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# PSYNOOPSIS

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**SPECIAL ISSUE/ ÉDITION SPÉCIALE ICAP 2018**

Psychology:  
**Connecting Science to Solutions**

Psychologie :  
**Relier sciences et solutions**

David J. A. Dozois, PhD, C. Psych. and Peter Graf, PhD  
Guest Editors/Rédacteurs en chef invités

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## SPECIAL ISSUE/ ÉDITION SPÉCIALE ICAP 2018

# Psychology: Connecting Science to Solutions

David J. A. Dozois, PhD, C. Psych. and Peter Graf, PhD, Guest Editors

# Psychologie : Relier sciences et solutions

David J. A. Dozois, Ph.D., C. Psych. et Peter Graf, Ph.D., Rédacteurs en chef invités

- 8 Innovations in weight loss programs
- 9 Acceptance and commitment therapy as a well-being intervention
- 11 The patient experience during wide-awake surgery on the extremities
- 12 Missed opportunities: Addressing complex interactions in test validation
- 14 Is employee commitment still relevant in an era of change?
- 16 How psychologists can contribute to individual well-being, organizational productivity, and saving the planet through better buildings
- 18 Coping successfully with age-related memory change: Using psychological science to empower older adults
- 19 Improving Learning in Education
- 20 A key priority for psychological research and practice

22



**JUNE 26-30**  
29<sup>th</sup> International Congress  
of Applied Psychology  
**MONTREAL**

**24 CPA TASK FORCES**  
**25 GROUPES DE TRAVAIL**  
de la SCP

Dear Psynopsis contributors and readers,

We sincerely apologize for the delay in publishing this special issue of the magazine. We fell behind schedule due to a number of factors. We are working on a new publication schedule for 2019 to better ensure timely production.

Sincerely,  
The Psynopsis Editorial Team

Chers collaborateurs et lecteurs de Psynopsis,

Nous nous excusons sincèrement du retard pris dans la publication du présent numéro spécial du magazine. Ce retard a été causé par plusieurs facteurs. Nous travaillons en ce moment sur un nouveau calendrier de publication pour l'année 2019 afin de nous assurer de la production en temps opportun du magazine.

Cordialement,  
L'équipe de rédaction de Psynopsis

# Connecting psychological science to solutions



*David J. A. Dozois, PhD, C. Psych., and Peter Graf, PhD,  
ICAP 2018 Co-Presidents*

**This June**, the Canadian Psychological Association partnered with MCI Canada to host the International Association for Applied Psychology's 29<sup>th</sup> International Congress of Applied Psychology (ICAP 2018) in Montréal. The event was a great success!

The five-day Congress featured 3,600 presentations, including state of the art lectures, keynote addresses, symposia, debates spoken presentations and posters on recent advances, discoveries, and controversies in the science and practice of all domains of psychology. Delegates from a total of 77 different countries participated in ICAP 2018, the greatest number of whom were from Canada, the United States, China, Japan and Australia.

The theme of the Congress was "Psychology: Connecting Science to Solutions" to showcase innovative science-based answers to the questions that affect us, from helping to understand and improve the lives of individuals to enhancing the functioning of society locally and globally. State of the art lectures focused on a variety of important topics including: mental health in the workplace, psychological literacy, the internationalization of psychology, environmental decision-making, health behaviour, bullying and peer victimization, understanding toxic leadership, how psychologists can contribute to individual well-being, organizational productivity, and saving the planet.

Fifty-two keynote addresses emphasized cultural adaptations of psychotherapy, international perspectives on integrated health care, positive psychology, ethics in psychology and the implications for addressing global and local issues facing psychologists, the psychology of self-sacrifice, attention maps in the human brain, sexual violence, terrorism, testing and assessment, behavioural weight loss programs, personality structure, the science of successful learning, behavioural economics, passion, and a number of other topics. We also featured 20 invited symposia that focused on student mental health, psychological resilience, coping with stress, language and literacy development, cultural psychotherapy, financial behaviour and decision-making, self-compassion, internet-delivered psychological care, efficacy and mechanisms of change in psychotherapy, parenting, social cognition, and so on. The Congress was complemented by IAAP division presidents and CPA section chairs who presented 78 invited addresses, and by 12 former CPA presidents who presented keynote addresses. Last but not least, there were approximately 380 Gimme 5 presentations, where speakers presented a few slides and discussed their research in five minutes, and 1,500 posters.

Consistent with the Congress theme, we are pleased to guest edit this special issue of *Psynopsis*. Some of the articles presented in this special issue focus on psychological interventions or assessment. Frayn, Carrière, and Knäuper, for example, outline strategies for enhancing the efficacy and cost-effectiveness of behavioural weight loss programs. In particular, they highlight the importance of stress management and teaching strategies in emotion regulation as a way to maintain weight loss. They also discuss the importance of collaborative work between psychologists and physicians. Howell discusses how positive psychology interventions, such as acceptance and commitment therapy, can enhance well-being and functioning. MacNeill addresses the importance of patients' mental well-being in the administration of novel medical treatments and techniques. Finally, Hubley introduces two sources of validity evidence (response process and consequences of testing) that can help us to better understand the relations among the respondent, the test items or tasks, and the context of the psychological assessment.

