assessment of ones "gifts" without forcing them into a Westernized context can allow for a more appropriate assessment of the whole individual. The discussion here is led by questions such as: What needs to be done to make intelligence testing culturally universal? What short- and long-term issues in development and education might we see based on these nonuniversal intelligence tests?

Motivation and Emotion

In this chapter, we discuss different theories of motivation, such as drives and incentives, as well as different perspectives on

emotion. This includes a discussion of cross-cultural variability in emotional display rules. Emotional education and display rules vary across cultures, and the anthropologist Jean Briggs spent her professional life studying emotions by embedding herself in Inuit households (Briggs, 2000). While some researchers have found certain emotions to be universal cross-culturally (Ekman, 1989, 1999), Briggs points out that there are some emotions that differ between Western cultures and the Inuit cultures she studied. She also writes about how children are taught to experience emotions in a proper way, which in this case is to not show overt emotion because this is considered to be something only small children do. This is accomplished through morality plays in which parents interrogate their children on what is (and is not) morally correct, and sometimes even challenge them to make immoral choices in order to test them. One example of this would be to incite an angry child to act out physically against their parent—a child who can decide to not do so is a child who is well developed emotionally, while a child who does act out requires further education. The discussion here is led by questions such as: What differences might we expect in terms of emotional expression in Inuit children as compared to Western children? How might these differences affect our initial perception of people who have different display rules than we do?

Human Development

In this chapter, we discuss human development from before birth, through the lifespan, to death. One topic that we cover at length is attachment theory and the interactive relationship between parenting styles/goals and the temperament of their children. While Western parenting comes with an implication of ownership of children by parents (i.e., "my" child), an Indigenous perspective on parenting holds that children are only "loaned" to us, to have and to raise for a certain amount of time, after which they move on in the world (Stephanie Francis, personal communication, October 16, 2020). In this instance, we discuss an article that compares Indigenous and Eurocentric Canadian mothers, and their goals in raising their children (Cheah & Chirkov, 2008). Through interviews with 101 mothers overall (half in each group), they examined beliefs and actions used in parenting. They found that the Indigenous mothers were more likely to set a goal of improving their children's cognitive abilities and their cultural traditional knowledge, while European mothers were more interested in social sensitivity. Additionally, Indigenous mothers were more likely to report that their goals in parenting were largely connected to social conventions, while European mothers were more likely to take actions based on personal (for the child) gains. However, there were also many goals and reasons that were not significantly different between the two groups, including teaching moral principles, education in general, the child's health, and the ability of the child to fit into the family unit. Through this, we see that though there are differences between cultures on the role of a parent, there are also more similarities than one might have thought. The discussion here is led by questions such as: What overarching cultural differences do you think may be driving the differences between parents in terms of their goals in parenting? How might the different parenting goals and styles within and between ethnic groups affect the temperament and development of children?

Personality

In this chapter, we explore different conceptualizations of personality and individual differences that have been used in psychology. We discuss cross-cultural perspectives on personality and the fact that different personality traits may be more (or less) valued in different cultures. We then consider that Indigenous perspectives on personality are likely even more varied than the number of perspectives on personality in Western psychology. While ensuring that this diversity is made very clear, an example is discussed based on the Inuit tradition of naming newborns after recently deceased relatives. The belief is that by giving children this name, they then inherit skills and personality traits from that ancestor. Further research has found that there are a number of traits that tend to be highly valued in certain Indigenous groups, in the same way that traits such as openness and extraversion tend to be valued in Western cultures. For example, in the Dakota peoples, it is considered desirable for your personality to include seeking conformity and harmony in groups, an ability to concentrate on the present, hiding one's emotions, and showing reverence for nature (Bryde, 1971). An additional contributing factor to Indigenous personality is the ceremony of giving a spirit name, which dictates what personality an individual will have going forward (Stephanie Francis, personal communication, October 16, 2020). As in Western contexts, people are often evaluated by others on their proximity to these ideals when situations arise that may show that some people are higher (or lower) on a given trait. The discussion here is led by questions such as: Which personality traits are "valued" in Settler populations in Canada? What differences do we see between this and valued traits among the Dakota? How might this affect people's development, as well as how they present themselves to others?

Social Behavior

In this chapter, we cover a wide variety of issues around social psychology. One of the more damaging negative effects discussed in social psychology, which we spend a long time on, is that of stereotyping. The reasons that stereotypes exist and persist are discussed at length in this lecture, and we use a specific example of stereotypes of Indigenous people in Canada. While there have been movements in Canada in recent years to eliminate these stereotypes, they do tend to persist. We draw examples from educational research such as the finding that teachers' stereotype-based beliefs of Indigenous students are connected to the higher drop-out rate among those populations (Riley & Ungerleider, 2008). Connections are also drawn between these teacher expectations and attribution theory, wherein preexisting beliefs about groups of students change the way in which behaviors of those students may be interpreted. For example, a teacher who believes that Indigenous students will have behavioral issues may be more likely to attribute poor behavior to the student and their ethnic background rather than to situational factors (Riley & Ungerleider, 2012). Research has also shown that it is difficult for teachers from dominant groups to understand the issues facing their Indigenous students, which can exacerbate these effects (Tompkins, 2002). This discussion allows students to look at these stereotypes as they may exist in their own minds, and we go on to discuss ways that we may combat these stereotypes. The discussion here is led by questions such as: How do a teacher's expectations affect their interactions

with students? What would be the educational, and broader, effects of this tendency toward a "self-fulfilling prophecy" when it comes to a teacher's perceptions?

Stress, Coping, and Health

This chapter covers both issues of health, including the effects of stress on the interaction between physical and mental health. We also spend a large amount of time on the social determinants of health, and we see disproportionate negative health issues in underprivileged groups, and how intergenerational trauma affects Indigenous groups in Canada. This intergenerational trauma can largely be traced back to appalling practices such as the institution of the residential school system, as well as the restriction of movement of Indigenous people onto nonancestral lands. The Indigenous worldview is inextricably linked with a sense of place, and research has revealed effects of trauma through direct and indirect effects across at least three generations (Walls & Whitbeck, 2012). In a recent study, it was determined that a connection to the land is an identifiable social determinant of health in Indigenous groups and that by incorporating that fact into research we can create a more holistic picture of health in these populations (Lines et al., 2019). Given this population-level issue, there is no mistaking the connection between these complex, intergenerational trauma and the low level of wellbeing found in many Indigenous populations.

In Western cultures, medicine is a highly institutionalized setting with separate streams for physical health, mental health, public health, etc. In a study done in a Plains Cree First Nation, the themes that emerged showed a much more holistic approach to health (Graham & Stamler, 2010). Physical health, mental health, emotional health, and spiritual wellness were all said to be important, and the relationships between these four facets of health were also important. Some of these connections are ones that are supported by research (e.g., "sickness [can be] related to mental health," p. 12), while others would not be accepted in a Western medical context (e.g., "cancer can develop from abandonment," p. 12). This conceptualization of health fits onto the traditional Medicine Wheel, which is a holistic model used in Indigenous health (Dapice, 2006). The discussion here is led by questions such as: Why is it that people from disadvantaged groups who face ongoing discrimination, including Indigenous groups, tend to have more negative health outcomes than people with more social advantages? What are the potential consequences of hesitancy to seek medical care due to worry about being treated in a derogatory manner? How might employing culturally appropriate health practices be able to alleviate *some* of these negative outcomes?

Psychological Disorders

In this chapter, we discuss numerous aspects of mental health, including epidemiology, etiology, and diagnosis. The mental health of Indigenous Peoples in Canada is something that has had increased research interest recently. Part of this is due to the acknowledgment of the effects of intergenerational trauma as a risk factor for physical, emotional, and psychological disorders (Bombay et al., 2014). Intergenerational trauma has effects based on things such as socioeconomic status, substance abuse, and other factors, which affect both people who were directly exposed to trauma, such as the Residential School system in Canada, as well as future generations of their family through parental stress influences on child-rearing practices (Thoits, 2010). Additionally, a recent review article (Nelson & Wilson, 2017) is discussed that addresses numerous issues with regard to mental health in Indigenous populations. This includes a disconnect between the types of disorders that are empirically found to be more prevalent in Indigenous populations and the disorders on which researchers tend to focus, the overarching effects of colonialism on mental health, certain populations that may be underrepresented (including urban Indigenous populations), and other similar issues. It also addresses issues around the treatment of psychological disorders, which is discussed at length in the subsequent section. This review allows for a discussion of wide-ranging issues in Indigenous mental health, and it continues to be discussed throughout this section of the course. The discussion here is led by questions such as: Why is there a disconnect between the actual prevalence of psychological disorders in Indigenous groups and the disorders that get the most research on them with reference to Indigenous groups?

Treatment of Psychological Disorders

In this chapter, we have an ongoing discussion of different types of treatment—for example, using cognitive behavioral therapy along with medication to treat anxiety disorders. This discussion follows on from the preceding section, and again here we discuss the combination of Western medicine-based mental health therapies with treatments derived from Indigenous knowledge. In the same way, we now discuss the use of traditional healing practices in the mental health of Indigenous peoples. Examples of these include herbal medicines, the use of ceremonies such as sweat lodges and smudging, and counseling from Elders (Brasfield, 2001). The purpose of these treatments is often to provide meaning and hope to an individual who has experienced trauma, and to move gradually toward healing. Treatments like these can be used in conjunction with Western treatments, through a two-eyed seeing approach (Iwama et al., 2009), and this has been shown to be effective in the treatment of psychological disorders in Indigenous populations (Marsh et al., 2015). The discussion here is led by questions such as: Why is it the case that interventions that have been successful in Western populations are not always effective in Indigenous groups? What steps can researchers take to better address the issue of treating psychological disorders in Indigenous groups?

Call for Collaboration

As stated in the introduction to this article, this work represents an initial attempt to produce an indigenized curriculum that can be integrated within the syllabus of an Introduction to Psychology course. I acknowledge that some of the discussion points are better than others in terms of their quality, timeliness, and their applicability to Canadian higher education contexts. Additionally, many of these elements have been aggregated through my search of the academic literature, which is necessarily affected by my previous experiences as a non-Indigenous person. As such, I wish to appeal to anyone who feels they wish to contribute to this project to contact me at jwilbiks@unb.ca. I have also started a living document which can be submitted to through a form available at https://forms.gle/SYP2mpTXDgZqWe1g9 and invite anybody to contribute, either anonymously or with attribution. My aim in the long term is to create

an open-access library of potential resources that can be used in Introduction to Psychology classes, as well as by educators at other levels, in indigenizing the curriculum in Canadian contexts.

Indigenizing the curriculum in higher education is something we are called to do by the TRC (Sinclair, 2015), and something that we are morally required to do in our institutions that are constructed on unceded land. At the level of the university, it is important to address the process of indigenization by taking broad and meaningful actions. For example, Pete (2017) suggests targeted recruitment of Indigenous scholars for faculty positions, including members of diverse groups (including Indigenous groups) in academic program planning, and creating physical spaces reflective of Indigenous history, language, and science. Additionally, she proposes incentivizing faculty members to take on projects of indigenization by providing course releases to allow time to be spent on revising courses and programs in this way. These kinds of top-down initiatives can be very effective in creating change, as many faculty members look to leadership to provide cues of what they should spend their time on. However, much of the implementation of these initiatives will occur at the level of the individual.

At the level of individual instructors, we can make decisions to include material such as that outlined in this article in our courses and can contribute to the ongoing collaboration I have proposed. In doing so, we can broaden the knowledge that is being shared with students and do so at the same time as we promote critical thinking in first-year students, which sets them up for a truly liberal education during their undergraduate degree. I also believe that going through this process has expanded my personal understanding of the many issues surrounding colonialism in the academy and systemic racism that has, and continues to, affect Indigenous Peoples. As a person of European descent, I have always understood the privilege I hold and made efforts to educate myself about these issues, but only through researching them and presenting in a class context have I been able to understand them as fully as I now do. In particular, understanding the issue of intergenerational trauma in the context of Indigenous People and the residential school system is something that I did not understand the full scope of until having completed this project. This new understanding now drives me to continue with this project and do all I can to promote this understanding in undergraduate students, in hopes that they may in turn become leaders in continuing the process of reconciliation.

I hope that you find this initial content helpful and that you will join me in creating a comprehensive curriculum that can be used widely. This will be an ongoing process that I hope will ultimately have contributions from people of all ethnic groups from across Canada and around the world to produce a collectively owned, comprehensive resource. I want to conclude with a line from Shawn Wilson's (2008) *Research is Ceremony*, which feels very important to me as we embark upon this journey: "Let us go forward together with open minds and good hearts as we further take part in this ceremony." (p. 11)

Résumé

À la suite du rapport de la Commission de vérité et réconciliation du Canada (CVR), les éducateurs ont été appelés à prendre des mesures pour autochtoniser le programme d'études dans les établissements canadiens. Ceci est un défi pour les domaines scientifiques où les fondements épistémologiques des connaissances occidentales et autochtones diffèrent considérablement. Le cadre général des connaissances et la façon dont elles sont recueillies sont radicalement différents dans ces deux cultures - des modes traditionnels de connaissance dans la culture autochtone à la tradition de l'empirisme européen - ce qui rend difficile la réconciliation. Toutefois, il est possible d'inclure du matériel autochtone dans les cours universitaires comme premier pas vers l'autochtonisation. Cet article présente une première collection de contenus de cours permettant d'intégrer du matériel autochtone dans un cours d'introduction à la psychologie par la présentation de recherches et de discussions en classe. Après la présentation de ce contenu initial, un appel à la collaboration est lancé pour développer une base de données à source libre de matériel dont les éducateurs de tous niveaux pourraient s'inspirer pour tenter d'autochtoniser leurs programmes d'études.

Mots-clés : enseignement de la psychologie, autochtonisation, introduction à la psychologie

References

Aikenhead, G. S., & Ogawa, M. (2007). Indigenous knowledge and science revisited. *Cultural Studies of Science Education*, *2*(3), 539–620.

Attas, R. (n.d.) What is decolonization? What is indigenization? *Queens University Centre for Teaching and Learning*. Retrieved January 25, 2021, from https://www.queensu.ca/ctl/teaching-support/decolonizing-and-indigenizing/what-decolonizationindigenization.

Bartlett, C., Marshall, M., & Marshall, A. (2012). Two-eyed seeing and other lessons learned within a co-learning journey of bringing together indigenous and mainstream knowledges and ways of knowing. *Journal of Environmental Studies and Sciences*, *2*, 331–340.

Battiste, M., Bell, L., & Findlay, L. M. (2002). Decolonizing education in Canadian universities: An interdisciplinary, international, indigenous research project. *Canadian Journal of Native Education*, *26*(2), 82–95.

Blackstock, C. (2007). The breath of life versus the embodiment of life: indigenous knowledge and western research. *World Indigenous Nation's Higher Education Consortium Journal*, *4*(1), 67–79.

Bombay, A., Matheson, K., & Anisman, H. (2014). The intergenerational effects of Indian Residential Schools: Implications for the concept of historical trauma. *Transcultural Psychiatry*, *51*(3), 320–338.

Bradshaw, G. A. (2010). You see me, but do you hear me? The science and sensibility of trans-species dialogue. *Feminism & Psychology*, *20*(3), 407–419.

Brant Castellano, M. (2014). *Indigenizing education*. http://www.cea-ace.ca/blog/marlene-brent-castellano/2014/06/2/indigenizing-education

Brasfield, C. R. (2001). Residential school syndrome. *British Columbia Medical Journal*, *43*(2), 78–81.

Briggs, J. L. (2000). Emotions have many faces: Inuit lessons. *Anthropologica*, *42*(2), 157–164.

Bryde, J. R. (1971). *Modern Indian psychology*. Vermillion.

Cajete, G., & Leroy, L. B. (2000). *Native science: Natural laws of interdependence*. Clear Light Books.

Casasanto, D. (2008). Who's afraid of the big bad Whorf? Crosslinguistic differences in temporal language and thought. *Language Learning*, *58*-(Suppl. 1), 63–79.

Cheah, C. S. L., & Chirkov, V. (2008). Parents' personal and cultural beliefs regarding young children: A cross-cultural study of aboriginal and Euro-Canadian mothers. *Journal of Cross-Cultural Psychology*, *39*(4), 402–423.

Chung, S. (2016). The morning after Canada's Truth and Reconciliation Commission report: Decolonisation through hybridity, ambivalence and alliance. *Intercultural Education*, *27*(5), 399–408.

Coates, T. (2018). Education. Indigenous peoples atlas of Canada. *Canadian Geographic*. https://indigenouspeoplesatlasofcanada.ca/article/education-2/

Cull, I., Hancock, R. L. A., McKeown, S., Pidgeon, M., & Vedan, A. (2018). Pulling together: A guide for front-line staff, student services, and advisors. *BCcampus*.

Danto, D., Alex, R., Alter, R., Bohr, Y., Calvez, S., Fellner, K., John, R., Koostachin, E. A., Lafontaine, L., LaForme, R. S., Maybee, C., Reeves, A., Spence, G., Stewart, S., Winder, F. S., Wabano, R., & Willinsky, C. (2018). *Psychology's response to the truth and reconciliation commission of Canada's report*. Canadian Psychological Association.

Dapice, A. N. (2006). The Medicine Wheel. *Journal of Transcultural Nursing*, *17*(3), 251–260.

De-Plevitz, L. (2006). Special schooling for Indigenous students: A new form of racial discrimination? *Australian Journal of Indigenous Education*, *35*, 44–53.

Ekman, P. (1989). The argument and evidence about universals in facial expressions of emotion. In H. Wagner & A. Manstead (Eds.), *Handbook of social psychophysiology* (pp. 143–164). Wiley.

Ekman, P. (1999). Basic emotions. In T. Dalgleish & M. Power (Eds.), *Handbook of cognition and Emotion* (pp. 45–60). Wiley.

Francis, D. A. (n.d.). *Passamaquoddy-Maliseet language portal*. www.pmportal.org

Gordon, P. (2004). Numerical cognition without words: Evidence from Amazonia. *Science*, *306*, 496–499.

Gottfredson, L., & Saklofske, D. H. (2009). Intelligence: Foundations and issues in assessment. *Canadian Psychology*, *50*(3), 183–195.

Graham, H., & Stamler, L. L. (2010). Contemporary perceptions of health from an indigenous (Plains Cree) perspective. *Journal of Aboriginal Health*, *6*(1), 6–17.

Gregory, R. L. (1966). *Eye and brain*. McGraw Hill.

Hornborg, A.-C. (2013). Mi'kmaq landscapes: From animism to sacred ecology. *Journal of Indigenous Social Development*, *6*(1), 18.

Iwama, M., Marshall, M., Marshall, A., & Bartlett, C. (2009). Two-eyed seeing and the language of healing in community-based research. *Canadian Journal of Native Education*, *32*, 3–23.

Kelly, L. (2016). *The memory code*. Allen & Unwin.

Kuokkanen, R. (2007). *Reshaping the University: responsibility, indigenous epistemes, and the logic of the gift*. UBC Press.

Legge, M. M., & Robinson, M. (2017). Animals in indigenous spiritualities: Implications for critical social work. *Journal of Indigenous Social Development*, *6*(1), 1–20.

Lines, L. A., Yellowknives Dene First Nation Wellness Division, & Jardine, C. G. (2019). Connection to the land as a youth-identified social determinant of Indigenous Peoples' health. *BMC Public Health*, *19*, Article 176.

Marsh, T. N., Coholic, D., Cote-Meek, S., & Najavits, L. M. (2015). Blending Aboriginal and Western healing methods to treat intergenerational trauma with substance use disorder in Aboriginal peoples who live in Northeastern Ontario, Canada. *Harm Reduction Journal*, *12*, 1–12.

Matthew, N. (2001). *First nations education steering committee 1*, 3.

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, *63*(2), 81–97.

Mitchell, S. (2018). *Sacred instructions: Indigenous wisdom for living spirit-based change*. North Atlantic Books.

Muller-Lyer, F. C. (1889). Optische urteilstäuschungen. *Archiv für Physiologie Supplement*, *2*, 263–270.

Nelson, S. E., & Wilson, K. (2017). The mental health of Indigenous peoples in Canada: A critical review of research. *Social Science & Medicine*, *176*, 93–112.

Pete, S. (2017). *100 ways to Indigenize and decolonize academic programs and courses*. University of Regina. https://www.uregina.ca/president/assets/docs/president-docs/indigenization/indigenize-decolonize-university-courses.pdf

Pidgeon, M. (2016). More than a checklist: Meaningful Indigenous inclusion in higher education. *Social Inclusion*, *4*(1), 77–91.

Pratt, P., & Danyluk, P. J. (2019). Exploring reconciliatory pedagogy and its possibilities through educator-led praxis. *The Canadian Journal for the Scholarship of Teaching and Learning*, *10*(3), 8.

Riley, T., & Ungerleider, C. (2008). Pre-service teachers' discriminatory judgements. *The Alberta Journal of Educational Research*, *54*, 378–387.

Riley, T., & Ungerleider, C. (2012). Self-fulfilling prophecy: How teachers' attributions, expectations, and stereotypes influence the learning opportunities afforded aboriginal students. *Canadian Journal of Education*, *35*(2), 303–333.

Robinson, M. (2013). Veganism and Mi'kmaw legends. *The Canadian Journal of Native Studies*, *33*(1), 189–196.

Root, E., Augustine, S., Snow, K., & Doucette, M. (2019). Evidence of co-learning through a relational pedagogy: Indigenizing the curriculum through MIKM 2701. *The Canadian Journal for the Scholarship of Teaching and Learning*, *10*(1), 1–17.

Rowett, J. (2018). Etuaptmumk: A research approach and a way of being. *Antistasis*, *8*(1).

Schmidt, H. (2019). Indigenizing and decolonizing the teaching of psychology: Reflections on the role of the non-indigenous ally. *American Journal of Community Psychology*, *64*, 59–71.

Segall, M., Campbell, D., & Herskovits, M. J. (1966). *The influence of culture on visual perception*. Bobbs-Merrill.

Sinclair, M. (2015). Truth and Reconciliation Commission (TRC) members. *Final Report of the Truth and Reconciliation Commission of Canada*.

Snyderman, M., & Rothman, S. (1987). Survey of expert opinion on intelligence and aptitude testing. *American Psychologist*, *42*(2), 137–144.

Thoits, P. A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior*, *51*, S41–S53.

Tompkins, J. (2002). Learning to see what they can't: Decolonizing perspectives on Indigenous education in the racial context of rural Nova Scotia. *McGill Journal of Education*, *37*(3), 405–422.

Voyageur, C. J., & Calliou, B. (2000/2001). Various shades of red: Diversity within Canada's Indigenous community. *London Journal of Canadian Studies*, *16*, 103–118.

Walls, M. L., & Whitbeck, L. B. (2012). The intergenerational effects of relocation policies on Indigenous families. *Journal of Family Issues*, *33*(9), 1272–1293.

Weiten, W., & McCann, D. (2016). *Psychology: Themes and Variations* (5th ed.). Nelson.

Wilson, S. (2008). *Research is Ceremony: Indigenous Research Methods*. Fernwood Publishing.

Received June 25, 2020
Revision received January 25, 2021
Accepted January 29, 2021 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 400–408
https://doi.org/10.1037/cap0000294

Teaching the History of Psychology

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Teaching the History of Psychology can be challenging, mainly because many students find the material to be boring or "irrelevant." The way to make the course more interesting and "relevant" is to connect its content with an array of historical figures and events that are already in students' networks of knowledge. This poses a problem, though, because today's students often know little general history compared to students in the past. So, it falls to the History of Psychology instructor to provide that wider perspective. Examples of this are provided, especially that of Wilhelm Wundt's career in the context of German unification, and the British use of standardized testing in the effort to gain women admission to higher education. Questions of choosing a textbook and the inclusion of primary source documents (both published and unpublished) are discussed as well.

Public Significance Statement
The history of psychology can be a challenging course to teach, not least because many students do not have sufficient background in general world history to enable them to place psychological events in their socio-political and economic contexts. This article presents examples of how teachers can provide students with the relevant contexts to make the course more engaging for students. It also discusses the use of textbooks and two kinds of primary sources in the classroom.

Keywords: teaching, history, psychology, context

> History of psychology makes me want to set myself on fire.
> —2014 tweet by student

History of Psychology can be a unique teaching challenge. Students often do not enjoy the course, as is made uncommonly clear in the epigram above. Many students are merely bored by the topic. I once collected students' public tweets about their History of Psychology courses over the course of a semester (Green, 2014). "Boring" was the most common term encountered, as can be seen in this world cloud of all the tweets I collected (See the figure in next page top).[1]

The general sentiment of these students might be best distilled in the tweet:

> Bored, die, me … history of psychology.

Beyond mere boredom with the topic, in my experience, some students actively resist the course; they seem to have a mild-to-moderate resentment that it has been foisted upon them. Of course, many psychology undergraduates are earnestly engaged in the project of building for themselves the identity of a "scientist." For these, there may be a feeling that the humanistic character of the History of Psychology course is somehow contrary to those efforts. In addition, History of Psychology may seem like an easy target on which to practice their developing critical "scientific" skills. I try to model for such students that a single mind can be home to an appreciation of both the scientific and humanistic approaches to understanding the world, in all its complexity. Nevertheless, eager initiates can be quite determined that things be a certain way. Once they are satisfied that they properly embody the attitudes of a scientist, perhaps they will relax enough to acknowledge that scientific methods, even if they are somehow the "best" methods in principle, are, in some contexts, not wholly practicable. Additional approaches must be sought out if one is to better understand the domain.

My contention is that both of these responses—boredom and resentment—result from a misunderstanding of the real aims of the History of Psychology course. In this article, I attempt to unpack some of these misapprehensions and to sketch a more adequate view of how the History of Psychology course can serve a valuable role in the psychology undergraduate degree. Along the way, I hope to pass on some of what I have learned in teaching courses over the past 30 years.

Misunderstanding the purpose of History of Psychology may be understandable. It is not like many other courses in the conventional

This article was published Online First July 1, 2021.
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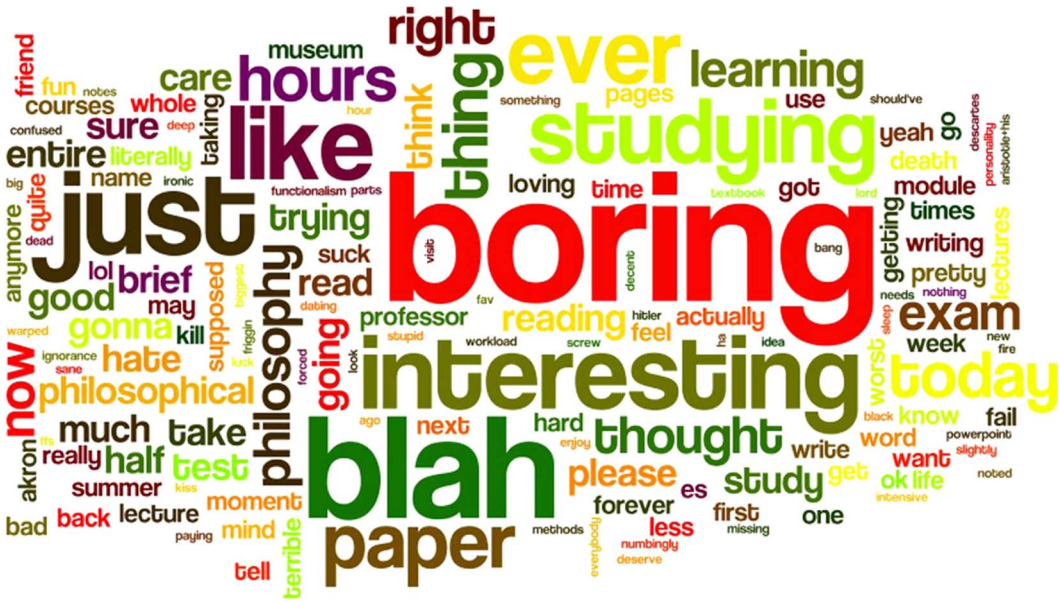
[1] The epigram is from Green (2014) as well.



Note. See the online article for the color version of this figure.

psychology curriculum To begin with, unlike most other psychology courses, it does not aim to reveal "laws" or other generalizations of human thought, feeling, and behavior. Indeed, history, as practiced in the modern academy (as opposed to what is found in some "popular" history), is unremittingly particularistic: it mostly examines past events "in their own right" without much regard for what "lessons" we might draw from them for today. Attractive as the idea of "historical lessons" might be to the person who is not inherently interested in the past, there is good reason for scholarly historians to resist them. First, past events—even those that are superficially similar to affairs unfolding today—occurred in contexts that are quite different from those of today. Social attitudes have changed, technologies have changed, habitual patterns of behavior have changed, and all those differences in the surrounding "field" can powerfully affect how the central event plays out. They change the central event's *meaning*, if you will. For instance, a natural disaster that may have sparked conflict between different ethnic communities in one time and place might, by contrast, prompt mutual assistance among these same communities in another time and place. Thus, similar events provoke different, even opposite, responses in different contexts. Because historical events are singular—not "samples" of some theoretical "population" of events—it is difficult, if not impossible, to generalize from them about the present or the future.

Some readers will know that George Santayana famously quipped that "those who cannot remember the past are condemned to repeat it" (Santayana, 1922, p. 284). However, first, Santayana was a philosopher of the early 20th century, not a historian of the early 21st. Second, being aware of the path that certain events took once upon a time does not quite add up to knowing with any certainty how things will play out on this occasion. In a saying that is often attributed to Mark Twain (though there is little evidence that he ever uttered it): "History doesn't repeat itself. But sometimes it rhymes."

One of the problems with History of Psychology courses is that they too often fail the student's test of "relevance": "Why should I learn all this? How will I 'use' it in the future. How will it improve my career prospects?" First, I must protest the all-too-common assumption that university education is identical with career training. Of course, some of what we learn in university will be relevant to our future careers, but that alone is hardly an adequate measure of the value of all things. Being an employee is but one aspect of being an educated person. Learning about our country's system of governance and how it got to be that way, for instance, is not directly valuable to many people's careers but it certainly makes them better able to meaningfully engage in the issues of the day as *citizens*.

What we can retain from the complaint of "irrelevance" is that, when the student is not engaged with the material, the History of Psychology course can seem like little more than memorizing the names and dates of the dead and forgotten. Or, as one of the tweets in my 2014 collection put it: "Today in the history of psychology … blah blah blah … Ok. Things happened. Whatever." The responsibility for engagement is often placed at the feet of the teacher alone but, in reality, engagement is the joint activity of the instructor and the student (and various other factors). An instructor can be disorganized, dull, and lacking in pedagogical savvy, to be sure, but no matter how sophisticated the instructor's set of teaching skills is, some students simply decline to participate.

It is often proposed that the way to enhance engagement in history courses is to draw connections between the material and the modern issues of concern for today's student. This approach can draw them in but, as we have already seen, it can also be treacherous to draw strong parallels from the past to the present. In any case, there is another way: Engagement comes not just from connecting with matters that are already present in students' lives. It comes from building out students' networks of

knowledge from psychology's past to the broader world in which psychology developed: For example, social, political, economic, and institutional movements. These are the waters in which psychology swam (and still swims). The common complaint about having to memorize names and dates and theories for the History of Psychology course doesn't come from names and dates and theories being inherently boring. (Students easily remember their family's and friends' names and birthdates and interests without complaining that it is boring.) The boredom comes from the names and dates and theories in the History of Psychology course having little *meaning*. To give them meaning, one must integrate them into a broader network of knowledge. The teacher must be able to connect the names and dates and theories with a broader, richer historical context: major events (e.g., economic crashes), important personages (e.g., political leaders), and social movements (e.g., abolition, feminism, prohibition, communism, fascism) the significance of which is not confined to psychology alone.

To do this, the History of Psychology course must not be a forced march of mere names, dates, and theories. It should *narrate* the development of psychology as an academic discipline and a profession within a world. The names, dates, and theories are contained *within* the discipline and the profession, and the discipline and profession are *social institutions*: Groups of people acting in coordinated ways not merely to develop ideas, but also to navigate through and thrive in the complex social world in which they live. As social institutions, the discipline and profession of psychology make continuous contact with many other social institutions: colleges and universities, of course, but also religious denominations, commercial enterprises, political parties, military organizations, labor unions, social clubs. Thus, the History of Psychology course should not just provide a string of past theories and practices. It should provide an account of the development of the discipline and profession of psychology, including the individuals who influenced those developments, and the institutions they founded and sustained: college departments, schools of thought, clinics, scholarly societies and professional associations, conferences, journals, etc. In a sense, it is similar to moving from seeing a chessboard as a collection of piece, each on its own square, to seeing a chess board as a network of relations among the pieces, governed by the moves they are permitted to make.

Social and Political Context Makes History Meaningful and Relevant

This brings us to what is, perhaps, the most critical issue with teaching History of Psychology today: Many students are not academically prepared for it. The background knowledge needed to make the course engaging overlaps little with the expectations of other courses in the conventional psychology curriculum. This is in no way intended to "blame" students for this state of affairs. Like all of us, students are the products of the ways they have been raised by the society in which they live. Once, the general history course was common, even required. This is no longer the case. And if the education system today no longer values historical knowledge like it once did, then we cannot be surprised if most students do not know very much about history.

This is a problem for the History of Psychology course because it is difficult to integrate a specialized topic within a broader network of historical knowledge if the network one possesses at the outset of the course is quite sparse. One needs to know something about the general historical contexts that gave rise to the discipline and profession of psychology in the first place. If students of today don't generally have such knowledge when they enter the History of Psychology course, then we—the instructors—need to give it to them as a part of the course.

Example 1. Wilhelm Wundt in German History

Allow me to present a somewhat lengthy example. Most History of Psychology courses cover the basic facts of Wilhelm Wundt's career: After completing a medical degree in 1856, he worked through the early 1860s in Heidelberg as a physiological assistant to Hermann Helmholtz and as a lecturer in his own right. He was called to a professorship in philosophy at Zurich in 1874, where he completed the textbook that would make his name: *Principles of Physiological Psychology*. He moved to a more prestigious philosophy professorship at Leipzig in 1875, where his experimental psychology laboratory was recognized as an "Institute" by the university in 1879 (the date that is often given for the "founding" of scientific psychology). This is a classic list of "boring" facts. And the reason they seem so is that they are isolated, unconnected with anything beyond themselves. What is the importance of his having been in Heidelberg? Or that he then went to Zurich, and then to Leipzig? What were these cities known for in Wundt's time? Stripped of their historical context, they are just empty names on a page. But, if we know their significance in German history between the 1850s and 1870s, they may tell us something about Wundt and his extraordinary project to found a new branch of science called "experimental psychology"? In short, what would happen to our understanding of experimental psychology's origins if we, first, knew something about Wundt's Germany more broadly and, then, were able to situate the man and his work within that larger framework? The short answer is that psychology might appear less as an inexplicable spontaneous eruption—a manifestation of "genius"—and might start to be seen, more sensibly, as but one manifestation of a broader pattern of mid-19th century European development.

The longer version would go something like this: In the late 1840s, the traditional monarchies of the German-speaking world (and much of the rest of Europe) were threatened by a wave of nationalist and liberal revolutions.[2] In the northern city of Frankfurt, the first popularly elected parliament for all the German states outlined a more democratic constitution for a united Germany and demanded that the various princes submit to it. The princes, of course, refused and eventually defeated the uprising. As a teenager living in the southern state of Baden, Wundt backed the cause of liberal reform, and was disappointed by the failure of the rebellions. One important outcome, though, was the installation of a new Austrian Emperor: Franz Joseph I. The new monarch, naturally, sought to reinforce and extend traditional imperial political structures. Wundt did not live directly under Franz Joseph's rule in the Austrian Empire. Baden was a small independent state with a history

[2] I wish to acknowledge the kind assistance of my colleague, Thomas Teo, in composing this historical sketch. Any remaining errors are, of course, my own responsibility.

of liberalism, but it usually aligned with Austria in international matters. Wundt earned his medical degree in Baden, in the city of Heidelberg, but he then moved to Berlin, located in the large and powerful northern state of Prussia, to study physiology. By the late 1850s, Wundt was back in Heidelberg first assisting Hermann Helmholtz, then setting up a private laboratory in his home and teaching physiology courses.

These were fraught times in German political history. Unifying the splintered German states into a single country that could stand as equals with France and Great Britain was the most pressing question of the day. Austria already led a loose confederation (*Bund*) of independent German states, through which it sought to expand and enhance its power. But Prussia, the largest of the northern states, resisted Austria's efforts. Instead, Prussia sought to establish a more centralized state of its own in the north. In a famous 1862 speech, Prussia's Minister President, Otto von Bismarck, declared that the great matters of the era would be decided not by speeches and parliamentary votes (an allusion to the defeated Frankfurt Parliament and its constitution) but by, as he menacingly put it, "blood and iron." Just 2 years later, he launched a war against Denmark to retain German control of the Duchies of Schleswig and Holstein. Despite the other tensions between them, Austria allied with Prussia against the Danes in this conflict.

Although Wundt's home state of Baden remained aloof from the Danish war, he became deeply involved in the politics of the time. In 1864, Wundt, 31 years old, stood for election and won a seat in the state's second legislative chamber. Wundt's political home at that time, the Progress Party (*Deutsche Fortschrittspartei*), had first formed in Prussia in 1861. It promoted representative democracy and the rule of law against Bismarck's autocratic tendencies. Soon after, Progress Parties began to take root in other German states as well, including Baden.

In 1866, Bismarck led Prussia into war against its great rival, Austria. Deploying new industrial military technologies that had not before been seen on a European battlefield, Prussia scored a quick victory that established Prussia's separation from the old Austrian-led confederation. Bismarck then assembled a new "Northern Confederation" of German states that stretched from the French border clear across to the Russian frontier. Wundt's home of Baden remained aligned with Austria for the moment, but Bismarck's remarkable successes split the Prussian Progress Party in two, and this had a profound impact on the sibling Progress Parties in Baden and elsewhere. Rather than aligning himself with one of the resulting factions, Wundt resigned his legislative seat in 1868, claiming the political tensions of the time had become "unbearable" (cited in Mandler, 2007, p. 52). He then returned to Heidelberg to focus on science.

Bismarck was not done, of course. In 1870, he lured France's inept Emperor Napoléon III (formerly Louis Napoléon), into a new war, and then used the "crisis" to rally the independent states, including the large southern state of Bavaria and Wundt's home state of Baden (but notably not Austria) into a common defense of greater "Germany." Their combined armies brushed aside the French assault, captured the French emperor himself, and laid siege to Paris. In 1871, Bismarck was able to leverage his sensational triumph into broad support for a new "German Empire" under the nominal rule of the King of Prussia, Wilhelm I, though Bismarck himself became "Imperial Chancellor" of the new state.

Soon after the war with France, Wundt left the clamor of the new German Empire for a professorship in Zurich and the comparative political serenity of the Swiss Confederation. The Swiss had, back in the uprisings of 1848, adopted a decentralized and liberal constitution, quite possibly more to Wundt's liking than the new militaristic empire constructed by Bismarck. When Wundt returned to Germany, in 1875, he took a professorship in the city of Leipzig, located in the state of Saxony, which, like Baden, had a history of greater liberalism, which probably suited Wundt's politics better than Prussia. But he was also in the new German Empire, where modern industrial methods were becoming a prominent feature of the economic landscape.

From this vantage point, becomes easy to see that experimental psychology was not an isolated intellectual development. It was, instead, a scientific expression of *both* the technologically modernizing and politically liberalizing welter in which Wundt had lived since his youth. Experimental psychology transformed the mental activity from an ineffable wonder into a "solid" object of laboratory study. Wundt put the mind "under the microscope," so to speak. The astonishing new technologies at the center of Wundt's laboratory—the kymograph, the Hipp chronoscope, the tachistoscope, etc.—implicitly declared that traditional philosophical and theological doctrines about the mind would, henceforth, have to answer to the cold, empirical reports of brass and glass. The point of this historical sketch was to show how integrating the academic and scientific events of Wundt's life into a broader account of the world in which he lived not only produces a more engaging, more memorable historical account, but also helps us to understand more fully what Wundt was attempting to accomplish, and why.

Example 2. The Prehistory of Standardized Testing in Britain

For a second example of how a broader historical vision provides a framework within which we can better comprehend the history of psychology, I turn to 19th-century Britain. The story that is often told of intelligence tests is that they originated in Francis Galton's measurements of the perceptual and psychomotor characteristics of the general public in the Anthropometric Laboratory that he created and directed at the 1884 International Health Exhibition, held in London. American James McKeen Cattell, fresh from his doctoral training under Wundt in Leipzig, studied with Galton in England in 1886. He would adopt Galton's general method to produce the first "mental test" in the late 1880s (Cattell, 1890). As is widely known, Cattell's mental test was supplanted, in the U.S., by (English translations of) Alfred Binet and Theodore Simon's "intelligence test" around 1910. The American versions of these tests, would eventually be deployed at immigration ports such as Ellis Island, NY, to screen out putatively "mentally defective" arrivals. Soon after, related tests would be used to assess draftees during World War I, and the resulting massive database would be used by advocates of eugenics to bolster claims about the "mentally inferiority" of African-Americans and other peoples not of northwestern European ancestry.