Other articles in this special issue focus on how psychology can connect science to solutions in terms of broader issues, such as work-place commitment, contributing to well-being and organizational productivity through environmental changes, coping with age-related memory changes, and enhancing learning in the educational system. Meyer discusses the changing nature of organizational commitment and indicates that commitments reflect a balance of desire and a sense of obligation. Veitch argues that as we renovate new spaces (e.g., to reduce energy use, etc.), we also need to consider the inhabitants and how we can best remove barriers that interfere with a sustainable future. Vander Morris and Troyer discuss various tools offered by psychological science to help seniors take control of their experience of memory change. Roediger and Uner highlight strategies learned from cognitive psychol-

ogy to enhance learning. Finally, Lilienfeld and Bowes contend that to enhance both science and practice, we need to adopt a mentality of intellectual humility.

As this special issue demonstrates, there are numerous innovative ways in which psychological science can help us identify new solutions to queries and problems that we face in society at local, national, and global levels. The presentations at ICAP 2018 further demonstrated that the ability to connect psychological science to solutions is truly endless. We hope that you enjoyed ICAP 2018, that you will enjoy the articles in this special issue and that from them you will gain a real sense of the global impact of psychological science.

Through our research, we can demonstrate to the public, to policy makers and to political representatives that our theories, our research, our methodologies and our practice contribute importantly to making the lives of individuals, organizations, communities and nations better.

*Dr. Dozois is Professor of Psychology and Director of the Clinical Psychology Graduate Program at the University of Western Ontario. He is a Fellow of the Canadian Psychological Association (CPA), the Canadian Association of Cognitive and Behavioural Therapies, the CPA Section on Clinical Psychology, the Association for Behavioral and Cognitive Therapies and the Academy of Cognitive Therapy. He is also a former Beck Institute Scholar at the Beck Institute for Cognitive Therapy and Research. Dr. Dozois' research focuses on cognitive vulnerability to depression and cognitive-behavioural theory/therapy. Dr. Dozois was twice President of the CPA (2011–12; 2016–17). He is currently on the board of directors for Mental Health Research Canada and the International Association of Applied Psychology. In addition, he maintains a small private practice.*



*Dr. Graf is Professor of Psychology and Director of the Memory & Cognition Laboratory at the University of British Columbia. He is a Fellow of the Canadian Psychological Association (CPA), the American Psychological Association, the Association for Psychological Society and the Psychonomic Society. His research focuses on human memory, especially its prospective component, the normal development of memory across the adult lifespan and how it changes when the brain is affected by trauma or disease, such as Alzheimer's. He is also investigating the nature of activity programs designed to increase the expressive abilities and quality of life of individuals living with dementia, and with respect to teaching psychology, he is interested in peer assessment methods and in students' perception and acceptance of peer assessment as a method of instruction. Dr. Graf served as President of the CPA from 2010 to 2011.*







# La psychologie : relier science et solutions

*David J. A. Dozois, Ph. D., C. Psych., et Peter Graf, Ph. D.,  
coprésidents de l'ICAP 2018*

En juin dernier, la Société canadienne de psychologie s'est associée avec MCI Canada afin de tenir à Montréal le 29<sup>e</sup> congrès international de psychologie appliquée (ICAP 2018). L'événement de l'Association internationale de psychologie appliquée a été un grand succès!

Pendant les cinq jours qu'a duré le congrès, 3 600 présentations figuraient au programme, parmi lesquelles des conférences de pointe, des discours-programme, des symposiums, des débats, des présentations orales et des affiches portant sur les progrès récents de la psychologie, les découvertes et les controverses qui entourent l'exercice de la psychologie et la recherche scientifique dans tous les domaines de la psychologie. Des délégués de 77 pays ont participé à l'ICAP 2018, la plupart d'entre eux venant du Canada, des États-Unis, de la Chine, du Japon et de l'Australie.

Avec comme thème « La psychologie : relier science et solutions », le congrès avait comme objectif de présenter des données scientifiques nouvelles, qui apportent des solutions aux diverses préoccupations qui nous touchent, qu'il s'agisse de mieux comprendre et d'améliorer la vie des individus ou d'améliorer le fonctionnement de la société à l'échelle locale et mondiale. Les conférences de pointe portaient sur une variété de sujets importants, comme la santé mentale en milieu de travail, l'aptitude à appliquer les connaissances en psychologie pour répondre aux besoins personnels, professionnels et soci-

aux, l'internationalisation de la psychologie, le processus décisionnel en matière d'environnement, les comportements liés à la santé, l'intimidation et la victimisation par les pairs, la compréhension du leadership toxique, la façon dont les psychologues peuvent contribuer au bien-être individuel, à la productivité organisationnelle, ainsi qu'à sauver la planète.