This is all sadly true, but it leaves out an important episode in the British testing tradition in which Galton and his disciples played no part (but of which they must have been aware). As early

as 1846—more than 20 years before Galton's landmark book, *Hereditary Genius* (1869)—the British Government began developing an elaborate "standardized" testing procedure for the training and certification of teachers (see Elwick, 2021). The controls implemented were strong: identical tests were given simultaneously at multiple locations around the country to ensure test security. This revolutionary testing program turned out to be highly successful. As early as 1849, up to four thousand "pupil-teachers" were being tested each year. The technique of standardized testing was soon adopted in other arenas. In the mid-1850s, the Society of Arts in Britain started to develop a system of its own, inspired by the Government's teacher tests. In the 1860s, some independent schools began standardized testing as well, including the famous Sandhurst Military Academy.

Tests of this sort were originally created simply to measure the mental *achievements* of students. But psychological technologies of this kind often bring with them an unexpected secondary effect: their results come to be interpreted as reflecting some kind of inner *aptitude* on the part of the people who take it. That is, the interpretation of a test score gradually migrated from the idea that the person who earns a high score has learned their lessons well to the distinct idea that their high score further demonstrates that they have a high level of whatever mental ability is thought to be required to attain such a score. (This was despite the obvious possibility that high-scorers simply had more leisure and resources, allowing them to study more extensively for the exam than their competitors, regardless their prior level of "talent"). This "looping" (Hacking, 1995) of the interpretation of the test result back into a judgment about the mental quality of the person taking the test was precisely how people of higher social status and power were able to justify their positions relative to those of lower status and power, especially immigrants, racialized individuals, and other people of scarce economic means. The later-developed intelligence tests, especially as they were used in the U.S., were an even further extension of this "looping effect" from outer achievement to inner aptitude, from a particular "talent" to a singular, general intelligence. As is well known, racist, misogynist, and anti-immigrant social policies were often justified terms of the victims putatively not possessing the mental abilities required to succeed in a modern industrialized society.

Looking more closely at the British example, though, we can also see how psychological technologies such as standardized testing were "hacked" to undermine the very social hierarchies they are often used to reinforce. In the late 19th century, the increasing tendency of British universities to rely on standardized testing for admissions decisions was employed against the prohibition on women being admitted. In 1863, the prominent writer, editor, and women's education advocate, Emily Davies, led a group of English feminists in what they called an "experiment": they arranged for women to be permitted to write the Cambridge University entrance examinations (see Elwick, 2021). The point of the "experiment" was said to be merely to survey academic areas in which women's education was lacking and should be improved. But Davies and her group had a larger plan in mind. Once the precedent of allowing women to write the exams had been set, women were able to take them in succeeding years as well. Soon, the women test-takers were scoring as well as the men, a fact which was then used by Davies and others to bolster calls for women to be admitted to university on equal terms with men. In 1869, just 6 years after Davies' "experiment" began, Cambridge was persuaded to establish a College for Women, named Girton College in 1872. That same year, Davies was appointed head administrator ("Mistress") of Girton. This represented a revolutionary advance in women's higher education in Britain, and it was made possible by turning of the tools of the established hierarchy—standardized tests—against themselves.[3]

What the Examples Show Us

The point of these two examples—the German and the British—is that without knowing the social, political, and economic contexts in which the discipline of Psychology came into being, and then grew to maturity, it is nearly impossible to correctly understand why it developed as it did. As an added bonus, embedding psychology within this wider historical context helps students to build a broader knowledge network into which they can then integrate the events and personages of psychology's past, making them more meaningful, more interesting, and more relevant.

One should note that this approach contrasts strongly with the older tradition of scientists writing about their fields' pasts in a kind of commemorative or even celebratory mode. The aim of this older tradition was primarily to glorify what had gone before; a list of "great" scientists, "great" discoveries, "great" theories, and "great" institutions to be honored. Although this style remains common in "popular history" even today, academic historians have not regarded that approach as *scholarly* for decades now. Instead, the aim of historical scholars has been to situate historical events deeply within their socio-political, economic, and other contexts to better understand what brought them into being and sustained them over time.

The Socio-Political Is Not the Only Form of Context: Using Institutional Context

Of course, context need not be as broad and dramatic as a clash of empires or the overturning of centuries-old cultural conventions. It can, by contrast, be quite narrowly related to the state of particular academic institutions. For instance, it is often taught that Wilhelm Wundt's form of experimental psychology was resolutely "pure" or "basic," and that he was firmly opposed to applied psychology of any kind. Although most of Wundt's American students, upon returning to professorships at home, set up laboratories on the Wundtian model, many of them also developed and practiced applied forms of psychology, forms that Wundt would never have approved of. Indeed, an argument could be made that American psychologists earned more renown (not to mention more money) from their therapies, their industrial consulting, and their test-construction than they ever did from the results of their laboratory research. Applied psychology was so successful that one of its greatest opponents at the end of the 19th century, Hugo Münsterberg (e.g., Münsterberg, 1898a, 1898b), turned 180° to become one of its greatest advocates in the first decades of the 20th century (e.g., Münsterberg, 1908, 1909a, 1909b, 1910, 1913, 1915).

Now, many intellectualist arguments were put forward by both advocates and opponents of the rapid rise of applied psychology in the U.S. Underlying this rhetoric, though, were the contrasting policies with respect to higher education of the governments of

[3] Davies' victory was not complete, however. Although women could take a wide array of courses and even earn degrees, Girton was not regarded as a full Cambridge college—wholly comparable with the men's colleges—until 1948.

Germany and the U.S. When Wundt has trying to have his Leipzig laboratory officially recognized as a "Research Institute," there was an important status distinction in Germany between universities and technical schools. Wundt wanted to ensure that his new experimental psychology would be approved for support in the higher-status universities, not in the lower-status technical schools. To this end, he took great pains to make the topic appear as foundational as possible: The new discipline would pursue "basic" science about the nature of the mind because any hint of its focus being on applications to, say, education, industry, or mental illness, might tip the all-powerful Ministry of Education toward relegating psychology to the technical schools instead. Indeed, early on, psychology was framed as a revolutionary new approach to doing *philosophy*, then still regarded by many as the "Queen of the Sciences." To this end, Wundt built his new discipline around the most arcane of topics: the nature and role of "apperception" in the overarching psychological process, from sensation to motor action (see, e.g., Robinson, 2001). This is not to cast doubt on the sincerity of Wundt's interest in apperception, but he also had a strong professional motivation, *within in the German educational context of the era*, to ensure that the primary goal of his experimental psychology was widely seen as being the elucidation of apperception.[4]

By contrast, the mission of the American educational context was almost the reverse. In the last third of the 19th-century, The U.S. was intent on building a sprawling system of post-secondary institutions. These new schools were where the vast majority of young scientists obtained their first professorships. Many of these schools were product of the Morrill Act of 1862, which provided for the federal government granting land to individual states for the purpose of funding public colleges. A large number of America's public colleges and universities were originally founded in this way. There was a "catch," however, in the language of the Morrill Act, which was included to make the bill more acceptable to most politicians of the day: these schools had to adopt the mission of advancing "practical knowledge." This is why so many of those schools bear, to this day, suffixes such as "Agricultural and Mechanical" (A&M) and "Agricultural and Technical" (A&T). In addition, you will also find that a number of public colleges originally carried the appellation "Normal School," indicating that their original mission was teacher training. This was the kind of practical knowledge that the new schools were expected to pursue (see, e.g., Green, 2019, chap. 7).

So, the situation for young American psychologists looking for academic jobs was almost exactly the opposite of what Wundt had faced in Germany a decade or two earlier. In order to appeal to the new college presidents (and their political masters in the state legislatures), they had to make their psychology—a strange new discipline that could be a hard sell to traditionalists—seem like a discipline that spoke to the practical imperative to which the schools were beholden. So, they set up their Wundt-inspired labs to establish their scientific *bona fides*, but then often worked closely with the local school district on educational issues. Or, they consulted for local businesses on how to select well-adapted employees and train them to work efficiently. Or, they created mental tests of various kinds—not just intelligence tests but also achievement tests and aptitude tests and vocational interest tests, and, eventually, personality tests. Many psychologists also began working with people who were beset by personal problems of various kinds that did not rise to the level of requiring confinement in an asylum, but could nevertheless cause a great deal of suffering for themselves and their families. These practical activities not only satisfied psychologists' institutional superiors that they were advancing "practical" knowledge, but it also provided them with alternative streams of income. The combination must have been irresistible.

The point here is that, without knowledge of the opposed educational priorities of the German and the U.S. governments at the time, one would be left taking at face value the intellectualist rationalizations put forward by the main contenders, as though these were the primary reasons upon which each side's position was founded. Instead, a good part of what was happening was that members of each side were pressed to provide rational-*seeming* justifications for operating as they did in a professional landscape that had not been of their own making. After presenting these events in a history of class, it might be worth then launching into a discussion of what the imperatives of the modern North American college and university are, and to what degree those imperatives are the products of intellectual, political, or social debates. Who has the power to set pedagogical agendas in college, and why have they done it as they have?

Choosing a Textbook, and Going Beyond It

The textbook is, of course, a critical element of most History of Psychology courses. There are many factors that go into the selection of a textbook: the chronological and geographical scope of the course, the level of academic skill possessed by the students, the textbook's compatibility with other pedagogical resources used, etc. Another important consideration is who the author of the textbook is. Some History of Psychology textbooks are written by working historians of psychology. These people are typically well versed in the kinds of contextual issues I have discussed above. They are experts in the topic who spend the bulk of their time thinking about such issues. By contrast, many textbooks—both in history and other topics—are written by professional textbook writers who, for all their skill at writing vigorous and engaging prose, may not have a truly intimate knowledge of the subject. They may be—or may have been trained as—psychologists of one kind or another, but this alone does not guarantee their expertise in the discipline's history. Of course, the author's being a working historian of psychology is no guarantee that the book is well-suited to any particular course. It does make it somewhat more likely that they will be more agile in evading the many popular, attractive but decidedly false "myths" of the field (e.g., that J. B. Watson was fired for conducting sex research, or that B.F. Skinner's daughter, Deborah, was raised in a Skinner Box). Also, working historians are more likely to be up-to-date on the literature, and they are likely to be better acquainted with the kinds of broad contextual factors discussed above.

Published Primary Sources

All that said, as good as some textbooks are, none is ideal. Each one has its own point of view, even if it is no more complex than to be the most popular textbook on the market by avoiding offending the sensibilities of any sizeable market sector. The authors of textbooks often have perspectives that are grounded in deep

[4] Of course, Wundt spent a good deal of his career writing the 10 volumes of the non-experimental *Völkerpsychologie* (see, e.g., Klautke, 2013) but it was much easier to justify in traditional philosophical terms than experimental psychology.

experience in the topic, and these can be valuable in guiding novices to the field. But such perspectives, sophisticated as they might be, should not be confused with the source materials that gave rise to them. Thus, it is often useful to include in the History of Psychology course some primary source readings alongside the textbook, so that students don't become "captives" of the textbook-writer's perspective. Primary sources might be influential publications that were written by prominent figures who are covered in the textbook: The chapters in William James' (1890) *Principles of Psychology* on "habit" or "consciousness" are legendary. [The streamlined versions of these chapters in *Psychology: The Briefer Course* (James, 1892) may be easier to students to digest]. John Dewey's (1896) highly influential article on the "reflex arc"—essentially the founding document of the school of Functionalism—is a little difficult but can be highly rewarding if students are guided through it by a wise instructor. Nevers and Calkins' (1895) reply to Joseph Jastrow (1891) on (putative) sex differences in cognition is a useful introduction to how women were viewed in the science of the day. E. B. Titichener's (1912) "The Schema of Introspection" provides a clear account of his views on that much-maligned method. John B. Watson's (1913) "Psychology as the Behaviorist Views It"—sometime known as the "behaviorist manifesto"—is well known and widely used. B. F. Skinner's (Skinner, 1950) "Are Theories of the Learning Necessary?" is an important and underappreciated (anti-) theoretical statement. Clark and Clark (1940) "Skin color as a factor in racial identification of negro preschool children" is but one article in the Clarks' influential series of studies on the impact of racial prejudice on children's social development. These studies were entered into evidence during the Supreme Court hearings on the 1954 case known as *Brown v. Board* that ended legal racial segregation in American schools.

Unpublished Primary Sources

Another meaning of "primary source" refers not to published documents but, rather, to unpublished ones of the sort that we typically find only in archives: letters, diaries, drafts, internal institutional reports, and the like. Such documents can make intriguing reading for students because they can pull back the curtain on the "official history" and show what was going on behind the scenes. For instance, William James wrote privately about his own *Principles of Psychology* (to his publisher, Henry Holt) that it was "a loathsome, distended, tumefied, bloated, dropsical mass, testifying to nothing but two facts: 1st, that there is no such thing as a *science* of psychology, and 2nd, that W. J. is an incapable." This sentiment puts the book into a perspective that one would not get from the glowing reviews and the massive historical influence that it would come to have.

One interesting letter that I have sometimes used in a class assignment was written in 1903 by James McKeen Cattell to his Columbia University colleague, philosopher F. J. E. Woodbridge. In the letter, Cattell discussed a proposal the two of them had to launch a new journal. The interesting twist is that, just weeks before, while in the process of selling his stake in *Psychological Review* to James Mark Baldwin, Cattell had promised Baldwin that he would not launch a new journal to compete with the *Review* (for the full story, see Sokal, 1997). Cattell does not mention any title for the proposed journal in the letter to Woodbridge; he just refers to it by the German-English amalgam *Centralblatt*.[5] The exercise for my students (after they have been familiarized with Cattell's career) is to unravel the mystery of the *Centralblatt*, and to figure out why he is writing about it to Woodbridge, of all people. The journal in question would appear in the following year as the *Journal of Philosophy, Psychology and Scientific Methods* with Woodbridge as the editor and Cattell as the owner. Although not well known to psychologists today, this journal remains one of the premier journals in philosophy (under the abridged title, *Journal of Philosophy*).

Sometimes, archival documents are eventually published. The letters of Charles Darwin and a few other luminaries of science are even available online. Psychology is not quite so lucky, though letters and diaries are sometimes published as collections in print form. For instance, a huge number of William James' letters have been published in a variety of collections. There is also a published collection of fascinating letters between Titchener and the towering Swiss-American psychiatrist Adolf Meyer, debating the nature and scope of psychology in the immediate aftermath of having seen Sigmund Freud's 1909 lectures at Clark University (Leys & Evans, 1990). [The Clark lectures were published as *The Origin and Development of Psychoanalysis* (Freud, 1910, but also published in book form in several different editions), and also make a good reading assignment for students].

More often, however, letters and diaries remain unpublished, so researchers must contact, and often personally visit, the archive that physically holds the documents of interest. Often these are deposited with the university where the individual in question was employed. In addition, a great number of archival collections for psychologists are housed at the Cummings Center for the History of Psychology, at the University of Akron. Of course, instructors typically do not have the resources to take their classes on such trips, but such extravagance is not necessary for a field trip to the archives to be a part of the History of Psychology course. Nearly every college and university has an archival collection related to the history of the school itself. It can be interesting for students to discover who founded the psychology department at their own school, what their research specialty was, when the Psychology Department separated itself from the Philosophy Department (and why), where the Department founders earned their degrees, and who their supervisors were.

Summary and Discussion

So, what are the main take-home messages of this article about the teaching of History of Psychology courses?

1. Embed the basic intellectual material of the History of Psychology course in a rich contextual field. Context is the key to making "meaningless" and "irrelevant" lists of names and dates into lush developmental narratives that students will find to be more meaningful and relevant. Build up and out from students' general knowledge network; don't leave the history of psychology material isolated. Connect it to broader contexts in as many ways as possible.

2. Context is not a single thing. There are a variety of contexts by which one might elucidate the core material. Social and political contexts are important but they aren't the only ones. Context can be, for example, institutional: What was the university's "mission"? "Polishing" the local gentry? Graduate education? Drawing a world-class

[5] *Zentralblatt* is the German term for a primary or "central" journal.

faculty? Advancing a particular religious denomination? Advancing women or racialized minorities? How did psychology fit into the school's "mission"? What were relations like between faculty and administration? Who was the President? Who sat on the school's Board of Governors/Trustees/etc.? If public, how was its relationship to the government to which it answered? Was funding a contentious issue? If private, was there a single major private donor whose views held sway? Answers to these kinds of questions often illuminate events that are not explicable on intellectual grounds alone (even when an "official" intellectualized rationale is offered).

3. Context can be intellectual as well: For example, what was the response of philosophers, physiologists, or physicians (in the school, in the nearby academic community, in the nation as a whole) to the appearance of psychology, either experimental or applied? Were the psychologists you are teaching about in the "mainstream" psychological community of the time and place, or were they "outsiders" who were trying to "break in" (e.g., psychical researchers)? Were there larger intellectual trends at the time to which psychology responded (e.g., war, immigration).

4. Textbooks come with many aims and vary in quality. Finding a textbook that your students will appreciate is important, of course, but so is its material being rich enough that it picks up the dynamics of historical events. Salacious details about individual psychologist's lives can be entertaining, but they are unlikely to be historically significant. The main movers are often either larger social trends, or ideas so influential that they exert influence well beyond the boundaries of the discipline in which they originated (e.g., experimental physiology, Darwin's evolution by natural selection). Textbooks written by working historians of psychology are more likely to dwell on these crucial matters more thoughtfully.

5. Because all textbooks have a perspective, it can be useful to have students read primary sources as well, both published and unpublished. Unpublished archival documents is where they may discover some of the hidden gears of history at work, rather than just the carefully constructed self-presentations that are given in published accounts.

I started this article by noting that the History of Psychology course can pose unique teaching challenges. What I have presented here is my own perspective after having taught History of Psychology courses over the past 30 years. Other people with similar levels of experience may well have different perspectives. What I have suggested here admittedly will not make the preparation of the History of Psychology course easier for the instructor. However, it does promise to produce a better course; one that generates more satisfaction among the students and, it may be hoped, among instructors as well.

Résumé

Enseigner l'histoire de la psychologie peut être un défi, principalement parce que de nombreux étudiants trouvent la matière ennuyeuse ou « non pertinente ». La façon de rendre le cours plus intéressant et « pertinent » est de relier son contenu à une série de personnages et d'événements historiques qui font déjà partie des réseaux de connaissances des étudiants. Cela pose toutefois un problème, car les étudiants d'aujourd'hui connaissent souvent peu d'histoire générale par rapport aux étudiants d'autrefois. Il incombe donc à l'enseignant d'histoire de la psychologie de fournir cette perspective plus large. Des exemples sont fournis, notamment la carrière de Wilhelm Wundt dans le contexte de l'unification allemande et l'utilisation britannique de tests standardisés dans le but de permettre aux femmes d'accéder à l'enseignement supérieur. Les questions du choix d'un manuel scolaire et de l'inclusion de documents de source primaire (publiés ou non) sont également abordées.

Mots-clés : enseignement, histoire, psychologie, contexte

References

Cattell, J. M. (1890). Mental tests and measurements. *Mind*, *15*(59), 373–381. https://doi.org/10.1093/mind/os-XV.59.373

Clark, K. B., & Clark, M. K. (1940). Skin color as a factor in racial identifcation of negro preschool children. *The Journal of Social Psychology*, *11*, 159–169. https://doi.org/10.1080/00224545.1940.9918741

Dewey, J. (1896). The reflex arc concept in psychology. *Psychological Review*, *3*, 357–370. https://doi.org/10.1037/h0070405

Elwick, J. (2021). *Making a grade: Victorian examinations and the rise of standardized testing*. University of Toronto Press.

Freud, S. (1910). The origin and development of psychoanalysis. *American Journal of Psychology*, *21*(2), 181–218.

Galton, F. (1869). *Hereditary genius*. Macmillan. https://doi.org/10.1037/13474-000

Green, C. D. (2014, June). *Rockin' Robin don't like history of psych: 101 days on Twitter* [Conference session]. Cheiron: The International Society for the History of Behavioral and Social Sciences, Hood College, Frederick, MD, United States.

Green, C. D. (2019). *Psychology and its cities: A new history of early American psychology*. Routledge.

Hacking, I. (1995). The looping effects of human kinds. In D. Sperber, D. Premack, & A. J. Premack (Eds.), *Causal cognition: A multidisciplinary debate* (pp. 351–383). Oxford University Press.

James, W. (1890). *The principles of psychology* (Vol. 1–2). Henry Holt.

James, W. (1892). *Psychology: The briefer course*. Henry Holt. https://doi.org/10.1037/11060-000

Jastrow, J. (1891). A study of mental statistics. *Naval Review*, *5*, 559–568.

Klautke, E. (2013). *The mind of the nation: Völkerpsychologie in Germany, 1851–1955*. Berghan Books.

Leys, R., & Evans, R. B. (Eds.). (1990). *Defining American psychology: The correspondence between Adolf Meyer and Edward Bradford Titchener*. Johns Hopkins University Press.

Mandler, G. (2007). *A history of modern experimental psychology: From James and Wundt to cognitive science*. MIT Press.

Münsterberg, H. (1898a). Psychology and education. *Educational Review*, *16*, 105–132.

Münsterberg, H. (1898b). The danger from experimental psychology. *Atlantic Monthly*, *81*, 159–166.

Münsterberg, H. (1908). *On the witness stand: Essays on psychology and crime*. Doubleday Page.

Münsterberg, H. (1909a). *Psychotherapy*. Moffat and Yard. https://doi.org/10.1037/10543-000

Münsterberg, H. (1909b). Psychology and the market. *McClure's*, *34*, 87–93.

Münsterberg, H. (1910). Finding life's work. *McClure's*, *34*, 398–403.

Münsterberg, H. (1913). *Psychology and industrial efficiency*. Houghton Mifflin. https://doi.org/10.1037/10855-000

Münsterberg, H. (1915). *Business psychology*. La Salle Extension University. https://doi.org/10.1037/13821-000

Nevers, C. C., & Calkins, M. W. (1895). Dr. Jastrow on community of ideas of men and women. *Psychological Review*, *2*, 363–367. https://doi.org/10.1037/h0074975

Robinson, D. K. (2001). Reaction time experiments in Wundt's institute and beyond. In R. W. Rieber & D. K. Robinson (Eds.), *Wilhelm Wundt in history: The making of a scientific psychology* (pp. 161–197). Kluwer. https://doi.org/10.1007/978-1-4615-0665-2_6

Santayana, G. (1922). *Reason in common sense* (2nd ed.). Scribner's.

Skinner, B. F. (1950). Are theories of learning necessary? *Psychological Review*, *57*, 193–216. https://doi.org/10.1037/h0054367

Sokal, M. M. (1997). Baldwin, Cattell and the psychological review: A collaboration and its discontents. *History of the Human Sciences*, *10*(1), 57–89. https://doi.org/10.1177/095269519701000104

Titchener, E. B. (1912). The schema of introspection. *The American Journal of Psychology*, *23*, 485–508. https://doi.org/10.2307/1413058

Watson, J. B. (1913). Psychology and the behaviorist views it. *Psychological Review*, *20*, 158–177. https://doi.org/10.1037/h0074428

Received June 5, 2020
Revision received March 30, 2021
Accepted March 31, 2021 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 409–419
https://doi.org/10.1037/cap0000309

A Comprehensive, Iterative, and Integrated Model for Developing Psychology Workforce Literacy

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One important issue we are facing in higher education is the role colleges and universities play in preparing students to enter the workforce. Although the purpose of higher education is more than preparing students to enter the workforce, students focus on the role the major plays in employability. Psychology workforce literacy is the ability to articulate the ways in which the knowledge and skills acquired through the psychology major are applicable to diverse occupational domains. Making psychology workforce literacy a priority requires a shift in the way we think about undergraduate education in psychology and the role instructors play in career mentoring. This article describes a comprehensive, iterative, and integrated model for developing workforce literacy and addresses the challenges and rewards associated with incorporating this model into the undergraduate psychology curriculum.

Public Significance Statement
Many students and instructors struggle to articulate the ways in which psychology knowledge and skills translate into diverse career paths. To change this, a comprehensive model to develop psychology workforce literacy is needed. This model is iterative and integrates new knowledge and skills as students progress through the curriculum.

Keywords: career preparation, workforce literacy, career exploration, professional development

One important issue we are facing in higher education is the role colleges and universities play in preparing students to enter the workforce. Educators, students, and employers seem to think differently about this topic. For educators, higher education provides the knowledge and skills needed for a variety of outcomes including lifelong learning, social impact, research and innovation, and economic gain (Pasquerella, 2019; Universities Canada, n.d.). Students, parents, and the general public tend to focus narrowly on the employment aspect of economic gain, with attention to a financial return on investment, the direct connection between the university major and work opportunities, and marketability of the major (Association of American Colleges & Universities[AAC&U], 2020; Markos, 2021; Norton & Martini, 2017; Vespia et al., 2018). Whereas some liberal arts educators might question the role instructors play, and some students are skeptical of the ability of a liberal arts major to prepare them for employment, employers across occupational domains strongly value the broad knowledge and transferable skills developed through liberal arts majors (Finley, 2021).

The expectation that one's job title should incorporate the name of the major represents what I refer to as the fallacy of the -ists, the -ians, and the -ers (Spencer, 2017). The fallacy is that psychology majors must become psychologists, history majors must become historians, and philosophy majors must become philosophers, or they will have wasted 4 years of their lives and the money spent on the degree. This fallacy sets the stage for unrealistic expectations and potential dissatisfaction with the investment made in earning a liberal arts degree. This fallacy also results in some alumni apologizing to former professors for not "using" their undergraduate degrees (Halonen, 2013). Instructors need a strategy to address this fallacy directly and explicitly.

The Role of Career Preparation Within the Psychology Major

McGovern et al. (2010) argue that, upon graduation with a bachelor's degree in psychology, majors should be able to demonstrate *psychological literacy*, the ability to use the knowledge and skills acquired through psychology coursework to solve real-world problems. If we take that concept one step further, *psychology workforce literacy* is the ability to articulate the application of psychology knowledge and skills to diverse occupational domains (e.g., education, science, physical and mental health, human services, business, design). The knowledge and skills associated with psychology workforce literacy are the same knowledge and skills needed for lifelong learning, social impact, research, and innovation. For example, critical thinking skills needed to identify and succeed in a career path are the same skills needed to pursue new knowledge in the future, identify ways to improve a community, ask and answer research questions, and engage in innovation.

Unfortunately, many students and instructors are not psychology workforce literate. It is not surprising that students have

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misperceptions regarding the value of psychology knowledge and skills (Vespia et al., 2018). At one extreme, psychology majors are told by peers, family, friends, and even some instructors that they cannot do anything with a bachelor's degree in psychology. At the opposite extreme is the overly simplistic message that the knowledge and skills developed through the psychology major can be applied to any job (Halonen & Dunn, 2018).

Although psychology majors develop the knowledge and skills that qualify them for a variety of career options that do not require specialized training, being so qualified is described by Landrum (2018) as both a blessing and a curse. Students have difficulty naming a career they are prepared to pursue and overestimate the amount of education needed for a career (Strapp et al., 2018). Additionally, new graduates rate the connection between their education and preparation for their first jobs as low (Borden & Rajecki, 2000). Without a clear understanding and ability to articulate the knowledge and skills developed through the major, psychology baccalaureates might choose to pursue graduate education because they believe the undergraduate degree does not provide sufficient knowledge and skills to pursue a meaningful career, choose to apply for low-paying bachelor's-level jobs that most closely align with the limited perception of psychology as a mental health profession, or not apply for positions even though they are qualified (Strapp et al., 2018).

Attitudes about career preparation within the psychology curriculum have evolved over time. For a detailed historical overview, see Appleby (2018). In the 1950s and 1960s, knowledge was emphasized over skills and teaching job skills to undergraduates was considered *un*economical. Fast forward to the 2010s when skills and professional development were identified as equally important to psychology knowledge. Although there is still concern by some that too much attention to career preparation in the classroom could reduce time for what Siegel (2021) refers to as "idea play," Landrum (2018) argues there is an urgency for meeting psychology student's needs for accurate and complete career advice due to the growth of the major (a 10-fold growth over the past 65 years), the shift to accountability and assessment in higher education to assure the value of the bachelor's degree, and uncertainty about the ability of higher education to prepare students for the workforce.

The American Psychological Association (APA) Guidelines for the Undergraduate Psychology Major (Guidelines 2.0; American Psychological Association [APA], 2013) highlights the importance of career preparation by including professional development as one of the five goals for the major. The indicators for this goal include the ability to apply psychology content and skills to career goals, exhibit self-efficacy and self-regulation, refine project-management skills, enhance teamwork capacity, and develop meaningful professional direction for life after graduation. As discussed in detail later, a knowledge base in psychology (Goal 1) provides psychology majors with an edge when competing for jobs against other liberal arts majors; and scientific inquiry and critical thinking (Goal 2), ethical and social responsibility in a diverse world (Goal 3), and communication (Goal 4), align with skills valued by employers (Business Council of Canada & Aon Hewitt, 2016; Finley, 2021). Thus, collectively, the five goals for psychology majors include outcomes that prepare students for employment.

Predictors of Purpose in Work

The goal for our students should be more than to simply get a job; the goal should be for students to identify work that best fits their unique interests and skills and provides a sense of purpose. Gallup and Bates College (2019) report that although 80% of university graduates say gaining a sense of purpose from their work is very or extremely important, fewer than 50% report experiencing high levels of purpose. Additionally, and importantly, they found that purpose in work is associated with overall well-being. Four university experiences are significantly related to high levels of purpose in work (Gallup & Bates College, 2019). They include:

- having an internship or job
- having someone to encourage their goals and dreams
- being given realistic employment expectations
- participating in a course or program that focuses on purpose in work

Within psychology, efforts to incorporate career preparation have increased over the past 20 years and include the four predictors of purpose listed above. Many psychology departments offer course credit for internships with the majority assigning letters grades based on a combination of reflection papers, work diaries, and meetings with an instructor (Bailey et al., 2017). There are a variety of ways individual departments connect students with people to encourage their goals and dreams such as assigning students to faculty mentors who then connect students with alumni (Lawson, 2018; Schwartz et al., 2018) and career center counselors (Appleby, 2018; Schwartz et al., 2018). Extensive lists of career options for psychology majors are available (e.g., APA, 2013; Appleby, 2016; Norris, 2019) as are videos describing specific careers (see www.CareerOneStop.org; www.drkit.org/career-videos/) and podcast interviews with individuals working in diverse careers (e.g., Brittany Avila's Career Journey Podcast and Maya Metser's Psych Mic podcast). Many departments now include career preparation content in introduction to the psychology major courses (Atchley et al., 2012; Roscoe & McMahan, 2014), careers courses (Ciarocco, 2018; Peterson et al., 2014; Spencer, 2019; Thomas & McDaniel, 2004), and advanced psychology content courses and capstone courses (Halonen & Dunn, 2018; Lackner & Martini, 2017).

Challenges Associated With Providing Career Preparation Experiences

There are several challenges associated with providing and/or requiring each of the experiences Gallup and Bates College (2019) identified above as important predictors of purpose in work. The challenges associated with experiential learning include time and/or financial constraints that might limit students' options for employment opportunities compared to unpaid experiences (Gallup & Bates College, 2019), variations in students' readiness to take initiative and responsibility outside of the classroom, and resource constraints might make it difficult for a department to provide all students with support in finding quality experiences and connecting those experiences to coursework and career plans.

Providing career preparation "champions" of encouragement and support, realistic employment expectations, and courses that focus

on purpose in work share similar challenges. First, the number of psychology majors within a department and the faculty-to-student ratio in many departments can make it difficult to provide sufficient time for faculty to have meaningful and regular appointments with individual students and to make career-focused courses available to all students. Second, most instructors are not trained to provide career counseling and may not feel qualified to teach career content in stand-alone careers courses or within their content courses (Ciarocco, 2018; Folsom & Reardon, 2003; Halonen & Dunn, 2018; Schwartz et al., 2018; Vespia et al., 2018), and many psychology instructors believe that psychology baccalaureates cannot get jobs without going onto to graduate school (Halonen & Dunn, 2018). Third, students vary in readiness for career preparation and preferences for how career support is provided. For example, some students respond well to a developmental approach that supports career decision-making and other students want direct and specific career advice (Vespia et al., 2018).

There are several challenges specific to the design and implementation of careers courses and content courses that include career preparation. Careers courses vary in many ways, including whether they are focused on self-assessment and career planning or on knowledge about the labor market, employers, and employment; whether they are taught by career counselors or department faculty; if and how much credit is attached; and whether they are elective or required, whether they stand alone or are integrated into career services (Ciarocco, 2018; Folsom & Reardon, 2003; Pfund et al., 2021). As already discussed, students vary in readiness to explore career options. Thus, there is no one good place to put a single stand-alone careers course.

A Comprehensive Psychology Workforce Literacy Model

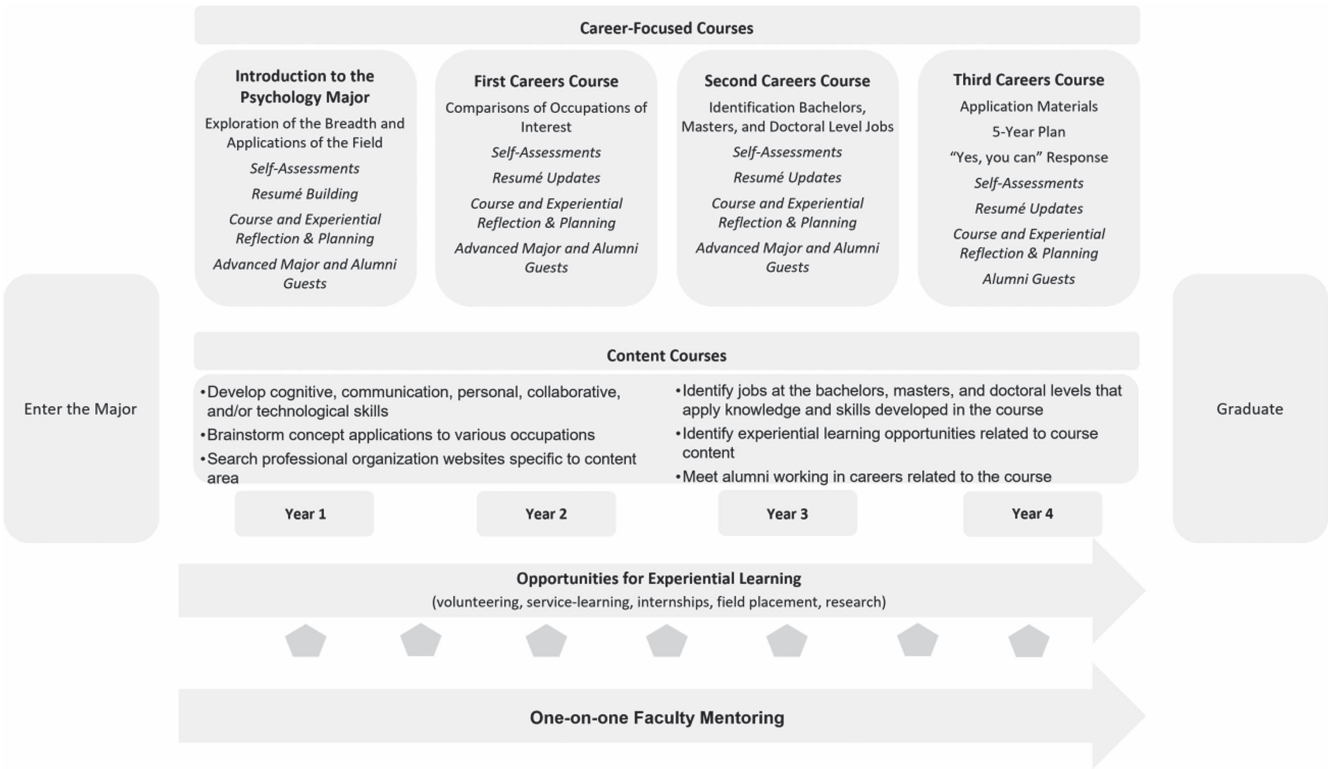
How can we effectively and efficiently provide students with the experiences that will lead to purpose in work given the challenges outlined above? I propose a comprehensive psychology workforce literacy model that is iterative and integrated (see Figure 1). At first read, this model might sound idealistic rather than realistic; however, it is designed assuming most instructors are not trained to provide career counseling and distributes the responsibility across a department rather than placing the onus on one or two career experts. Additionally, this model is designed to meet the needs of diverse students—diverse in terms of readiness for career preparation, social influences on career decision-making, and intentions to enter the workforce directly or pursue graduate education.

Why "Comprehensive"?

This model is described as "comprehensive" because it incorporates career preparation instruction and mentoring throughout the curriculum and includes the four predictors of success identified in the

Figure 1

A Comprehensive, Iterative, and Integrated Model for Developing Psychology Workforce Literacy



Note. Italics represent iterative components. Given graduate school application deadlines, the third careers course is best offered in the fall semester. Activities and assignments for content courses are examples. Attempting to incorporate all listed activities in a single course is not recommended.

Gallup and Bates College (2019) survey (having an internship/job, having an encouraging mentor, identifying realistic opportunities, and participating in courses that focus on purpose in work). Content courses, careers courses, experiential learning, and one-on-one faculty interactions are woven together to ensure that, by graduation, each student can:

- articulate the knowledge and skills acquired through the psychology major
- articulate the breadth of topics within psychology and the breadth of applications of psychology in both psychology and nonpsychology work domains
- identify and describe psychology concepts related to the skills valued by employers and graduate programs
- apply skills valued by employers to the process of identifying and pursuing a career of best fit
- provide evidence of the demonstration of skills valued by employers and graduate schools

Although framed differently, these outcomes are consistent with the Professional Development goal (Goal 5) from Guidelines 2.0 (APA, 2013).

Whereas the typical undergraduate curriculum is designed around a collection of discrete courses (Bass, 2012), this model provides several threads and opportunities for reflection needed to connect the knowledge and skills developed through coursework with cocurricular and experiential opportunities and specific career paths. This model reflects the Systems Theory Framework proposed by Patton and McMahon (2015) in that it addresses the personal attributes of the student as the career decision maker, sources of influence (e.g., family, peers, public opinion), and context (e.g., geographical location, available employment opportunities). Also in accord with the Systems Theory Framework is the emphasis on the dynamic interactive process of career exploration and professional development. This model resembles Bedford's FIRST framework for career exploration and professional development (described by Kidd, 2006), which includes Focus (narrowing the options), Information (being knowledgeable about options), Realism (being realistic in one's abilities and the job market), Scope (being knowledgeable about the range of options), and Tactics (creating a plan to achieve career goals).

The comprehensive model proposed here includes all aspects of career preparation: career exploration and professional development, planning and reflection, and the accumulation of experiences, examples, and anecdotes that can be used to effectively communicate the student's fit with employers and graduate programs through the resumé, cover letters, personal statements, and interviews. Every course provides an opportunity for career exploration and professional development. From introductory psychology to content and capstone courses, students explore the breadth and applications of psychology and connect course content to diverse occupational domains. Introduction to the psychology major and careers courses provide the thread to connect courses, experiences, and career goals. Faculty mentors, academic advisors, and career counselors provide the one-on-one conversations, encouragement, and reality checks to support career preparation.

Why "Iterative" and "Integrated"?

This psychology workforce literacy model addresses the fact that (a) students vary in readiness to engage in career exploration and professional development and (b) students' interests evolve as they take courses and participate in experiences that expose them to new concepts and ideas. The model is "iterative" and "integrated" in that the processes of self-assessment, career exploration, skill development, reflection, planning, and revising are repeated across the curriculum and integrated into coursework, experiential learning, and one-on-one faculty interactions. Additionally, the iterative feature addresses the fact that resumés, cover letters, and portfolios are dynamic rather than one-and-done reports of experiences and achievements, and the integrated feature provides opportunities for students to practice articulating their knowledge and skills within content courses.

The "iterative" aspect of this model is similar to the dynamic aspect Patton and McMahon (2015) refer to as "reciprocal interaction" or "recursiveness." Although similar in core content, the iterative and integrated features make this model very different from the linear approaches to career preparation. The American Psychological Association (APA, 2018) provides one linear approach as four milestones: know the skills valued by employers, know what you can do with your degree, gain diverse applied experiences, market yourself. Strapp et al. (2018) suggest another linear approach that follows an academic progression. Specifically, they suggest self-assessment in the first year, career exploration in the second year, gaining experience in the third year, and implementing a plan to apply for jobs in the fourth year.