Au nombre de 52, les discours-programme ont abordé l'adaptation de la psychothérapie en fonction de la culture, les perspectives internationales des soins de santé intégrés, la psychologie positive, l'éthique en psychologie et ses implications pour l'étude des questions mondiales et locales auxquelles font face les psychologues, la psychologie de l'abnégation, les schémas d'attention dans le cerveau humain, la violence sexuelle, le terrorisme, les tests et l'évaluation, les programmes de perte de poids axés sur le comportement, la structure de la personnalité, la science de la réussite de l'apprentissage, l'économie comportementale, la passion, ainsi que plusieurs autres sujets. Nous avons également au programme 20 symposiums sur invitation, qui portaient sur la santé mentale des étudiants, la résilience psychologique, l'adaptation au stress, le développement du langage et de l'alphabétisation, la psychothérapie culturelle, le comportement financier et la prise de décisions financières, la compassion envers soi, les soins psychologiques sur Internet, l'efficacité de la psychothérapie et les mécanismes de changement dans le cadre de la psychothérapie, la parentalité, la cognition sociale, etc. Le congrès a également accueilli les présidents des divisions de l'IAAP et les présidents de section de la SCP, qui ont présenté 78 com-

munications sur invitation, ainsi que 12 anciens présidents de la SCP, qui ont livré des discours-programme. Enfin et surtout, les délégués ont pu assister à environ 380 présentations éclair, où les intervenants avaient cinq minutes pour présenter quelques diapositives et discuter de leurs recherches, et voir 1 500 affiches.

En accord avec le thème du congrès, nous sommes heureux de diriger la rédaction du présent numéro spécial de *Psynopsis*. Certains des articles présentés dans ce numéro spécial portent sur les interventions psychologiques ou l'évaluation. Frayn, Carrière et Knäuper, par exemple, décrivent des stratégies visant à améliorer l'efficacité et la rentabilité des programmes de perte de poids axés sur le comportement. Elles soulignent, en particulier, l'importance de la gestion du stress et des stratégies d'apprentissage dans la régulation des émotions comme moyens de maintenir la perte de poids. Elles décrivent également l'importance de l'intervention concertée entre psychologues et médecins. Dans son article, Howell explique comment les interventions fondées sur la psychologie positive, comme la thérapie d'acceptation et d'engagement, sont à même d'améliorer le bien-être et le fonctionnement. MacNeill traite de l'importance du bien-être mental des patients dans l'administration de traitements médicaux et de techniques novatrices. Enfin, Hubley présente deux sources de preuves de validité (processus de réponse et conséquences du test), qui peuvent nous aider à mieux comprendre les relations entre le sujet, les questions ou les tâches du test, ainsi que le contexte de l'évaluation psychologique.

Les autres articles du numéro spécial portent sur la façon dont la psychologie et la science combinées peuvent apporter des solutions à de grandes questions, comme l'engagement en milieu de travail, la contribution de la psychologie au bien-être et à la productivité organisationnelle par l'intermédiaire de changements environnementaux, l'adaptation aux modifications de la mémoire liées à l'âge et l'amélioration de l'apprentissage dans le système éducatif. Meyer traite de l'évolution de la nature de l'engagement au sein de l'organisation et indique que l'engagement traduit l'équilibre entre volonté et sens du devoir. Veitch soutient que, pendant que nous réaménageons les espaces (par exemple, pour réduire la consommation d'énergie), nous devons également prendre en considération les personnes qui les habitent et envisager la meilleure façon d'éliminer les obstacles qui nuisent à l'instauration d'un futur durable. Vander Morris et Troyer présentent les différents outils qu'offre la psychologie scientifique pour aider les personnes âgées à prendre en charge les effets des modifications de la mémoire. Roediger et Uner mettent en évidence les stratégies tirées de la psychologie cognitive pour améliorer l'apprentissage. Finalement, Lilienfeld et Bowes affirment que, pour améliorer à la fois la science et la pratique, nous devons développer une nouvelle attitude, celle de l'humilité intellectuelle.

Comme le montre le présent numéro spécial, la psychologie scientifique peut, à l'aide des nombreuses innovations qu'elle apporte, nous aider à trouver des solutions aux questions et aux problèmes auxquels nous sommes confrontés dans la

société, à l'échelle locale, nationale et mondiale. Les présentations offertes à l'ICAP 2018 montrent que la contribution de la psychologie scientifique à la recherche de solutions aux problèmes de notre temps n'a pas de fin. Nous espérons que vous avez apprécié l'ICAP 2018, que vous apprécierez les articles de notre numéro spécial et que, à leur lecture, vous saisissez véritablement les répercussions mondiales de la psychologie scientifique.

Grâce à notre recherche, nous pouvons montrer au public, aux décideurs et aux représentants politiques que nos théories, notre recherche, nos méthodologies et notre pratique contribuent énormément au mieux-être des individus, des organisations, des collectivités et des nations.

*Le Dr Dozois est professeur de psychologie et directeur du programme d'études supérieures en psychologie clinique de l'Université Western. Il détient le titre de fellow de la Société canadienne de psychologie, de l'Association canadienne des thérapies cognitives et comportementales, de la Section de la psychologie clinique de la SCP, de l'Association for Behavioral and Cognitive Therapies et de l'Academy of Cognitive Therapy. Il est un ancien récipiendaire d'une bourse d'études du Beck Institute for Cognitive Therapy and Research. Les recherches du Dr Dozois se concentrent sur la vulnérabilité cognitive dans la dépression et sur la théorie/thérapie cognitivo-comportementale. Le Dr Dozois a été à deux reprises le président de la SCP (2011–2012; 2016–2017). Il siège actuellement au conseil d'administration de Recherche en santé mentale Canada et de l'Association internationale de psychologie appliquée. Il exerce, en outre, en cabinet privé.*



*Le Dr Graf est professeur de psychologie et directeur du laboratoire sur la mémoire et la cognition de l'Université de la Colombie-Britannique. Il détient le titre de fellow de la Société canadienne de psychologie (SCP), de l'American Psychological Association, de l'Association for Psychological Society et de la Psychonomic Society. Dans ses recherches, il s'intéresse à la mémoire chez l'humain, en particulier à l'élément prospectif de la mémoire, au développement normal de la mémoire à l'âge adulte et à la façon dont celui-ci change lorsque le cerveau est affecté par un traumatisme ou une maladie, comme la maladie d'Alzheimer. Il étudie également la nature des programmes d'activités visant à améliorer la capacité de s'exprimer et la qualité de vie des personnes qui souffrent de démence; dans le cadre de ses activités d'enseignement, il s'intéresse aux méthodes d'évaluation par les pairs, et à la perception et l'acceptation des étudiants relativement à l'évaluation par les pairs à titre de méthode d'enseignement. Le Dr Graf a été le président de la SCP de 2010 à 2011.*





# Innovations in weight loss programs

*Mallory Frayn, PhD candidate, McGill University; Kimberly Carrière, PhD candidate, McGill University; and Bärbel Knäuper, PhD, Professor of Psychology, McGill University*

**As obesity continues to be a growing problem** for many, the search for weight loss solutions has become a never-ending quest. In research contexts, intensive behavioural weight loss programs, such as the Diabetes Prevention Program (DPP),<sup>1</sup> have been shown to facilitate clinically significant weight loss of 5-7% when delivered one-on-one. However, one-on-one delivery is very costly (~US \$3,000/person) and is not widely available to the large number of individuals with obesity who are seeking to lose weight.

In recent years, attempts have been made to widen the dissemination of intensive behavioural weight loss interventions. For example, a group version of the DPP was developed as a cheaper alternative to the one-on-one DPP, but it comes at the cost of reduced effectiveness.<sup>1</sup> Subsequent enrichments of the original group program have emphasized the promotion of habit formation to facilitate behaviour change,<sup>2</sup> but the lack of accessibility to the general population remains a major hurdle.

An interesting potential solution to broaden the accessibility of these programs is their delivery through physicians.<sup>3</sup> This is in line with the recommendations of the Canadian Task Force on Preventative Health Care for the management of obesity in adults in primary care.<sup>4</sup> Given that it is comorbid with a number of chronic conditions, such as high blood pressure, diabetes, and heart disease, physicians frequently see patients with obesity.<sup>5</sup> However, they typically lack the knowledge and training in the field of behaviour change that is needed to effectively deliver such programs,<sup>6</sup> so promoting collaboration between psychologists, who specialize in behaviour change, and physicians, who specialize in physical health, is likely to be a more feasible solution to effectively implementing physician-delivered weight loss interventions.<sup>7</sup> These collaborations may be fostered in the context of specialized weight loss clinics run by interdisciplinary teams that include both physicians and psychologists.

Other efforts to expand the reach of behavioural weight loss interventions include the development of web-based e-health interventions, such as the online DPP.<sup>8</sup> The obvious benefit of such programs is that they have the potential to reach everyone; however, they currently lack the effectiveness of face-to-face interventions, resulting in weight loss of less than three kilograms on average.<sup>9</sup> Such findings raise the question of how face-to-face interventions, social support, and engagement can be mimicked in online programs in order to achieve higher weight loss. New digital tracking platforms like SlipBuddy are showing promise in doing just that, using machine learning and artificial intelligence to create a hyper-personalized approach to weight loss.<sup>10</sup>

Despite the progress described above for initial weight loss, the main challenge continues to be weight loss maintenance. Most intensive behavioural weight loss interventions show that participants eventually regain the weight they lost.<sup>11</sup> This may be due, in part, to emotional eating - many individuals who lack effective emotion regulation skills tend to overeat in response to negative emotions, thus contributing to weight regain over time.<sup>12</sup> On the other hand, high levels of physical activity, eating a low-calorie and low-fat diet, and regular self-monitoring have all been associated with weight loss maintenance.<sup>13</sup>

Translating this knowledge into effective weight maintenance interventions points to the importance of teaching stress reduction and emotion regulation techniques to target these potential barriers to weight loss maintenance. These skills should also be combined with behaviour change and habit formation techniques to facilitate increased physical activity, healthier eating habits, and self-monitoring. Packaging such content into brief, easy-to-deliver formats and taking advantage of machine-learning to personalize the programs may make effective weight loss interventions broadly available to Canadians who are seeking to lose weight, maintain their weight loss, and improve their health.

*For a complete list of references, please go to [www.cpa.ca/psynopsis](http://www.cpa.ca/psynopsis)*





# Acceptance and commitment therapy as a well-being intervention

Andrew J. Howell, PhD, R. Psych., Associate Professor of Psychology, MacEwan University

**Well-being is more than the absence** of psychological disorder; it involves both feeling good (e.g., experiencing positive emotion) and functioning well (e.g., having good relationships).<sup>1</sup> Psychologists play a significant role in the study of well-being, including those whose research or practice is within the field of positive psychology. Positive psychology seeks to complement the psychological study of negative experiences and ill-being and to understand the harmonization of positive and negative experiences.<sup>3</sup> In less than 20 years, its literature has become large, far-reaching, and impactful.<sup>4</sup>

One fruitful line of research in positive psychology concerns the testing of *positive psychological interventions* that aim to enhance well-being via the promotion of positive emotions, behaviours, or thoughts.<sup>5</sup> Numerous studies have shown that activities such as *gratitude expression* and *visualizing one's best possible self* significantly enhance people's feeling and functioning.<sup>6,7,8</sup>