Model Components

The following is a description of the components of this model, from the microlevel of individual courses, experiences, and advising to the macro level of coordination. The description of the model is not intended to be prescriptive; rather, the description provides a framework with examples of ways in which a department might provide each component.

Career-Focused Courses or Modules

Participation in a careers course is positively associated with graduation rates, development of vocational identity, and career decision-making (Folsom & Reardon, 2003), and courses that focus on work predict the experience of purpose in work (Gallup & Bates College, 2019). Thus, one of the most important elements of this model is the inclusion of a series of courses or modules that provide the thread that connects content courses and experiential learning.

Career-focused courses have existed since the early 1920s (Folsom & Reardon, 2003). In 2017–2018, 39% of baccalaureate programs and 12% of associate programs offered a stand-alone, credit-bearing career-focused psychology course (Pfund et al., 2021); however, these courses vary in content, structure, and outcomes (see Ciarocco, 2018, for a review of career courses). Golding et al. (2018) argue that career exploration should start early.

The single, all-inclusive course approach cannot sufficiently meet the needs of all students in one semester (Schwartz et al., 2018; Spencer, 2019). Including multiple careers courses across the curriculum does not change the fact that students vary in readiness

for career preparation, but it does ensure that all students are engaging in self-assessment, exploring career options, reflecting on professional development, and engaging in academic and experiential planning throughout the curriculum. Including multiple careers courses across the curriculum also better aligns with the discovery of new interests as students discover new concepts and get excited about new topics (Schwartz et al., 2018).

There are a variety of ways in which a series of careers courses might be included in the curriculum. For example, a curriculum might begin with a one-credit introduction to the major course that includes information about the major, self-assessments, career knowledge, and academic planning (e.g., Atchley et al., 2012). Students would then complete additional one-credit careers courses at important milestones (e.g., sophomore, junior, senior year; after completion of 200-, 300-, and 400-level coursework). At each subsequent level, students reassess themselves, learn about different careers of interest, dive more deeply into investigating careers of interest, and engage in academic planning. If a department does not have the resources or is not ready to invest in a series of career seminar courses, Atchley et al. (2012) suggest creating online modules that can stand alone and Ciarocco (2018) suggests embedding career modules in other courses. Regardless of format, career-focused activities should include self-assessment, career exploration, professional development reflection and planning, career preparation and application materials, and connecting with advanced majors and alumni.

Self-Assessment. Self-assessment is consistent with person-environment theories of career decision-making (Kidd, 2006) and is a central iterative component of this model. Schwartz et al. (2018) describe a variety of self-assessment tools that are used in career counseling such as the Myers–Briggs Type Indicator, Strong Interest Inventory, and the Keirsey Temperament Sorter, as well as measures that determine where students are in the process of career preparation such as the Career Development Inventory and Self-Directed Search.

Two commonly used online assessment tools include Holland's Interest Inventory and the Work Values Matcher. A free version of these tools is available through the Virginia Education Wizard (https://www.vawizard.org/wizard/careersAssess). After completing the online interest and work values assessments, occupations of best fit are suggested based on the individual's highest interest and work values categories. Students can learn more about suggested occupations by reading summary reports provided by the Occupational Information Network (O*NET Online; https://www.onetonline.org/).

Students do not automatically recognize how experiences and assignments are related to the development of the skills needed for professional success (Halonen & Dunn, 2018; Martini et al., 2015), and many students do not have the language needed to articulate the skills they do have (Martini et al., 2019). Thus, in addition to assessing interests and work values, students should regularly assess the development of knowledge and skills included in Guidelines 2.0 and valued by employers. One way to do this is using the 5 skill domains and 17 corresponding skills described in *The Skillful Psychology Student: Prepared for Success in the 21st Century Workplace* (Naufel, Appleby, et al., 2018).

The Skillful Psychology Student represents a synthesis of surveys of skills valued by employers (e.g., Business Council of Canada & Aon Hewitt, 2016; Hart Research Associates, 2018) and of preferred and required skills included in job postings (similar to Borwein, 2014, and Refling & Borwein, 2014). Frequent knowledge and skills assessments provide students with a mechanism to (a) evaluate their strengths as well as skills in need of improvement; (b) document evidence of skills (e.g., an infographic that illustrates synthesis, written, and creative abilities); (c) make plans to improve skills; and (d) identify individuals who can speak to that evidence (e.g., the professor or supervisor who assigned the task; Spencer et al., 2019).

Career Exploration. Career exploration is another important iterative component of this model. Career exploration is the process of examining the tasks, education level, skills, interest codes, work values, and salaries associated with a variety of career options. All students, even those who indicate they know the occupation they intend to pursue, should engage in career exploration at many points throughout the curriculum to verify occupations of interest are in fact a good fit.

There are two challenges to providing realistic expectations for employment options for psychology majors. First, the knowledge and skills gained through the psychology major apply to a long list of diverse opportunities as is clearly demonstrated by Appleby's (2016) list of 300 occupations. Second, an exhaustive list of opportunities is impossible to create because job titles for baccalaureate-level opportunities (e.g., Training Coordinator, Intake Coordinator, Aging Well Manager, Field Investigator, Student Support Specialist III) are unique to the employer and do not align with occupational titles (e.g., professor, psychologist, physician, lawyer, firefighter). Additionally, two employers might use the same title for two very different jobs, and two employers might use different titles for the same job.

Through a series of careers courses, students can approach the overwhelming exploration process systematically, diving more deeply with each successive course. For example, in an introduction to the psychology major course, students can gain a better understanding of the diversity of the field by exploring the 54 divisions of the APA (Spencer, 2020) and by exploring and sharing articles from the magazines published by the Canadian Psychological Association (*Psynopsis*), the APA (*Monitor on Psychology*), and the Association for Psychological Science (*Observer*).

In the first careers course, students might select and compare two or three occupations of interest across a variety of characteristics such as associated interests and work values, tasks and responsibilities, educational requirements, history, professional organizations, employment trends, and national and local wages. This is similar to the career research project described by Nauta (2002). The choice of occupations for comparison could come from the occupational titles suggested by the interest and work values assessments described above, the occupation lists provided in Guidelines 2.0 (APA, 2013), or the 300 career paths identified by Appleby (2016). The information gathered can be organized into a presentation, poster, infographic, blogpost, or podcast recording, and shared with other students (Spencer & Van Kirk, 2020).

In the second careers course, students can take career exploration to the next level by examining job opportunities at the bachelor's, master's, and doctoral levels and exploring graduate programs that align with selected jobs (Spencer, 2019). The key to this task is to search for jobs without using "psychology" as a keyword and to locate graduate programs that align with the requirements for selected positions. By opening the search in this way, students identify many diverse job opportunities. As noted earlier, students

have difficulty naming a career they are prepared to pursue and overestimate the amount of education needed for a career (Green et al., 2005; Strapp et al., 2018). The process of searching through job postings for positions of interest at all three education levels, examining the academic and skill requirements for each, and sharing those findings with other students is a very efficient and effective way of arming students with job titles and determining how much education they need to pursue their individual interests.

In the third careers course, students can communicate the culmination of their career exploration by creating a 5-year plan that describes next steps for pursuing their occupation of best fit and includes the knowledge and skills they have developed that are specific to that path (Halonen & Dunn, 2018; Spencer, 2019). Alternatively or additionally, students can generate responses to the comments that plague psychology majors (e.g., "You should have majored in something that will help you get a job"; "You can't do anything with a bachelor's degree in psychology"; "If you don't plan to go to graduate school, you might as well practice saying 'Do you want fries with that?'"). These advanced students can educate and inspire students at earlier stages of the career exploration process by sharing their 5-year plans or responses to the comments that plague psychology majors.

Professional Development. Whereas career exploration is the process of identifying career paths of best fit, professional development is the process of developing the knowledge and skills to prepare for and succeed in a career. Professional development is already happening in most psychology courses; however, students may not realize what they do in their courses is just as relevant in the workforce and in graduate school as the concepts they learn (Martini et al., 2015). Students (and instructors) who think about courses as discrete buckets of knowledge may not realize the activities and assignments completed in content courses are opportunities for developing and demonstrating the skills valued by employers.

A series of careers courses provides a mechanism for students to reflect regularly on the knowledge and skills they have, determine the knowledge and skills they need to develop and demonstrate to succeed in their chosen career paths, and identify courses and experiences (cocurricular, extracurricular, and work) that will help them develop and demonstrate specific knowledge and skills. Including reflection and planning at multiple points along the curriculum ensures that students are making decisions and pursuing opportunities that align with their evolving interests. This is not suggesting that students only choose courses and experiences that are explicitly relevant to specific careers paths; employers value broad knowledge and transferable skills (Business Council of Canada & Aon Hewitt, 2016; Finley, 2021; Hart Research Associates, 2018). Faculty can provide feedback on reflection and planning assignments to help students make choices to broaden their knowledge base and to demonstrate skills through diverse coursework.

Career Preparation and Application Materials. In this comprehensive model for developing psychology workforce literacy model, the central repository for career preparation materials, reflection, planning is the electronic portfolio (ePortfolio). Hiring managers find that ePortfolios are more useful than resumés and transcripts in the hiring process (Hart Research Associates, 2018). Portfolios include a brief introduction or biographical statement, as well as "artifacts" or examples of abilities with captions that highlight abilities (Spencer & Van Kirk, 2020). The process of inserting and captioning artifacts provides an opportunity for critical evaluation of the artifacts (i.e., determining if a new artifact is a better example of a skill than an older artifact) and self-assessment (Bass, 2012).

Portfolio development should begin the moment students enter the major and continue through the career seminar series and beyond graduation. The portfolio can also include a section of "working" documents that would not be shared with employers. These might include resumés and cover letters tailored to specific positions, a curriculum vitae, personal statement drafts, screenshots or links to a LinkedIn profile, and lists of potential references. Students can also keep notes on what they might say in informal networking conversations and formal interview responses about how their knowledge and skills fit the opportunities they plan to pursue (volunteer work, internships, jobs, or graduate school). A single careers course provides a mechanism for creating materials; however, a series of careers courses provides a structure for revisions to these materials as students gain knowledge and skills, collect new and more diverse pieces of evidence, and narrow their career interests.

Advanced Majors and Alumni. In addition to the assignments described thus far, one very effective method for broadening students' understanding of the applications of psychology knowledge and skills across diverse occupations is to connect them with advanced majors and alumni. Advanced majors can share their career exploration and experiential learning stories. Alumni can directly address the misconception that the undergraduate degree does not provide employable knowledge and skills and provide faces to career paths and assurance that life is good after graduation (Halonen & Dunn, 2018; Lawson, 2018; Strapp et al., 2018). Because they share the experience of completing their undergraduate psychology degrees in the same department, advanced majors and alumni can articulate connections between specific coursework and their respective careers interests and paths.

Content Courses

In this comprehensive, iterative, and integrated model, career preparation is included in content courses. Regardless of the degree to which instructors include career-focused activities and assignments, all instructors should provide explicit career-related outcomes in the syllabus (Halonen & Dunn, 2018).

Content courses provide psychology majors with an advantage over students majoring in other disciplines. Psychology majors not only develop important workforce skills they have knowledge *about* those skills (Naufel et al., 2019; Spencer et al., 2019; Vespia et al., 2020). For example, psychology majors develop critical thinking skills *and* they learn about heuristics and decision-making. Similarly, psychology majors develop communication skills *and* they learn about age differences in language comprehension. In response to the interview prompt, "Tell me about a collaborative experience that was challenging," the applicant with a bachelor's degree in psychology should be able to describe a challenging experience and then go on to use concepts from psychology to explain the challenges and the solution. Creating opportunities for students to identify ways in which course concepts are related to workforce skills is one simple way instructors can reinforce the psychology major advantage (Naufel et al., 2019).

Career exploration in a content course might include brainstorming occupational domains (e.g., education, medicine, business, law,

politics) that benefit from the concepts included in the course; using job search engines to identify job opportunities at the bachelor's, master's, and doctoral levels that require knowledge and skills developed in the course; searching for volunteer and internship opportunities that provide real-world applications of course content; searching for career information on the websites of content-related professional organizations; and/or meeting alumni who are applying the knowledge and skills developed through the course in diverse job settings.

Students might not be interested enough in every content course to pursue careers related to each course; however, each career exploration activity provides an opportunity to broaden students' perceptions of the breadth of applications of psychology and to generate examples they can use to educate others about the value of the psychology major. Additionally, if career exploration is approached as a set of skills (e.g., problem-solving, communication, reflection, use of technology) rather than fixed knowledge (i.e., a set of possible occupations), each course that facilitates career exploration is an opportunity for students to hone their career exploration skills.

Instructors can facilitate professional development in content courses by creating assignments that extend beyond the course, connect to prior learning, and connect to program-wide learning goals (Bass, 2012). For example, after completing a literature review on a course topic, students can submit a second assignment that presents the same information in a format that more closely represents workforce products (e.g., infographics, training materials) or otherwise lay-friendly media (e.g., brochures, podcasts).

Instructors who teach content courses can provide students with the opportunity to reflect on skills-based course objectives (Halonen & Dunn, 2018). For example, instructors can ask students to reflect on the quality of an oral presentation and describe ways in which they can improve their oral presentation skills. Similarly, instructors can ask students to reflect on collaborative experiences and ask the student to describe the team skills improved over the semester and those in need of further development.

Instructors can provide opportunities for students to practice tailoring resumés and cover letters to volunteer, internship, and job opportunities identified through career exploration assignments. Additionally, instructors who include teamwork can provide opportunities for students to practice tailoring resumés and cover letters to team roles (Spencer, 2015). Taken one step further, advanced students who have completed the course can serve as interviewers to provide the opportunity for beginning and mid-major students to practice answering behavioral interview questions.

Experiential-Learning Opportunities

Experiential-learning opportunities are another important component of this model. Internships and jobs are strong predictors of high levels of purpose in work (Gallup & Bates College, 2019) and are valued by employers (Finley, 2021; Gallup & Bates College, 2019). Employers also value service-learning and other experiences that involve working in a community setting as well as completing research projects with faculty (Finley, 2021).

Regardless of whether experiential learning is required, built into coursework (e.g., through service-learning; Peterson et al., 2014), or strongly encouraged, psychology departments should establish procedures and policies for supporting students in these endeavors. Bailey et al. (2017) describe four key elements of quality internships that can also be applied to diverse experiential learning opportunities. Specifically, these experiences should provide students with opportunities to develop the skills valued by employers; help students identify meaningful career paths; use, extend, and integrate knowledge; and be determined in the context of learning constraints such as student readiness and site characteristics (Bailey et al., 2017).

Champions of Encouragement and Support

The final major component of this comprehensive model is providing students with people to encourage their goals and dreams. Although students can receive encouragement and support from a variety of people in their lives, including staff advisors and campus career counselors (Appleby, 2018), faculty within the major should play a significant role in supporting students' goals and dreams. Faculty should engage in career advising to the same degree as they engage in graduate school advising (Schwartz et al., 2018; Strapp et al., 2018) and help students connect career interests with academic planning (Schwartz et al., 2018).

Faculty mentors provide one-on-one support and continuity that complement career courses, content courses, and experiential learning. Thus, faculty mentoring within the context of this model is very different from typical faculty mentoring and advising because students arrive at meetings much further in the career preparation process. Rather than spending one-on-one time at square one (i.e., answering the question "What can I do with my major?"), these meetings can focus on higher-level discussions about the student's specific interests and the experiences they have had, and helping students figure out how to solve their unique career preparation challenges. The key here is to help students find solutions, not to have all the answers to students' questions.

Resources, Relationships, and Rewards

Incorporating a comprehensive model for developing workforce literacy requires resources, relationships, and rewards. Resources include support for the infrastructure that will provide the integrated and iterative aspects of the model. Although this model does not require one or two faculty career experts, the model does require leadership for establishing workforce-related program outcomes, mapping of workforce-related activities across the curriculum, and coordinating faculty development and instruction of the "thread" courses (e.g., introduction to the major and career seminars). Redefining course credit to account for teaching the thread courses also means releasing instructors from other teaching responsibilities that will need to be filled.

Incorporating a comprehensive model for developing workforce literacy requires relationships within the department, within the institution, and outside of the institution. Within the department, communication among faculty is necessary to maximize the benefits of self-assessment, career exploration, professional development, and career resources without creating activities and assignments that are perceived by students as redundant. Within the institution, relationships should be formed with campus offices that provide internship, career, and writing support. Outside of the institution, relationships should be formed with volunteer and internship sites, employers, and alumni.

And, finally, a comprehensive model for developing psychology workforce literacy includes rewards. Asking instructors to include workforce-relevant activities and assignments in their courses must be supported through professional development and rewarded in year-end evaluations and promotion reviews. Additional rewards are provided by students. Whether an expression of relief from the discovery that there are interesting job opportunities at all education levels, excitement over finding a great fitting career path, or the realization that the connection between learning and earning is strong, psychology majors students' reactions to the development of psychology workforce literacy are extremely rewarding.

Measures of Model Success

The success of this model can be measured by assessing student, alumni, faculty, and department outcomes. It is important to acknowledge that it is unrealistic for a department to attempt to adopt the full model in one step. One department might choose to begin by turning a single careers course into a series of courses. Another department might choose to begin by infusing career preparation into content courses. Assuming a systematic approach is used to build a program of career preparation over time, ongoing assessment practices will not only provide information for improvement, it will also allow departments to determine the added value of each new component.

Measures of student outcomes include formative and summative assessments of career preparation and psychology workforce literacy. For example, regular self-assessments of the skills valued by employers provide evidence of the development of skills across the curriculum. Occupation comparison projects, reflections that connect coursework and experiential learning opportunities with career interests, recorded responses to prompts such as "You can't do anything with a bachelor's degree in psychology," and 5-year plans provide evidence of students' abilities to articulate the knowledge and skills acquired through the major, articulate the breadth of topics and applications in psychology and nonpsychology settings, identify and describe psychology concepts related to the skills valued by employers and graduate programs, apply skills to the process of identifying and pursuing a careers of best fit, and provide evidence and demonstration of knowledge and skills. An e-Portfolio with a collection of resumés, cover letters, and personal statement drafts provides evidence of improvements in the ability to explicitly connect the knowledge and skills developed through courses and experiential learning opportunities to specific employment and graduate school requirements.

Measures of student outcomes might also include ability, belief, and attitude assessments such as the *Value of Psychology in Professional Domains Scale* (to assess students' abilities to connect psychology to diverse professions; Naufel, Bodily, et al., 2018), *Employability Skills Self-Efficacy Survey* (to assess self-efficacy for workplace success; Ciarocco & Strohmetz, 2018), and *Career Preparation Self-Efficacy Scale* (to assess career readiness; Rudmann & Tucker, 2018). The *College Student Mentoring Scale* (Crisp, 2009) and *Mentor Relationship Assessment* (Gullan et al., 2016) assess effective mentoring relationships. For additional professional development assessments, see Vespia et al. (2020).

Alumni assessment is just as important as student assessment for measuring the success of the proposed model. Alumni employment and graduate education data are necessary for tracking the career paths of department graduates and to identify individuals who can share their experiences with current students as guests in careers and content courses, through alumni panel events, and on the department or university website. To assess the ability to identify and pursue a career of best fit, alumni might be asked to report the degree to which their current position or graduate program fits their skills and interests. Similarly, alumni might be surveyed to determine their perceptions of workforce readiness (see Landrum et al., 2010). To measure the ability to identify and describe psychology concepts related to the skills valued by employers and graduate programs, alumni might be asked to describe specific psychology concepts that are most relevant to their current positions or graduate program.

The success of the model can also be measured by assessing faculty psychology workforce literacy, confidence in supporting career preparation, and experiences in providing career mentoring. Faculty descriptions that connect the knowledge and skills developed in their courses as well as examples of related jobs (within and outside of psychology) would illustrate psychology workforce literacy specific to their subdisciplines. In addition to asking faculty to rate their confidence in the ability to support career preparation, the *Mentor Relationship Assessment* (Gullan et al., 2016) could be modified to assess faculty perceptions of their mentoring relationships.

And, finally, the model can be assessed at the level of the department by mapping career preparation activities across the curriculum, including course activities, assignments, and experiential learning data. This process is not only important for determining when and where students are engaging in career preparation practices it will also reveal redundancies in experiences that might lead students to experience career preparation activities and assignments as repetitive rather than integrated.