The scope of evidence-based positive psychological interventions can be widened by considering approaches originating

outside positive psychology. One such approach is acceptance and commitment therapy (ACT), developed and evaluated by psychologist Steven C. Hayes and colleagues over the last three decades. ACT aims to change the *context* rather than the *content* of people's psychological experience, thereby reducing the negative consequences of such experiences (not necessarily the frequency of them) and fostering action in alignment with personal values. ACT promotes six adaptive processes:<sup>9</sup> (1) *acceptance* involves fully experiencing internal and external events (e.g., being willing to experience anxiety); (2) *cognitive defusion* involves distancing oneself from thoughts rather than fusing with them (e.g., recognizing that the thought "I am worthless" is not equivalent to being worthless); (3) *being present* involves ongoing contact with events as they occur (e.g., mindfully attuning to ongoing experiences); (4) the *"observing self"* involves viewing the self as a perspective on experience that is distinct from the content of that experience (e.g., distinguishing the stable observing self from the more fluctuating nature of moment-to-moment experience); (5) *values* reflect what is deeply cared about (e.g., one's relationships with others); and (6) *committed action* involves behaving in accordance with one's values (e.g., spending more time with friends).

The effective cultivation of these processes contributes to increased *psychological flexibility*, defined as “the ability to contact the present moment more fully as a conscious human being, and to change or persist in behavior when doing so serves valued ends.”<sup>10</sup> The successful application of ACT to various clinical conditions, such as depression and anxiety, is supported by findings aggregated across numerous studies.<sup>10,11,12,13</sup>

While ACT is primarily used to reduce ill-being, there are several reasons why it is also a strong candidate as an intervention for enhancing well-being. Hayes argues that ACT is aimed at personal growth and engagement in valued areas of one’s life, not only at reducing disorder, disability, or distress.<sup>9</sup> He identifies several gains that occur during ACT, such as emotional deepening, empowerment, growth, transcendence, openness, curiosity, spirituality, effective responding, and mindfulness. Even when applied to people experiencing psychological disorders, ACT focuses more on the enhancement of effective behaviour (e.g., greater intimacy in relationships) than it does on the reduction of symptoms (e.g., lesser anxiety or depression).<sup>9,14</sup> Hayes further argues that ACT emphasizes a continuity between normal functioning and disordered functioning and is therefore non-pathologizing. For example, ACT applies to the therapist’s experience and functioning as much as it does to the client’s.<sup>9</sup> Despite the apparent relevance of ACT to positive psychology, the fields have “hardly referenced each other.”<sup>15</sup> As of this writing, the phrase ‘acceptance and commitment’ has not appeared in the title or abstract of any article published in the *Journal of Positive Psychology* or the *Journal of Happiness Studies*, two of the main well-being journals.

Recent research supports ACT’s efficacy as a positive psychological intervention, including a dozen randomized controlled trials (all conducted during the current decade) that examined the impact of ACT interventions on university student well-being. One such study by Canadian psychologists tested ACT as a well-being intervention at four French-language universities.<sup>16</sup> Undergraduate and graduate students were randomly assigned either to a 10-hour, group-based ACT intervention over a four-week period, or to a waitlist control condition. The ACT intervention addressed values and committed action, acceptance and defusion, and mindfulness practice. Results showed that, relative to waitlist participants, participants in the ACT condition experienced greater psychological flexibility, well-being, and school engagement, as well as lower stress, anxiety, and depression. Numerous studies have also tested ACT as a well-being intervention in other non-clinical populations and have found that ACT enhances well-being among adolescents,<sup>17</sup> workplace employees,<sup>18</sup> and general adult populations.<sup>19</sup>

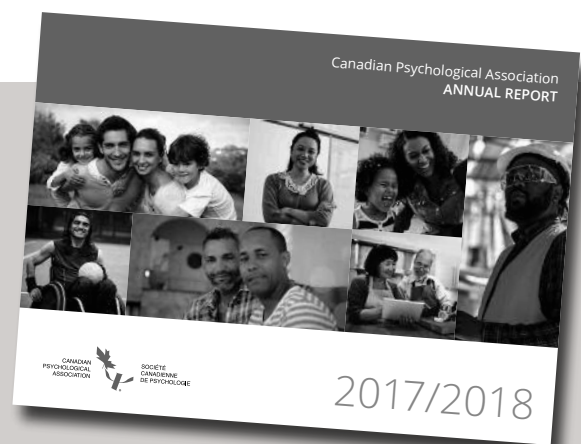
ACT has long been used to successfully reduce ill-being but has largely gone unrecognized by the positive psychology community as a tool for enhancing well-being. Evidence supporting the effects of ACT among various non-clinical populations affirms the description of positive psychology and ACT as “... mutually supportive fellow travelers”<sup>20</sup> and supports further psychological science examining ACT as a well-being intervention.

For a complete list of references, visit [www.cpa.ca/psynopsis](http://www.cpa.ca/psynopsis)

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# The patient experience during wide-awake surgery on the extremities

*A. Luke MacNeill, doctoral student, University of New Brunswick*

Several years ago, I began working with an orthopedic surgeon based on the east coast of Canada. This surgeon had recently started performing lower extremity surgery using wide-awake local anesthesia, a novel form of anesthesia that numbs the operative area while allowing the patient to remain fully conscious for the duration of his or her operation. The surgeon perceived that his patients were tolerating their operations well, but he was looking for some concrete data to set his mind at ease. Unfortunately, most of the pre-existing literature in this area was of little help, as it tended to focus on the technical aspects of this anesthesia rather than the patients themselves. Consequently, we set out to assess patients' psychological experience during these operations.