Conclusion

A comprehensive model for developing psychology workforce literacy built on an iterative and integrative framework that meets the needs of all students is long past due. Such a model for developing psychology workforce literacy includes more than providing students with lists of career options, encouraging students to gain experiences outside of the classroom, and suggesting what goes into a resumé and cover letter. This model engages students in the processes of self-assessment, career exploration, professional development, and application preparation, and is responsive to the individual differences in student interests and readiness for career decision-making. This model facilitates exploration of opportunities at all levels of education by all students.

Adopting this model will require changes in curriculum and department culture, from a fragmented collection of courses designed by instructors working in isolation (Carnevale et al., 2017) to an intentionally iterative and integrated experience designed by instructors working toward the same goal. Strapp et al. (2018) argue that faculty members are "obligated" to provide career advising for all students, not just the students who plan to follow in their footsteps or those that Halonen (2013) refers to as the "worthies." In this model, instructors can contribute to workforce preparation in meaningful ways without having to leave the comfort of their respective subdisciplines or becoming career "experts."

One of the most important features of this comprehensive model is a focus on engaging students in discovery rather than telling students what they can do and how to achieve specific occupational

goals. Rather than provide the answers, instructors and mentors help students develop the tools needed to identify career opportunities, evaluate those opportunities in terms of fit, set goals to develop related knowledge and skills, and promote themselves. This "no career expertise required" aspect is welcome news for faculty who feel unprepared to provide career mentoring, but are comfortable facilitating problem-solving, critical thinking, and locating quality resources.

This comprehensive model for developing psychology workforce literacy may sound daunting, but it is arguably essential. Through this approach, psychology undergraduates can benefit from the "affordances" of the psychology major and realize the "alignments" between the major and their career goals (Landrum, 2018). As psychology workforce literacy improves, students will apply to better-fitting jobs rather than settling for lower-paying jobs that sound like psychology. Not only will the tuition-to-earnings valuation of the psychology major increase, so will the number of psychology majors who take pride in the investment they made in their undergraduate degree.

Résumé

Un élément important dont il faut tenir compte dans le domaine de l'éducation supérieure est le rôle que jouent les collèges et les universités en vue de préparer les étudiants et les étudiantes au marché du travail. Bien que la raison d'être de l'éducation supérieure comporte plus que la préparation au marché du travail, ces derniers accordent de l'importance à l'employabilité que procure le domaine de spécialisation. La connaissance des compétences de la main-d'œuvre en psychologie est la capacité d'énoncer les façons dont les connaissances et les compétences acquises durant la spécialisation s'appliquent à de multiples domaines professionnels. Faire de la connaissance des compétences de la main-d'œuvre en psychologie une priorité requerra un changement dans la façon dont nous percevons l'enseignement de la psychologie au premier cycle ainsi que le rôle du corps professoral sur le plan du mentorat professionnel. Cet article décrit un modèle complet, itératif et intégré pour l'alphabétisation en matière de compétences de la main-d'œuvre en psychologie, et aborde les difficultés ainsi que les répercussions favorables de l'adoption de ce modèle dans le programme d'études de premier cycle en psychologie.

Mots-clés : planification de carrière, alphabétisation de la main-d'œuvre, exploration de carrières, perfectionnement professionnel

References

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major: Version 2.0*. https://www.apa.org/ed/precollege/about/psymajor-guidelines.pdf

American Psychological Association. (2018). *Preparing to use your bachelor's degree in psychology*. https://www.apa.org/careers/resources/guides/bachelors

Appleby, D. C. (2016). *An online career-exploration resource for psychology majors*. Society for the Teaching of Psychology Resources for Teachers of Psychology. http://www.teachpsych.org/resources/Documents/otrp/resources/appleby16students.docx

Appleby, D. C. (2018). Preparing psychology majors to enter the workforce: Then, now, with whom, and how [Special section]. *Teaching of Psychology*, *45*(1), 14–23. https://doi.org/10.1177/0098628317744944

Association of American Colleges & Universities. (2020). *What liberal education looks like: What it is, who it's for, & where it happens*. https://www.aacu.org/what-liberal-education-looks-0

Atchley, P., Hooker, E., Kroska, E., & Gilmour, A. (2012). Validation of an online orientation seminar to improve career and major preparedness. *Teaching of Psychology*, *39*(2), 146–151. https://doi.org/10.1177/0098628312437719

Bailey, S. F., Barber, L. K., & Nelson, V. L. (2017). Undergraduate internship supervision in psychology departments: Use of experiential learning best practices. *Psychology Learning & Teaching*, *16*(1), 74–83. https://doi.org/10.1177/1475725716671234

Bass, R. (2012, March/April). Disrupting ourselves: The problem of learning in higher education. *EDUCAUSE Review*, *47*(2), 23–33. https://er.educause.edu/~/media/files/article-downloads/erm1221.pdf

Borden, V. M. H., & Rajecki, D. W. (2000). First-year employment outcomes of psychology baccalaureates: Relatedness, preparedness, and prospects. *Teaching of Psychology*, *27*(3), 164–168. https://doi.org/10.1207/S15328023TOP2703_01

Borwein, S. (2014). *Bridging the divide, part I: What Canadian job ads said*. Higher Education Quality Council of Ontario.

Business Council of Canada and Aon Hewitt. (2016). *Developing Canada's future workforce: A survey of large private-sector employers*. https://thebusinesscouncil.ca/report/developing-canadas-future-workforce-a-survey-of-large-private-sector-employers/

Carnevale, A. P., Garcia, T. I., & Gulish, A. (2017). *Career pathways: Five ways to connect college and careers*. Georgetown University Center on Education and the Workforce. https://cew.georgetown.edu/CareerPathways

Ciarocco, N. J. (2018). Traditional and new approaches to career preparation through coursework [Special section]. *Teaching of Psychology*, *45*(1), 32–40. https://doi.org/10.1177/0098628317744963

Ciarocco, N. J., & Strohmetz, D. B. (2018). The Employable Skills Self-Efficacy Survey: An assessment of skill confidence for psychology undergraduates. *Scholarship of Teaching and Learning in Psychology*, *4*(1), 1–15. https://doi.org/10.1037/stl0000102

Crisp, G. (2009). Conceptualization and initial validation of the College Students Mentoring Scale (CSMS). *Journal of College Student Development*, *50*(2), 177–194. https://doi.org/10.1353/csd.0.0061

Finley, A. (2021). *How college contributes to workforce success: Employer views on what matters most*. Association of American Colleges and Universities. https://www.aacu.org/2021-report-employer-views-higher-education

Folsom, B., & Reardon, R. (2003). College career courses: Design and accountability. *Journal of Career Assessment*, *11*(4), 421–450. https://doi.org/10.1177/1069072703255875

Gallup (Firm) & Bates College (Lewiston, Me.). (2019). *Forging pathways to purposeful work: The role of higher education*. https://www.gallup.com/education/248222/gallup-bates-purposeful-work-2019.aspx

Golding, J. M., Lippert, A. M., & Malik, S. E. (2018). Using the internet to facilitate career choices in psychology-related fields [Special section]. *Teaching of Psychology*, *45*(1), 60–66. https://doi.org/10.1177/0098628317745450

Green, R. J., McCord, M., & Westbrooks, T. (2005). Student awareness of educational requirements for desired careers and the utility of a careers in psychology course. *College Student Journal*, *39*(2), 218–222. https://link.gale.com/apps/doc/A133606092/AONE?u=mlin_oweb&sid=googleScholar&xid=0291a429

Gullan, R. L., Bauer, K., Korfiatis, P., DeOliveira, J., Blong, K., & Docherty, M. (2016). Development of a quantitative measure of the mentorship experience in college students. *Journal of College Student Development*, *57*(8), 1049–1055. https://doi.org/10.1353/csd.2016.0099

Halonen, J. S. (2013, Winter). The worthies vs. the great unwashed: Overcoming psychology's tier problem. *Eye on Psi Chi*. *17*(2). https://doi.org/10.24839/1092-0803.eye17.2.10

Halonen, J. S., & Dunn, D. S. (2018). Embedding career issues in advanced psychology major courses [Special section]. *Teaching of Psychology*, *45*(1), 41–49. https://doi.org/10.1177/0098628317744967

Hart Research Associates. (2018). *Fulfilling the American Dream: Liberal education and the future of work*. https://www.aacu.org/sites/default/files/files/LEAP/2018EmployerResearchReport.pdf

Kidd, J. M. (2006). *Understanding career counselling: Theory, research, and practice*. Sage Publications.

Lackner, C., & Martini, T. (2017). Helping university students succeed at employment interviews: The role of self-reflection in e-portfolios. *Teaching & Learning Inquiry*, *5*(2), 3–15. https://doi.org/10.20343/teachlearninqu.5.2.2

Landrum, R. E. (2018). Affordances and alignments: Continuing challenges in advising undergraduate psychology majors [Special section]. *Teaching of Psychology*, *45*(1), 84–90. https://doi.org/10.1177/0098628317745462

Landrum, R. E., Hettich, P. I., & Wilner, A. (2010). Alumni perceptions of workforce readiness. *Teaching of Psychology*, *37*(2), 97–106. https://doi.org/10.1080/00986281003626912

Lawson, T. J. (2018). Tapping into alumni as a source of authentic information and advice on careers in psychology [Special section]. *Teaching of Psychology*, *45*(1), 67–74. https://doi.org/10.1177/0098628317745452

Markos, K. (2021). Knowing their worth: Three ways to help students connect a liberal arts degree to career paths. *Liberal Education*, *107*(2), 8–10. https://www.aacu.org/liberaleducation/2021/spring/markos

Martini, T., Verby-Verutis, R., Grose, J., Clarke, B., & Elder, A. (2019). Canadian undergraduates' reports of co-curricular involvement across the degree. *Teaching & Learning Inquiry: The ISSOTL Journal*, *7*(1), 103–119. https://doi.org/10.20343/teachlearninqu.7.1.7

Martini, T. S., Rail, A., & Norton, C. (2015). Psychology students' understanding of the skill-based learning fostered through university assignments. *Teaching of Psychology*, *42*(4), 335–338. https://doi.org/10.1177/0098628315603182

McGovern, T. V., Corey, L., Cranney, J., Dixon, W. E., Jr., Holmes, J. D., Kuebli, J. E., Ritchey, K. A., Smith, R. A., & Walker, S. J. (2010). Psychologically literate citizens. In D. F. Halpern (Ed.), *Undergraduate education in psychology: A blueprint for the future of the discipline* (pp. 9–27). American Psychological Association. https://doi.org/10.1037/12063-001

Naufel, K. Z., Appleby, D. C., Young, J., Van Kirk, J. F., Spencer, S. M., Rudmann, J., Carducci, B. J., Hettich, P., & Richmond, A. S. (2018). *The skillful psychology student: Prepared for success in the 21st century workplace*. https://www.apa.org/careers/resources/guides/transferable-skills.pdf

Naufel, K. Z., Bodily, K. D., Holtzman, N. S., Ryan, R. G., & Steirn, J. S. (2018). *The value of psychology in professional domains scale*. http://pass.apa.org/docs/the-value-of-psychology-in-professional-domains-scale/

Naufel, K. Z., Spencer, S. M., Appleby, D., Richmond, A. S., Rudmann, J., Van Kirk, J., Young, J., Carducci, B. J. & Hettich, P. (2019). The skillful psychology student: How to empower students with workforce-ready skills by teaching psychology. *Psychology Teacher Network*, *29*(1). https://www.apa.org/ed/precollege/ptn/2019/03/workforce-ready-skills

Nauta, M. (2002). A career research project for undergraduate psychology students. *Teaching of Psychology*, *29*(4), 288–291. https://doi.org/10.1207/S15328023TOP2904_06

Norris, M. E. (2019). *The Canadian handbook for careers in psychological science*. https://ecampusontario.pressbooks.pub/psychologycareers/

Norton, C., & Martini, T. (2017). Perceived benefits of an undergraduate degree. *The Canadian Journal for the Scholarship of Teaching and Learning*, *8*(1), Article 3. http://ir.lib.uwo.ca/cjsotl_rcacea/vol8/iss1/3. https://doi.org/10.5206/cjsotl-rcacea.2017.1.3

Pasquerella, L. (2019, Summer/Fall). The purpose of higher education and its future. *Liberal Education*, *105*(3–4), 2–3. https://www.aacu.org/liberaleducation/2019/summer-fall/president

Patton, W., & McMahon, M. (2015). The Systems Theory Framework of career development: 20 years of contribution to theory and practice. *Australian Journal of Career Development*, *24*(3), 141–147. https://doi.org/10.1177/1038416215579944

Peterson, J. J., Wardwell, C., Will, K., & Campana, K. L. (2014). Pursuing a purpose: The role of career exploration courses and service-learning internships in recognizing and developing knowledge, skills, and abilities. *Teaching of Psychology*, *41*(4), 354–359. https://doi.org/10.1177/0098628314549712

Pfund, R. A., Hailstorks, R., Stamm, K. E., Christidis, P., Conroy, J. C., & Norcross, J. C. (2021). Careers in psychology course: Prevalence, structure, and timing. *Teaching of Psychology*, *48*(1), 63–68. https://doi.org/10.1177/0098628320959950

Refling, E., & Borwein, S. (2014). *Bridging the divide, part II: What Canadian job ads produced*. Higher Education Quality Council of Ontario.

Roscoe, L. J., & McMahan, E. A. (2014). Outcomes of introduction to the psychology major: Careers and opportunities course. *Teaching of Psychology*, *41*(2), 110–114. https://doi.org/10.1177/0098628314530340

Rudmann, J., & Tucker, K. (2018). *Career preparation self-efficacy scale*. http://pass.apa.org/docs/career-preparation-self-efficacy-scale/

Schwartz, B. M., Gregg, V. R., & McKee, M. (2018). Conversations about careers: Engaging students in and out of the classroom [Special section]. *Teaching of Psychology*, *45*(1), 50–59. https://doi.org/10.1177/0098628317745247

Siegel, D. J. (2021). A pause for play: Making space for the free exploration of ideas. *Liberal Education*, *107*(2), 6–7. https://www.aacu.org/liberaleducation/2021/spring/siegel

Spencer, S. M. (2015). *Instructor materials for teaching research methods using a consulting model*. Society for the Teaching of Psychology Resources for Teachers of Psychology. http://teachpsych.org/page-1603066#stats

Spencer, S. M. (2017, Fall). Pride of ownership: Do you recognize the value of your bachelor's degree in psychology? *Eye on Psi Chi*, *22*(1), 16–19. https://doi.org/10.24839/2164-9812.Eye22.1.16

Spencer, S. M. (2019, October). One course, two courses, three courses, more? Providing career support throughout the undergraduate curriculum. *Psychology Teacher Network*. https://www.apa.org/ed/precollege/ptn/2019/10/career-support-undergraduate-curriculum

Spencer, S. M. (2020, January). *"That's Psychology?" A simple strategy for expanding students' perception of psychology* [Teaching slam]. National Institute for the Teaching of Psychology.

Spencer, S. M., Naufel, K. Z., & Richmond, A. S. (2019, October). *Time to teach the majority of students: A workshop on The Skillful Psychology Student* [Workshop]. Annual Conference on Teaching, Denver, CO, United States.

Spencer, S. M., & Van Kirk, J. (2020, August). *Prove it! Designing Course Assignments for Skill Demonstration and Workforce Marketing* [Conference session]. American Psychological Association (Virtual) 128th Annual Convention, Washington, DC, United States.

Strapp, C. M., Drapela, D. J., Henderson, C. I., Nasciemento, E., & Roscoe, L. J. (2018). Psychology students' expectations regarding educational requirements and salary for desired careers [Special section]. *Teaching of Psychology*, *45*(1), 6–13. https://doi.org/10.1177/0098628317744943

Thomas, J. H., & McDaniel, C. R. (2004). Effectiveness of a required course in career planning for psychology majors. *Teaching of Psychology*, *31*(1), 22–27. https://doi.org/10.1207/s15328023top3101_6

Universities Canada. (n.d.). *Today's liberal arts*. https://www.univcan.ca/universities/todays-liberal-arts/

Vespia, K. M., Freis, S. D., & Arrowood, R. M. (2018). Faculty and career advising: Challenges, opportunities, and outcome assessment [Special section]. *Teaching of Psychology*, *45*(1), 24–31. https://doi.org/10.1177/0098628317744962

Vespia, K. M., Naufel, K. Z., Rudmann, J., Van Kirk, J. F., Briihl, D., & Young, J. (2020). Yes, you can get a job with that major! Goal 5 strategies for facilitating, assessing, and demonstrating psychology students' professional development [Special issue]. *Teaching of Psychology*, *47*(4), 305–315. https://doi.org/10.1177/0098628320945122

Received June 30, 2020
Revision received August 19, 2021
Accepted August 23, 2021 ■

CANADIAN PSYCHOLOGICAL ASSOCIATION
SOCIÉTÉ CANADIENNE DE PSYCHOLOGIE

Canadian Psychology / Psychologie canadienne

ISSN: 0708-5591

2021, Vol. 62, No. 4, 420–427
https://doi.org/10.1037/cap0000290

An Advance Organizer for Student Learning: Choke Points and Pitfalls in Studying

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Both teachers and students benefit from an accurate understanding of how people learn, yet research shows that both groups often hold mistaken beliefs that undermine student learning. This article describes an advance organizer that can be used to help teachers understand how people learn and that teachers can use in turn to train students how to study more effectively. The advance organizer is a graphical representation of a simplified information-processing framework. It focuses on the choke points and pitfalls of learning based on cognitive research. Choke points are constraints in the human cognitive system, such as the selective nature of attention and the limited capacity of working memory, that impede learning. Pitfalls are common traps students fall in that undermines their learning, such as multitasking and overconfidence. The organizer describes each choke point and pitfall and provides a way of addressing each of them.

Public Significance Statement
This article describes a graphical diagram which summarizes the factors that cognitive research indicates are critical for effective learning. The diagram is intended to be an accessible guide for helping people to improve their learning. The diagram outlines the challenges of learning and provides possible solutions to each.

Keywords: teaching, pedagogy, student learning

Cognitive research has clearly delineated the superiority of some learning strategies over others (Dunlosky et al., 2013), yet students often use suboptimal strategies when they study (Blasiman et al., 2017). Students can benefit from instruction in empirically supported study skills (e.g., Biwer et al., 2020; Brown-Kramer, 2021). Therefore, teachers should not only teach the subject matter of a course, but also effective learning strategies for retaining that information (Chew, 2014; Rodriguez et al., 2018), especially in introductory courses.

Teachers of psychology likely studied learning as part of their training, which gives them an advantage over teachers in other fields. That knowledge, however, will still vary in depth and applicability to student learning. Furthermore, they may not have received much training in how to teach in graduate school (Chew et al., 2018). Teachers outside of psychology may not have any knowledge of learning or pedagogical research. In fact, studies find that teachers often lack an understanding of effective learning strategies, and that belief in myths and misconceptions about learning are common (Betts et al., 2019; Morehead et al., 2016; Nuthall, 2007; Rodriguez et al., 2018). Teachers, then, often lack the knowledge to teach students how to learn effectively.

The problem of improving student learning strategies is twofold. First, students need to be instructed in effective study skills, either as part of a course or as a general set of skills independent of a particular course context (Chew, 2014, 2020a). Ideally, students should receive instruction on study strategies in both ways. Second, teachers need to be instructed in effective learning strategies so they can pass on and reinforce those skills in their students as well as use the knowledge to teach more effectively. It would be counterproductive to teach students effective learning strategies who are then taught by teachers who endorse learning myths, such as learning styles. Even when students know about effective study strategies, they may not employ them for a variety of reasons (Blasiman et al., 2017; Karpicke et al., 2009). Teachers can help by modeling the use of effective learning techniques, such as utilizing feedback effectively and self-assessment, as part of teaching.

Academic learning is both complex and counterintuitive. There is no universal best method of learning. Rather the best approach depends on the interaction of a myriad of factors including cognitive processes such as attention, working memory, and executive function; the prior knowledge of the student; the concept to be learned and how it is being presented; the learning strategies employed by the student; and the method used to assess the level of learning (Chew & Cerbin, 2021). Learning can go awry in multiple places and in multiple ways. Explaining how people learn to teachers and students in such a way that both

This article was published Online First June 17, 2021.
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groups can use the knowledge to improve study habits is a challenging undertaking.