Before going any further, I should address an obvious question: Why are some surgeons choosing to perform surgery on fully conscious patients? There are a few reasons. For starters, wide-awake surgery avoids the various risks and side effects that accompany the use of general anesthesia or sedation.<sup>1,2</sup> It also renders preoperative testing (e.g., blood work) unnecessary and shortens the patient's postoperative hospital stay.<sup>3,4</sup> There are positive implications for our healthcare system as well. These surgeries do not require anesthesiology staff or equipment, so they are considerably less expensive than the same procedures performed under traditional forms of anesthesia.<sup>5-7</sup> For the same reason, they allow surgeons to conduct a greater number of operations in a shorter timeframe, thereby reducing long wait times for surgery.

Of course, all of these benefits would mean very little if patients were to experience a distressing or traumatic operation. To date, the main focus of our research has been patients' intraoperative pain. I began by conducting a retrospective assessment of several dozen of the surgeon's former patients, all of whom received orthopedic procedures on the lower extremities. Their reported pain levels were minimal: 0.75 ( $\pm 0.85$ ) on a 0 to 10 numerical rating scale.<sup>8</sup> Unfortunately, these ratings were collected months after surgery and may have been affected by a recall bias. In a follow-up study that I performed in conjunction with a local medical student, we headed into the operating room and assessed patients during the surgery itself. We found that pain ratings were even lower than those reported in the retrospective study.<sup>9</sup>

One problem with collecting self-report data during surgery is the close proximity of the surgeon. Some patients may feel inclined to provide positive feedback to avoid angering or disappointing the surgeon, who is only a few feet away with a number of sharp instruments at his or her disposal. In a more recent study, I validated patients' pain ratings using objective measures of skin conductance, which reflect the sympathetic response of the sweat glands. In this study, patients reported mild pain during the initial anesthesia injection and showed a correspondingly large skin conductance response. By comparison, they reported little or no pain during the surgery itself, and their skin conductance responses (or lack thereof) confirmed these ratings.<sup>10</sup>

*Continued on page 13*



## MISSED OPPORTUNITIES:

# Addressing complex interactions in test validation



*Anita M. Hubley, PhD, Professor, Department of Educational and Counselling Psychology and Special Education, University of British Columbia*

**We live in a world dominated** by quantification – a local restaurant has an average rating of 4.2 out of 5 for its food, a student just earned a mark of 21 out of 30 on her statistics test, and, after eight weeks, a treatment group scored 2.5 points lower, on average, than the control group on a depression scale.

Psychological measurement involves using numbers to capture attributes, observations, or experiences, as in the examples above. Measurement and the use of numbers allow us to summarize large amounts of information, make comparisons, and conduct statistical analyses. However, measurement is not perfect.

Our challenge is to measure with as little error as possible and to determine whether there is support for the interpretations we want to make from our numbers. Does the student's test score tell us about her statistics knowledge? How much error surrounds her score? And to what degree does her test score reflect other constructs, such as familiarity with multiple-choice tests or reading comprehension or knowledge of

sports? If the latter suggestion seems odd, consider that this student's statistics course was taught by an enthusiastic sports psychologist who regularly used sports examples to illustrate statistical concepts.

To examine the amount of error in our measurements, we estimate reliability. Are the responses that people give consistent across items or over time? To examine the accuracy of our interpretations, we turn to various sources of validity evidence. Validity tells us the degree to which our proposed test score interpretations and use, for a particular sample and context, are supported by theoretical argument and empirical evidence.

Of the five sources of validity described in the 2014 *Standards for Educational and Psychological Testing*,<sup>1</sup> three have been around for a long time and are well known: (1) test content, in which experts evaluate various aspects of a test, (2) internal structure, wherein we examine the degree to which the factor structure of a test matches what we expect, and (3) relations to other variables, which includes convergent and discriminant evidence, test-criterion relationships, and known-group differences. In each case, we are interested in whether the test content, internal structure, and relations to other variables conform to what is expected theoretically or empirically for the construct of interest.

Two somewhat newer and less well understood sources of validity evidence are response processes and consequences of testing. With response processes, we consider what people are thinking, feeling, and doing as they respond to our measures. In research and assessment, we spend a lot of time focused on standardizing administration and scoring procedures, but testing involves an interaction among a person, a set of items or tasks, and a context. Do people interpret each of the items in the way that was intended theoretically? Did the response format provided capture how *they* wanted to respond?

Response processes are the mechanisms that underlie what people do, think, or feel when interacting with and responding to items or tasks; they are partly responsible for the variation in observed scores.<sup>2</sup> Typical approaches are to record strategies used in completing tasks, ask respondents to think out loud while they respond to items, and/or follow up when they hesitate or change their responses. We need to consider not just cognitive processes, but also emotional and motivational ones, and evaluate how consistent they are with the theory and empirical research about the intended construct. Response processes evidence helps us understand whether people interact with tests in ways that are intended.