Despite the research showing the complexity of learning, students and teachers often hold simplistic, flawed understandings of how students learn. Students often select the easiest method of study, generally mindless re-reading, and focus on the amount of study rather than quality of study (Blasiman et al., 2017; Chew, 2014). Many teachers assume that their responsibility for student learning ends at presenting accurate, up-to-date information in a clear, organized fashion, when research clearly shows that they can have a great deal of influence, both positive and negative, on whether students learn and what they learn (Chew et al., 2018). When students struggle, teachers rely on their own understanding of how people learn to try to help. If their understanding is flawed, they may give the students incorrect advice or vague, unhelpful advice such as "study harder."

Cognitive researchers and educators have written books to help students and teachers understand the nature of learning. Some recent examples are Agarwal and Bain (2019), Benassi et al. (2014), Cavanagh (2016), Penn (2019), Weinstein et al. (2019), and Willingham, (2009). One book was intentionally written by cognitive scientists in collaboration with a novelist to minimize technical jargon and enhance readability (Brown et al., 2014). Hattie (2009) wrote an extensive review of factors associated with student achievement and then wrote a book covering the same factors specifically for teachers (Hattie, 2012). Faculty in various fields who study teaching have also contributed books, such as McGuire (2015) and Eyler (2018). A lot of the books focus primarily on one aspect of the student learning context, such as learning strategies (Agarwal & Bain, 2019; Brown et al., 2014) or metacognition (McGuire, 2015). Resources that provide a comprehensive overview of all the factors in the learning situation (e.g., Weinstein et al., 2019; Willingham, 2009) contain a lot of information, and they tend to present it as a sequence of factors instead of as a coherent framework.

Cognitive scientists and education researchers have also written articles on how to study effectively based on cognitive principles at various levels of technical complexity. For example, Dunlosky et al. (2013) conducted an extensive review of learning research and specified the effectiveness of popular study strategies. Dunlosky then wrote a more accessible version of that review for K-12 teachers for the *American Educator* (Dunlosky, 2013). Putnam et al. (2016) and Miyatsu et al. (2018) wrote articles whose specific purpose was to translate research into an accessible form for teachers and students. One issue with these written resources is that they do not provide the student with a coherent framework that encompasses the key aspects of learning to help students understand and apply the information to help them study.

There are websites maintained by cognitive researchers and educators, such as the Learning Scientists (www.learningscientists.org), Learning Sciences in Canada (https://www.canadianlearningsciences.ca/home), Taking Learning Seriously (www.takinglearningseriously.com) and The K. Patricia Cross Academy (www.kpcrossacademy.org). Many universities maintain teaching and learning centers to provide evidence-based information to help teachers, such as the University of British Columbia Centre for Teaching, Learning, and Technology (https://ctlt.ubc.ca/). Mount Royal University houses the Institute for Scholarship in Teaching and Learning, dedicated to pedagogical research. (https://www.mtroyal.ca/ProgramsCourses/FacultiesSchoolsCentres/InstituteforScholarshipofTeachingLearning/index.htm). There are numerous teaching focused blogs (e.g., *Online Learning and Distance Education Resources*, found at https://www.tonybates.ca/) as well as podcasts (e.g., *Teaching Strides*, found at http://www.teachingstrides.ca/). Finally, many organizations, researchers, and teachers are active on various social media platforms.

Several psychologists have created videos by on how to study effectively based on cognitive principles. Chew (2011, 2015), for example, offers a series of five relatively brief videos for students that cover the cognitive basis of effective learning strategies, and another series of videos for teachers explaining the cognitive principles of effective teaching.

None of the materials developed thus far provide the reader with a single, comprehensive framework or diagram that clearly and accurately illustrates how students learn in a way that will help students learn more effectively. There are tables and lists of effective practices, but not a comprehensive graphical representation. Ideally, such a graphical framework would provide students and teachers with a schema for learning that would help teachers design and implement effective pedagogy and students to develop effective study strategies.

A Schema for How People Learn

A schema is an organized framework of long-term knowledge that, when activated, facilitates the encoding and learning of new, related concepts; promotes inference, reasoning, and problem solving within that domain; and guides recall of relevant information (Alba & Hasher, 1983; Bransford & Johnson, 1972; Chen & Mo, 2004; Mannies et al., 1989). Taking individual facts and creating a coherent schema, a process called schematization, has profound effects on the long-term recall and utility of the information (Alba & Hasher, 1983; Herbert & Burt, 2004). Teachers who have developed an accurate schema of learning can design and implement pedagogy to fit a particular educational context, diagnose problems and make any needed adjustments, and design meaningful assessments (Willingham, 2017). Students with an accurate schema of learning can develop effective learning strategies for any course context, identify and avoid bad study strategies, and regulate their learning (Chew, 2020a, Pan & Bjork, 2020). Clearly, both teachers and students benefit when they possess a valid schema of how people learn, and helping both groups develop such a schema should be a priority. Unfortunately, much of the advice offered to these groups comes in the form of decontextualized, stand alone "tips" that often focus more on behavior than cognitive principle (Chew, 2020a; Chew & Cerbin, 2021) Teachers get teaching tips such as "provide feedback to students" without being told how to formulate feedback to help student learning. Students get study tips such as "don't cram" without knowing why that is bad for long-term learning.

What is the fastest, easiest way for a novice to create an accurate schema of new information? Schema formation can be rapid in areas where students have rich background knowledge. One good example is enough to create a functional schema (Ahn et al., 1992). By the time they get to college, students have a lot of experience with studying, even if they may not do it well. Certainly, teachers have relevant background knowledge. Thus, we can expect that one good example or illustration may be sufficient for students and teachers to create a schema for learning.

The goal of this article is to create a graphical advance organizer based on cognitive research that will help both students and teachers

develop a schematic understanding of the complex nature of learning. The organizer should assist teachers in creating supportive learning environments. It should provide a coherent schematic framework to help students understand how people learn and help them plan and carry out effective study strategies. This diagram would also help teachers understand how people learn and be a tool for them to explain this information to students. The challenge is summarizing and translating the research into an understandable and useful form for teachers and students.

Advance or Graphic Organizers

Ausubel (1960) introduced the idea of using *advance organizers* to help students learn. Advance organizers present a coherent overview of the relationships among the concepts to be learned. It should provide a schematic framework with proximally superordinate categories that subsume the concepts. The advance organizer is shown to students before the concepts are presented.

A well-designed advance organizer should be inclusive of all concepts needed to achieve the learning goal, showing both the necessary depth and breadth of the material. An advance organizer can take multiple forms, but it should be easy to understand, both in terms of the concepts and the relationships among the concepts. Advance organizers can be composed of written text (Corkill, 1992), but graphic diagrams or concept maps are a commonly used format, and there is evidence that they are superior to text-based advance organizers for learning (Robinson & Kiewra, 1995).

The use of a well-designed advance organizer can significantly enhance learning (Mayer, 1979; Stone, 1983). Stull and Mayer (2007) found that providing students with advance organizers was more effective than having students generate their own. They tested the impact of advance organizers on learning low, medium, or high complexity information. They found no difference in recall of information with the use of advance organizers, but they found significantly better transfer of information with the use of advance organizers at all levels of information complexity.

An Advance Organizer for Student Learning: Choke Points and Pitfalls in Learning

In this section, I discuss the development of a comprehensive, graphical advance organizer based on the Information Processing Model that includes components of the model relevant for academic learning, but translated into a form that is accessible and usable by teachers and students. Slate and Charlesworth (1988) first suggested using the information processing model as the basis of as an advance organizer for improving teaching and learning but their organizer was text-based, and it omitted several processes relevant to learning.

To design a graphical advance organizer, I started with an updated information processing model that included Working Memory (WM) instead of short-term memory. I also included learning strategies for transferring information to long-term memory such as self-testing and deep processing. I chose to omit cognitive concepts that are not directly relevant to academic learning, such as sensory memory, pattern recognition, and implicit forms of memory. To include these concepts would make the advance organizer harder for students to understand and obscure the relevant information (Mayer, 2014). Next, I decided on a level of granularity for the advance organizer that would convey the essential properties of a cognitive process for learning without going into unneeded detail. For example, I discuss Working Memory in terms of its function, but I do not discuss the episodic buffer, phonological loop, and visual-spatial sketchpad. I did include chunking because it is directly relevant to student learning.

A critical factor for the effectiveness of the advance organizer was to translate cognitive research and theory into a form that is both accessible and useable by students and teachers (Daniel & Chew, 2013; Willingham, 2017). Neither teachers nor students need to have a detailed understanding of psychological theories or a technical grasp of research findings. They simply need a general, functional understanding, supported by research, that can help them teach and learn more effectively. For example, it isn't necessary for students and teachers to understand the *new theory of disuse* (Bjork & Bjork, 2006) and the research that supports it. In most circumstances, teachers and students only need to understand a general principle that is supported by the theory (Willingham, 2017). If they know that forgetting and then relearning information strengthens long-term recall, then they can utilize strategies such as spaced practice, interleaving, and delayed feedback. To make the advance organizer accessible, I introduced the categories of chokepoints and pitfalls, to capture cognitive constraints that limit learning and common student missteps in learning, respectively.

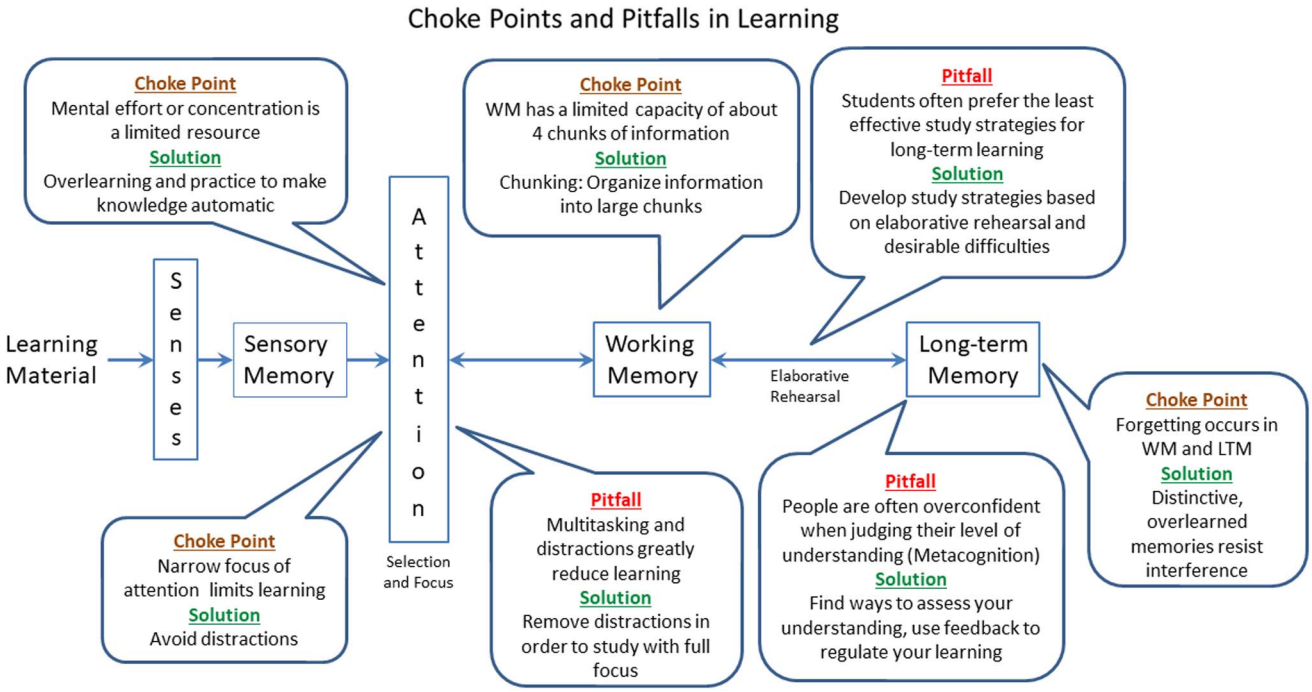
The final challenge in designing the advance organizer was creating a graphical illustration using the principles of effective multimedia learning. Following the guidelines of Mayer (2014), I minimized extraneous material that did not bear on the learning goal (coherence), highlighted important relationships within the diagram (signaling), and embedded captions in the relevant parts of the diagram (spatial contiguity).

The resulting advance organizer for student learning is shown in Figure 1. It is based on a simplified information-processing model with three stages of memory: sensory memory, working memory, and long-term memory. It also depicts attention and elaborative rehearsal. The linear progression of stages is intentional as a visual metaphor. Sherrington (2020) has proposed an alternative, nonlinear graphical framework of learning, also based on information processing.

In bottom-up processing, information flows into the system through the senses on the left and arrives at sensory memory. Sensory memory holds incoming sensory information for a brief time. Information then goes through attention, which serves two functions. It selects information for further processing, essentially filtering out any non-attended information, and it allows students to concentrate on important stimuli such as an exam. At this point, information can flow either way in the system. Information that makes it through attention then arrives at working memory (WM). Working memory is conscious and has a limited capacity. In WM, if information is not rehearsed, it is forgotten in seconds. Information in working memory can be rehearsed in different ways, and elaborative rehearsal is the most efficient way of making information permanent by transferring it to long-term memory (LTM). Elaborative rehearsal can be achieved in multiple ways, such as semantic processing, spaced rehearsal, or retrieval practice. LTM is the permanent storehouse of knowledge. It is unlimited in capacity; but in order to recall information, students have to have an effective retrieval strategy. Information can still be forgotten through retrieval failure. Students who lack an effective retrieval strategy cannot recall information even though it is in LTM.

Figure 1

The Choke Points and Pitfalls in Learning, With Possible Solutions



Note. An advance organizer illustrating the choke points and pitfalls of student learning within an information processing model. See the online article for the color version of this figure.

Choke Points and Pitfalls

The advance organizer points out the common choke points and pitfalls that undermine the effectiveness of their studying. A choke point is a limitation or constraint in the cognitive system that students must cope with in order to learn, such as the limited ability of WM to hold information. A pitfall is a common error students make when studying. These pitfalls are often due to faulty assumptions and intuitions about how people learn.

Choke Points

Here are the common choke points for learning that students and teachers need to know. Each choke point is labeled on the advance organizer along with a means of obviating the constraint.

In attention, *mental effort or concentration* is a limited resource, and thus a major constraint on learning. Students have a limited amount of concentration that they can use at any given time (Chandler & Sweller, 1991; Sweller et al., 2019). A task requires a certain amount of mental effort to complete, which is called its cognitive load. Students can easily be overwhelmed when the cognitive load of a task or the combined cognitive load of a set of tasks they are trying to complete exceeds their available mental effort. If the cognitive load exceeds available mental effort, then students will be overwhelmed and their learning performance will decline. Cognitive load is high when students are trying to learn new, complex information (e.g., Piolat et al., 2005). Distractions that take up mental effort are harmful to learning because learning new information has a high cognitive load (Forster, 2013). Students can solve the mental effort choke point through deliberate practice and automaticity. The more students practice and use information, the less mental effort is needed to recall and use the information (Feldon, 2007). Students should aim to make new knowledge automatic, which means overlearning the information, studying it well beyond an initial ability to recall the information. Short of automaticity, students can try to structure their study environment to reduce distraction and avoid becoming overwhelmed.

In attention, the *narrow focus of attention* forms another choke point. Selective attention allows a person to focus their awareness on a specific stimulus. By doing so, they lose the ability to perceive stimuli outside their focus (Kreitz et al., 2015). This fact makes students vulnerable to distraction, especially by stimuli that are more eye-catching and potentially interesting that what is going on in class or during a study session. Blasiman et al. (2018) documented the negative impact of different kinds of distraction during online learning. When we try to divide attention between different sources, commonly called multitasking, our ability to perceive either source falters. Multitasking is one of the pitfalls I will discuss later. The simplest way to address selective attention is to reduce or eliminate distractions (Ent et al., 2015). Students should reduce the number of distractions in their study environment. The mere presence of a smartphone might reduce the ability to concentrate and learn (Thornton et al., 2014). Furthermore, they should develop study habits that involve the reduction and avoidance of distractions (Neal et al., 2013). The human cognitive system is designed to focus on one stimulus at a time.

Working memory, which has a limited capacity to hold information, is another major choke point. WM is the only memory with a capacity limit, making it and attention the two main constraints on learning. The capacity limit of WM is severe, roughly four chunks of information (Cowan, 2010). Because WM is conscious, it is the cause of frustration of many students as the try to repeatedly rehearse information in an attempt to get it through WM to long-term memory. Students try to overcome the WM capacity limit through concentration and repetition, but this is the wrong way to overcome this bottleneck. We measure WM capacity in terms of chunks. A chunk is composed of organized, coherent information so that it acts as a single unit in WM. The solution to the capacity limit in WM is to organize information into large chunks, a process called chunking (Gobet, 2005). For example, memorizing a random string of letters, such as "P-T-M-A-O-P-I-H-O-S-U-P" would be difficult because each letter acts as a chunk and 12 chunks far exceed WM capacity. However, memorizing the same string of letters arranged to spell a familiar word, such as "H-I-P-P-O-P-O-T-A-M-U-S is easy because now all the letters are organized by long-term knowledge into something familiar and meaningful. To overcome the WM capacity limit, students need to study to organize information into meaningful chunks. This is most difficult for novice learners in introductory classes because they lack the expertise to build big chunks. As a result many students find introductory courses to be much more challenging that advanced ones.

The rapidity of *forgetting* forms the last choke point. In WM, forgetting occurs in a matter of seconds without rehearsal. Forgetting in LTM occurs at different rates depending on conditions. Forgetting generally occurs due to interference from other memories (Weinstein et al., 2019). Forgetting in general is more rapid than learning, which is why it is so frustrating. To slow down forgetting, students can overlearn information, which leads to stronger initial learning (Rose, 1992). Forgetting still occurs, but the stronger initial learning means that the memory lasts longer. Overlearning through the use of retrieval practice may help reduce the effects of interference (Kliegl & Bäuml, 2016), which makes practicing recall under test conditions a good way to learn. Another way to reduce interference is to create a highly distinctive memory that stands out against other memories (Mäntylä & Nilsson, 1988).

Pitfalls

Here are common pitfalls, or missteps, that students often make that undermine their learning. For each pitfall, the advance organizer indicates a way for students to avoid it.

Students try to study while *multitasking* or in the presence of *distractions*, which greatly reduces learning (Weinstein et al., 2019). The human cognitive system is not built to multitask, but to focus on one stimulus at a time. Multitasking, also called task switching, involves trying to attend to more than one activity at the same time. It is a huge problem with the plethora of digital distractions that surround us, especially for students trying to concentrate and learn (Wammes et al., 2019). The clear conclusion from a large body of research is that multitasking reduces learning and hurts academic achievement (e.g., Bellur et al., 2015). Students may feel like they are good at multitasking because they do it often, but the belief is mistaken. The human cognitive system is not built to multitask, but to focus on one stimulus at a time. People probably can carry out two automatic tasks at once, but studying generally involves an effortful attempt to learn complex unfamiliar information. Avoiding the problem of multitasking is not a matter of willpower, but of removing the distractions from the environment (Ent et al., 2015). Students should reduce the number of distractions in their study environment. Furthermore, they should develop study habits that involve the reduction and avoidance of distractions (Neal et al., 2013).

Another pitfall is that *students often prefer the least effective study strategies for long-term learning*. Students can employ different rehearsal or learning strategies on information in WM. Some of the rehearsal strategies only keep information current in WM. Once this kind of rehearsal stops, forgetting is rapid. To make information permanent, students have to use a study strategy that will transfer information from WM to LTM. Students need to use the proper kind of rehearsal to match their study goal. Students however, strongly prefer to use the least effective learning strategies for long-term learning (Blasiman et al., 2017; Yue, 2020), such as mindless rereading, massed practice, and highlighting. These methods tend to be easy to do. Learning strategies that are effective at creating enduring memories are more effortful and usually involve some kind of meaningful elaboration or manipulation (Weinstein et al., 2019). On the advance organizer, I have used the category label elaborative rehearsal (Craik & Watkins, 1973) but there are a wide range of effective study strategies, such as chunking, spaced practice, retrieval practice, interleaving, and self-testing among others (Weinstein et al., 2019).

Another pitfall is that students are often *overconfident when judging their level of understanding*. Students tend to be overconfident in judging their own level of understanding, especially weaker students (Ehrlinger & Shain, 2014; Yue, 2020). Overconfidence causes students to stop studying prematurely, believing they have deep understanding when in fact their knowledge is shallow, incomplete, and has misconceptions. Poor study strategies can lead to overconfidence because the student has put in long hours of study with little actual learning. Overconfidence is most likely to occur in introductory courses in which students have less knowledge about a field and thus are poor judges of their level of understanding (Guillory & Blankson, 2017). Yue (2020) makes several suggestions about how to reduce overconfidence and improve metacognition. These include providing multiple opportunities for students to gain feedback about their level of understanding and having students reflect on that feedback, modeling metacognitive strategies for students, use retrieval practice in the classroom, and teaching students how to use self-testing appropriately.

Assessing the Advance Organizer

Even though the advance organizer may accurately reflect cognitive research, it is useless unless teachers and students can understand it and use it. I tested the utility, accuracy, and appeal of the advance organizer by getting feedback about it from teachers across many disciplines I posted a draft version of the organizer on different social media sites that are frequented by educators and educational researchers, and asked for honest, critical feedback. Although I could have created a formal survey, this method provides unfettered feedback from the group for which the advance organizer was designed. Their feedback was in the form of likes, shares or retweets, and comments.

I posted the advance organizer on my Twitter and Facebook accounts and asked for feedback. My Twitter account is primarily

dedicated to teaching, pedagogy, and the scholarship of teaching and learning. It has about 3100 followers, most of whom are educators and education researchers in a variety of fields, roles, and levels. I also posted the advance organizer on the Facebook group of the Society for the Teaching of Psychology (STP). The STP group has over 16,000 members. Presumably, the vast majority of these members are teachers or prospective teachers of psychology at various stages of their careers and in a wide variety of settings. Finally, I created a video on how people learn which used the advance organizer as a centerpiece, and posted it on YouTube (Chew, 2020b). I publicized the video on Twitter and Facebook.

According to analytics, the Twitter post was seen by over 40,000 people, of which 3117 opened the tweet. Overall, the post received 335 likes and 101 retweets, 12 of which were positive quote retweets. The tweet received 22 comments, which were overwhelmingly positive and supportive. Several people made suggestions that resulted in modifications to the advance organizer, such as enclosing "attention" in a rectangle, adding the caption "elaborative rehearsal" between WM and LTM, and changing *forgetting* from a pitfall to a choke point. There is not a comparison group for evaluating these results, but compared to other tweets about pedagogy, the advance organizer was well received both in terms of positive responses and sharing.

The Facebook post containing the advance organizer received 130 likes and 16 shares. It received nine unique comments, all of which were strongly positive. Compared to other posts in the group, the advance organizer received a great deal of attention and positive feedback.

The YouTube video using the advance organizer was posted in July, 2020. In 6 months, it has been viewed over 12,000 times. The comments from teachers have been uniformly positive. The video has been used by high school and college teachers to show students how to study. I posted notices about the video on both Twitter and the STP Facebook group, welcoming critical feedback. The Facebook post received 124 likes and was shared 30 times. There were 18 comments which were strongly positive.

Summary and Conclusion

Effective teaching involves more than just instructing students in course content. It also involves teaching students how to learn, think about, and use the information (Chew, 2014). Furthermore, teachers of psychology have the unique opportunity to teach students effective study skills as part of a class. In this article, I have described the development of a graphic advance organizer to help with this goal. The purpose of this advance organizer is to help teachers understand learning, and to enable them to design better pedagogy and instruct students in how to study effectively. For students, the organizer is intended to help them avoid common pitfalls in learning and develop flexible, effective study skills that they can use in any learning situation. The organizer graphically represents the course of learning, pointing out the choke points and pitfalls that might undermine learning. Not only does it point out these potential problems, but it also supplies solutions.

To test the accuracy and usefulness of the advance organizer, I posted it on several social media sites where it would be seen by teachers of psychology specifically and teachers in general, as well as other educational professionals. While not a controlled study, the hypothesis that the advance organizer was a valid and useful learning tool could have been falsified by critical comments or teacher indifference. The results show that the advance organizer was viewed positively and enthusiastically. Obviously, the lack of controlled testing is a limitation, although the fact that teachers were free to choose to criticize, ignore, or respond positively, and the majority did the latter.

More extensive research should be done with the advance organizer and, if warranted by the results, modifications made. For example, three groups of first-year college students could be given the same presentation on how to study effectively, with one group being given the advance organizer beforehand, another group getting the same information as the advance organizer but in list form rather than graphical form, and a control group not given any form of organizer. The students could be assessed on how much they learned from the presentation, how they planned to incorporate the information into their study strategies, and how useful the advance organizer that the first two groups received. Another way to assess the impact of the advance organizer would be to follow the paradigm used by Bransford and Johnson (1972) for testing schema activation. Three groups of first-year students could be given the same presentation on how to study, but one group would be provided with the advance organizer before the presentation, a second group would be provided with the advance organizer only after the presentation, and the third group would not be provided with the advance organizer at all. This study would use the same dependent measures as the previous one. In either study, it would be useful to follow up with the students after a time period to see how well students retained and used the information, and to see if either advance organizer could act as a reminder of the information.

Previous attempts to instruct teachers and students in how people learn have taken the form of books, articles, and video presentations. This advance organizer is unique in that it contains highly relevant information in one instructive diagram that can be used by both teachers and students. It has the potential to help teachers and students to develop a schema of how people learn.

Résumé

Les enseignants et les élèves ont tout à gagner d'une compréhension précise de la façon dont les gens apprennent. Pourtant, les recherches montrent que les deux groupes ont souvent des croyances erronées qui nuisent à l'apprentissage des élèves. Cet article décrit un organisateur avancé qui peut être utilisé pour aider les enseignants à comprendre comment les gens apprennent et que les enseignants peuvent utiliser à leur tour pour former les élèves à étudier plus efficacement. L'organisateur avancé est une représentation graphique d'un cadre simplifié de traitement de l'information. Il se concentre sur les goulots d'étranglement et les écueils de l'apprentissage, sur la base de la recherche cognitive. Les goulots d'étranglement sont des contraintes du système cognitif humain, comme la nature sélective de l'attention et la capacité limitée de la mémoire de travail, qui entravent l'apprentissage. Les écueils sont des pièges courants dans lesquels les élèves tombent et qui nuisent à leur apprentissage, comme le multitâche et l'excès de confiance. L'organisateur décrit chaque goulot d'étranglement et chaque écueil et propose une façon d'aborder chacun d'entre eux.

Mots-clés : enseignement, pédagogie, apprentissage des élèves

References

Agarwal, P. K., & Bain, P. M. (2019). *Powerful teaching: Unleash the science of learning*. Jossey-Bass. https://doi.org/10.1002/9781119549031

Ahn, W., Brewer, W. F., & Mooney, R. J. (1992). Schema acquisition from a single example. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *18*(2), 391–412. https://doi.org/10.1037/0278-7393.18.2.391

Alba, J. W., & Hasher, L. (1983). Is memory schematic? *Psychological Bulletin*, *93*(2), 203–231. https://doi.org/10.1037/0033-2909.93.2.203

Ausubel, D. P. (1960). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology*, *51*(5), 267–272. https://doi.org/10.1037/h0046669

Bellur, S., Nowak, K. L., & Hull, K. S. (2015). Make it our time: In class multitaskers have lower academic performance. *Computers in Human Behavior*, *53*, 63–70. https://doi.org/10.1016/j.chb.2015.06.027

Benassi, V. A., Overson, C. E., & Hakala, C. M. (2014). *Applying science of learning in education: Infusing psychological science into the curriculum*. Society for the Teaching of Psychology. http://teachpsych.org/ebooks/asle2014/index.ph

Betts, K., Miller, M., Tokuhama-Espinosa, T., Shewokis, P., Anderson, A., Borja, C., Galoyan, T., Delaney, B., Eigenauer, J., & Dekker, S. (2019). *International report: Neuromyths and evidence-based practices in higher education*. Online Learning Consortium. https://onlinelearningconsortium.org/read/international-report-neuromyths-and-evidence-based-practices-in-higher-education/

Biwer, F., Egbrink, M. G. A., Aalten, P., & de Bruin, A. B. H. (2020). Fostering effective learning strategies in higher education–A mixed-methods study. *Journal of Applied Research in Memory and Cognition*, *9*(2), 186–203. https://doi.org/10.1016/j.jarmac.2020.03.004

Bjork, R. A., & Bjork, E. L. (2006). Optimizing treatment and instruction: Implications of a new theory of disuse. In L.-G. Nilsson & N. Ohta (Eds.), *Memory and society: Psychological perspectives* (pp. 116–140). Psychology Press.

Blasiman, R. N., Dunlosky, J., & Rawson, R. A. (2017) The what, how much, and when of study strategies: comparing intended versus actual study behavior, *Memory*, *25*(6), 784–792, https://doi.org/10.1080/09658211.2016.1221974

Blasiman, R. N., Larabee, D., & Fabry, D. (2018). Distracted students: A comparison of multiple types of distractions on learning in online lectures. *Scholarship of Teaching and Learning in Psychology*, *4*(4), 222–230. https://doi.org/10.1037/stl0000122

Bransford, J. D., & Johnson, M. (1972). Contextual prerequisites for understanding: Some investigations of comprehension and recall. *Journal of Verbal Learning and Verbal Behavior*, *11*(6), 717–726. https://doi.org/10.1016/S0022-5371(72)80006-9

Brown, P. C., Roediger, H. L., & McDaniel, M. A. (2014). *Make it stick: The science of successful learning*. The Belknap Press of Harvard University Press. https://doi.org/10.4159/9780674419377

Brown-Kramer, C. R. (2021). Improving students' study habits and course performance with a "learning how to learn" assignment. *Teaching of Psychology*, *48*(1), 48–54. https://doi.org/10.1177/0098628320959926

Cavanagh, S. R. (2016). *The spark of learning: Energizing the college classroom with the science of emotion*. West Virginia University Press.

Chandler, P., & Sweller, J. (1991). Cognitive load theory and the format of instruction. *Cognition and Instruction*, *8*(4), 293–332. https://doi.org/10.1207/s1532690xci0804_2

Chen, Z., & Mo, L. (2004). Schema induction in problem solving: A multidimensional analysis. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *30*(3), 583–600. https://doi.org/10.1037/0278-7393.30.3.583

Chew, S. L. (2011, August). *How to study: A video series*. Samford University. http://www.samford.edu/how-to-study/

Chew, S. L. (2014). Helping students to get the most out of studying. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum*. Society for the Teaching of Psychology. http://teachpsych.org/ebooks/asle2014/index.php

Chew, S. L. (2015, March). *Cognitive principles of effective teaching*. Samford University. https://www.samford.edu/employee/faculty/cognitive-principles-of-effective-teaching

Chew, S. L. (2020a, May 27) *Teaching study skills (not just study tips) in introductory psychology*. Psychology Teacher Network. https://www.apa.org/ed/precollege/psychology-teacher-network/introductory-psychology/study-skills

Chew, S. L. (2020b, July 27). *Learning in pandemic times* [Video]. YouTube. https://youtu.be/XOKG2LrnwYo

Chew, S. L., & Cerbin, W. J. (2021). The cognitive challenges of effective teaching. *The Journal of Economic Education*, *52*(1), 17–40. https://doi.org/10.1080/00220485.2020.1845266

Chew, S. L., Halonen, J. S., McCarthy, M. A., Gurung, R. A. R., Beers, M. J., McEntarffer, R., & Landrum, R. E. (2018). Practice what we teach: improving teaching and learning in psychology. *Teaching of Psychology*, *45*(3), 1–7. https://doi.org/10.1177/0098628318779264

Corkill, A. J. (1992). Advance organizers: Facilitators of recall. *Educational Psychology Review*, *4*(1), 33–67. https://doi.org/10.1007/BF01322394

Cowan, N. (2010). The magical mystery four: how is working memory capacity limited, and why? *Current Directions in Psychological Science*, *19*(1), 51–57. https://doi.org/10.1177/0963721409359277

Craik, F. I., & Watkins, M. J. (1973). The role of rehearsal in short-term memory. *Journal of Verbal Learning and Verbal Behavior*, *12*(6), 599–607. https://doi.org/10.1016/S0022-5371(73)80039-8

Daniel, D. B., & Chew, S. L. (2013). The tribalism of teaching and learning. *Teaching of Psychology*, *40*(4), 363–367. https://doi.org/10.1177/0098628313501034

Dunlosky, J. (2013). Strengthening the student toolbox: Study strategies to boost Learning. *American Educator*, *37*(3), 12–21.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, *14*(1), 4–58. https://doi.org/10.1177/1529100612453266

Ehrlinger, J., & Shain, E. A. (2014). How accuracy in students' self-perceptions relates to success in learning. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum*. Society for the Teaching of Psychology. http://teachpsych.org/ebooks/asle2014/index.php

Ent, M. R., Baumeister, R. F., & Tice, D. M. (2015). Trait self-control and the avoidance of temptation. *Personality and Individual Differences*, *74*, 12–15. https://doi.org/10.1016/j.paid.2014.09.031

Eyler, J. R. (2018). *How humans learn: The science and stories behind effective college teaching*. West Virginia University Press.

Feldon, D. F. (2007). Cognitive load and classroom teaching: The double-edged sword of automaticity. *Educational Psychologist*, *42*(3), 123–137. https://doi.org/10.1080/00461520701416173

Forster, S. (2013). Distraction and mind-wandering under load. *Frontiers in Psychology*, *4*, Article 283. https://doi.org/10.3389/fpsyg.2013.00283

Gobet, F. (2005). Chunking models of expertise: Implications for education. *Applied Cognitive Psychology*, *19*(2), 183–204. https://doi.org/10.1002/acp.1110

Guillory, J. J., & Blankson, A. N. (2017). Using recently acquired knowledge to self-assess understanding in the classroom. *Scholarship of Teaching and Learning in Psychology*, *3*(2), 77–89. https://doi.org/10.1037/stl0000079

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. Routledge. https://doi.org/10.4324/9780203181522

Herbert, D. M., & Burt, J. S. (2004). What do students remember? Episodic memory and the development of schematization. *Applied Cognitive Psychology*, *18*(1), 77–88. https://doi.org/10.1002/acp.947

Karpicke, J. D., Butler, A. C., Roediger, H. L., III (2009). Metacognitive strategies in student learning: Do students practise retrieval when they study on their own? *Memory*, *17*(4), 471–479. https://doi.org/10.1080/09658210802647009

Kliegl, O., & Bäuml, K.-H. T. (2016). Retrieval practice can insulate items against intralist interference: Evidence from the list-length effect, output interference, and retrieval-induced forgetting. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *42*(2), 202–214. https://doi.org/10.1037/xlm0000172

Kreitz, C., Furley, P., Memmert, D., & Simons, D. J. (2015). Inattentional blindness and individual differences in cognitive abilities. *PLOS ONE*, *10*(8), Article e0134675. https://doi.org/10.1371/journal.pone.0134675

Mannies, N. J., Gridley, B. E., Krug, D., & Glover, J. A. (1989). Knowledge mobilization: Schema activation or generation effect? *Journal of General Psychology*, *116*(2), 121–132. https://doi.org/10.1080/00221309.1989.9711116

Mäntylä, T., & Nilsson, L.-G. (1988). Cue distinctiveness and forgetting: Effectiveness of self-generated retrieval cues in delayed recall. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *14*(3), 502–509. https://doi.org/10.1037/0278-7393.14.3.502

Mayer, R. E. (1979). Can advance organizers influence meaningful learning? *Review of Educational Research*, *49*(2), 371–383. https://doi.org/10.3102/00346543049002371

Mayer, R. E. (2014). Research-based principles for designing multimedia instruction. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum* (pp. 59–70) Society for the Teaching of Psychology http://teachpsych.org/ebooks/asle2014/index.php

McGuire, S. Y. (2015). *Teach students how to learn: Strategies you can incorporate into any course to improve student metacognition, study skills, and motivation*. Stylus Publishing, LLC.

Miyatsu, T., Nguyen, K., & McDaniel, M. A. (2018). Five popular study strategies: Their pitfalls and optimal implementations. *Perspectives on Psychological Science*, *13*, 390–407. https://doi.org/10.1177/1745691617710510

Morehead, K., Rhodes, M. G., & DeLozier, S. (2016). Instructor and student knowledge of study strategies. *Memory*, *24*(2), 257–271. https://doi.org/10.1080/09658211.2014.1001992

Neal, D. T., Wood, W., & Drolet, A. (2013). How do people adhere to goals when willpower is low? The profits (and pitfalls) of strong habits. *Journal of Personality and Social Psychology*, *104*(6), 959–975. https://doi.org/10.1037/a0032626

Nuthall, G. (2007). *The hidden lives of learners*. New Zealand Council for Education Research Press.

Pan, S. C., & Bjork, R. A. (2020). Acquiring an accurate mental model of learning: Towards an owner's manual. In A. Wagner & M. Kahana (Eds.), *Oxford Handbook of Learning & Memory: Foundations and Applications* (pp. 1–68). Oxford University Press.

Penn, P. (2019). *The psychology of effective studying: How to succeed in your degree*. Routledge. https://doi.org/10.4324/9780203703113

Piolat, A., Olive, T., & Kellogg, R. T. (2005). Cognitive effort during note taking. *Applied Cognitive Psychology*, *19*(3), 291–312. https://doi.org/10.1002/acp.1086

Putnam, A. L., Sungkhasettee, V. W., & Roediger, H. L., III (2016). Optimizing learning in college: Tips from cognitive psychology. *Perspectives on Psychological Science*, *11*(5), 652–660. https://doi.org/10.1177/1745691616645770

Robinson, D. H., & Kiewra, K. A. (1995). Visual argument: Graphic organizers are superior to outlines in improving learning from text. *Journal of Educational Psychology*, *87*(3), 455–467. https://doi.org/10.1037/0022-0663.87.3.455

Rodriguez, F., Rivas, M. J., Matsumura, L. H., Warschauer, M., Sato, B. K. (2018). How do students study in STEM courses? Findings from a light touch intervention and its relevance for underrepresented students. *PLOS ONE 13*(7), Article e0200767. https://doi.org/10.1371/journal.pone.0200767

Rose, R. J. (1992). Degree of learning, interpolated tests, and rate of forgetting. *Memory & Cognition*, *20*(6), 621–632. https://doi.org/10.3758/BF03202712

Sherrington, T. (March, 2020). *A model for the learning process. And why it helps to have one*. Teacherhead Blog. https://teacherhead.com/2020/03/10/a-model-for-the-learning-process-and-why-it-helps-to-have-one/

Slate, J. R., & Charlesworth, J. R. (1988). Information processing theory: Classroom applications. *Reading Improvement*, *26*(1), 2–6. https://eric.ed.gov/?id=ED293792

Stone, C. L. (1983). A Meta-analysis of advance organizer studies. *Journal of Experimental Education*, *51*(4), 194–199. http://www.jstor.com/stable/20151510. https://doi.org/10.1080/00220973.1983.11011862

Stull, A. T., & Mayer, R. E. (2007). Learning by doing versus learning by viewing: Three experimental comparisons of learner-generated versus author-provided graphic organizers. *Journal of Educational Psychology*, *99*(4), 808–820. https://doi.org/10.1037/0022-0663.99.4.808

Sweller, J., van Merriënboer, J. J. G., & Paas, F. (2019). Cognitive architecture and instructional design: 20 years later. *Educational Psychology Review*, *31*(2), 261–292. https://doi.org/10.1007/s10648-019-09465-5

Thornton, B., Faires, A., Robbins, M., & Rollins, E. (2014). The mere presence of a cell phone may be distracting. *Social Psychology*, *45*(6), 479–488. https://doi.org/10.1027/1864-9335/a000216

Wammes, J. D., Ralph, B. C., Mills, C., Bosch, N., Duncan, T. L., & Smilek, D. (2019). Disengagement during lectures: Media multitasking and mind wandering in university classrooms. *Computers & Education*, *132*, 76–89. https://doi.org/10.1016/j.compedu.2018.12.007

Weinstein, Y., Sumeracki, M., & Caviglioli, O. (2019). *Understanding how we learn: A visual guide*. Routledge.

Willingham, D. T. (2009). *Why don't students like school? A cognitive scientist answers questions about how the mind works and what it means for the classroom*. Wiley.

Willingham, D. T. (2017). A mental model of the learner: Teaching the basic science of educational psychology to future teachers. *Mind, Brain and Education*, *11*(5), 166–175. https://doi.org/10.1111/mbe.12155

Yue, C. L. (2020). Improving learner metacognition and self-regulation. In T. M. Ober, E. Che, J. E. Brodsky, C. Raffaele, & P. J. Brooks (Eds.), *How we teach now: The GSTA guide to transformative teaching* (pp. 95–103). Society for the Teaching of Psychology. http://teachpsych.org/ebooks/howweteachnow-transformative

Received July 2, 2020
Revision received March 20, 2021
Accepted March 28, 2021 ■