Consequences of testing as a source of validity evidence has been controversial. It has been argued that examining test consequences is not a realistic source of evidence and that test developers cannot be responsible for how others will use tests and test scores.<sup>3</sup> A major misconception about consequences of testing, however, is that this is about test misuse. Test misuse is an important concern, but it is not the focus here.<sup>3,4,5</sup> Rather, consequences of testing is about the positive and negative consequences that stem from using tests appropriately or legitimately.

When we develop or use tests, we want test scores and the inferences we make from them to have impact. We use them in research, clinical, and applied settings to understand valued cultural phenomena, build theories, make decisions, evaluate interventions, and create policy.<sup>4</sup> Whether the measures we use are high stakes or not, they have implications for individuals, groups, and society. As a result, we also have a responsibility to examine (a) if the benefit expected from the intended interpretation and use of test scores is realized, (b) if other claims that go beyond the test developer's intended interpretation and use of test scores are supported, and (c) what unintended positive and/or negative consequences may result from test interpretation or use.<sup>1</sup> Furthermore, we need to evaluate if these intended and unintended consequences subsequently impact the validity of test score inference and use.

Response processes and consequences of testing are neither quick nor easy sources of validity evidence to collect and evaluate, especially in a world that values convenience and immediacy. These are, however, emerging sources of evidence with enormous potential that address the importance of attending to the complex interaction of the respondent, the items or tasks, and the context in which we administer, interpret, and use tests.<sup>6</sup>

## The patient experience during wide-awake surgery on the extremities

*Continued from page 11*

Patient anxiety is also of interest. Patients tend to report mild to moderate anxiety just prior to surgery when their nerves are high. One might expect anxiety to increase during the surgery itself, but the opposite is true. Our research has found that anxiety is significantly lower during surgery than it is preoperatively.<sup>8,9</sup> Moreover, the decline appears to happen steadily over the duration of the procedure, such that there is little or no anxiety by the end of surgery.<sup>10</sup> Once the surgery starts, patients seem to realize that the experience is better than they were expecting, and they adjust their expectations accordingly.

While these findings are informative, it may be useful to supplement them with a brief anecdote. Last year, an elderly woman was in the operating room to receive an orthopedic procedure on her forefoot. I was positioned close to her head so that I could easily collect her self-report measurements. After lying on the operating table for ten minutes or so, the patient turned to me, slightly aggravated, and asked when her surgery was going to start. I exchanged an awkward glance with the surgeon, who had already cut open her foot, retracted the tissue, and was preparing to drill into the exposed bone. I assured the patient that the surgery was progressing as planned, and we proceeded to have a short discussion about the data that I was collecting. Not every case progresses this smoothly, of course, but this anecdote may provide some insight into the nature of the surgical experience.

In view of these positive results, the surgeon continues to use this approach with his patients. Both his patients and the healthcare system at large are benefiting as a result. In addition, this research has attracted the attention of other surgeons across Canada and abroad, who themselves have been looking for safer and more efficient ways to conduct their operations.

It is unfortunate that the practical utility of novel medical treatments or techniques can sometimes overshadow considerations of patients' mental well-being. As this article illustrates, the psychological experience of medical patients is an important issue and should be a key focus of all relevant health research. As our population continues to age and potentially serious medical procedures become more common, patient-focused research will become increasingly important for guiding the future course of healthcare in our country.



# Is employee commitment still relevant in an era of change?

*John P. Meyer, PhD, Department of Psychology,  
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**Interest in employee commitment developed** initially in the latter half of the twentieth century when the ‘War for Talent’ was at its peak and employers competed to recruit and retain the best people. The emphasis at that time was on fostering commitment to the organization as a way to reduce turnover. Unfortunately, there was little consensus at the time on the meaning of commitment, let alone what one could do to build it. The resolution that Natalie Allen and I proposed with our three-component model of commitment<sup>1</sup> was to acknowledge that commitments could develop and be experienced in different ways, including an emotional attachment (affective commitment), a sense of obligation (normative commitment), or a perceived cost of discontinuing the relationship (continuance commitment). Although any one or a combination of these commitments might be sufficient to tie an employee to the

organization, the value in making the distinctions was reflected in their implications for on-the-job behaviour. For example, employees who have a strong emotional attachment are more likely than those who are bound by obligation or threatened loss to go beyond what is required to achieve organizational objectives.

As we approached the new millennium, things changed. Pressures for greater efficiencies due to global competition and the introduction of new technologies led to an increase in mergers/acquisitions, organizational restructuring, and downsizing, all of which undermined the stability of employer-employee relationships. Organizations could no longer commit to providing long-term employment, and employees were being advised to accept that they might work for several organizations during the course of their careers. Indeed, some argued that organizational commitment was dead!

As the turmoil continues through the first two decades of the new millennium, the relevance of organizational commitment continues to be questioned, but what about commitment itself? The importance of commitment rests on its implications



for certainty and predictability. Indeed, the concept itself implies a binding of the individual to the target (agent or action) of the commitment. Thus, although employers may no longer expect, or require, employees to commit to a long-term relationship, they still value commitment to high quality performance, goal attainment, customer service, and the like. Somewhat ironically, as organizations seek to adapt to the pressures for efficiency – the same pressures that undermined organizational commitment – they have come to rely on employees' commitment to the changes they introduce.<sup>2</sup> So, commitment in the workplace is not dead, but the focus has shifted.

Even when organizational commitment was the primary focus of theory and research, it was acknowledged that employees can develop multiple commitments to targets within (e.g., supervisors, teams, projects) and outside (e.g., union, profession, career, customers) the organization. They can also develop non-work commitments, including commitments to family, friends, and community. This raises a host of questions, including the potential for compatibility, conflict or synergy among commitments. Organizations might be concerned about the best way to channel employees' commitment to achieve the benefits once derived from organizational commitment. Employees, on the other hand, might be concerned about how any commitments they make might impact their ability to achieve work-life balance.

As researchers and practitioners move forward in dealing with these challenges, it is important to recognize the basic

principles derived from previous research. Among these is the finding that commitments to any target can be experienced in different ways that will have implications for how the commitment is enacted. For example, while it is possible to commit ourselves or others to a course of action by making it costly to do otherwise, this can lead to mere compliance with minimum requirements for fulfillment. In contrast, our research suggests that commitments reflecting a balance of desire (affective commitment) and sense of obligation (normative commitment) lead to higher levels of discretionary effort in the service of the target and to the well-being of the individual. We have also learned a great deal about the mechanisms (e.g., social exchange, fit, need satisfaction) involved in the development of commitment. These 'best principles' can be used to guide practice regardless of the target of the commitment involved.

In sum, borrowing from Samuel Clemens, rumours regarding the death of commitment in the era of change are greatly exaggerated. Although the focus may have shifted away from commitment to a long-term relationship, employers can still benefit from commitments to teams, projects, customers and change initiatives. Research on workplace commitments also continues to thrive.<sup>3</sup> While we still have much to learn about the interactions of work and non-work commitments in the modern workplace, practitioners have many solid principles to draw upon as they work to foster the right commitments to the right targets.

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# How psychologists can contribute to individual well-being, organizational productivity, and saving the planet through better buildings



*Jennifer A. Veitch, PhD, Principal Research Officer,  
National Research Council of Canada*

In the “affordable and clean energy” category of the United Nations Sustainable Development Goals is the target: “By 2030, double the global rate of improvement in energy efficiency.” In industrialized countries, where people spend 90% of their time indoors, improving building energy efficiency will be a critical part of reaching this target. To address this

problem, many countries, including Canada, now mandate limits on predicted energy use in new buildings as part of their regulatory approvals (although there is no limit on actual energy use in occupied buildings). However, most of the building stock that we will occupy for the foreseeable future exists today. To meet that target, we will need to make most existing buildings much more energy-efficient through renovation, and we need to do so right away.

This might sound like a purely engineering problem, but consider why buildings exist: to provide spaces that shelter us

and support our activities. The definition of *sustainability* is to meet the needs of the present without impeding the ability of future generations to meet their needs. As we renovate existing buildings to reduce energy use, greenhouse gas emissions, and resource consumption, we need to ensure that the buildings continue to be suitable places for people to inhabit, or the scale of the transformation required in the existing building stock will not be achieved. There are three ways in which psychologists can contribute.

By working together with engineers and architects we can add to the evidence that with judicious choices of technology, building design, and operation, better buildings can improve our individual and collective well-being. For example, workplace lighting that provides light to individual workstations, rather than providing a high general light level without regard to the layout, hugely reduces lighting energy use. Adding controls that turn the lights off in unoccupied spaces and others that dim the light in response to daylight further reduce energy use. Renovating an existing lighting system that seems to work, and adding controls, can be expensive, and when electricity prices are comparatively low (as in much of North America), those costs can seem high in comparison to the energy savings. However, when one adds the ability for individuals to control the light level in their own workstations, one can save an additional ~10% of lighting energy because of individual differences.<sup>1</sup> More importantly, as I and my colleagues at the National Research Council of Canada have shown, the ability to satisfy one's own preferences also leads to more pleasant mood, fewer health complaints, greater job satisfaction, greater affective organizational commitment, and reduced intent to turnover. Not all possible energy-efficient technologies will deliver these benefits to individuals and organizations, but psychologists can help to identify those that do.

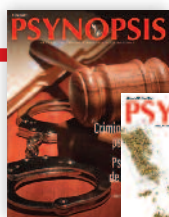
We would expect to see faster market adoption of the technologies that have been shown to bring these benefits along with greater energy-efficiency, although whether that occurs or not depends on influencing decision-makers. Fortunately, psychologists are well-positioned to develop and test advanced decision-making models to explain how organizations choose sustainable technologies – and as importantly, what barriers prevent these choices. Some argue that these benefits should improve the return-on-investment enough to speed renovation choices, but over 25 years of efforts to increase the uptake of

energy efficient technologies shows us that these decisions are not simple. Organizations decide in part based on their strategic concerns, but simple financial models often fail to take these into account. Psychologists argue that attitudes, values, and social norms all influence motivation and know well that cognitive biases and heuristics prevent rational decision-making. To double the adoption of building energy efficiency measures, we need to improve our understanding of how people adopt these new technologies, not only at the level of individual behaviour, like switching off the lights or taking a shorter shower, but at the level of organizations, where a single decision to install a complex building automation system can have a dramatic effect on a whole building or campus of buildings for decades.

What are the impediments to those decisions, and how can they be overcome? We can use our communication and behaviour change skills to transfer this knowledge, removing or overcoming barriers that impede a sustainable future. Psychologists already do this, but have largely focused on the behaviour of individuals, and most often in a residential context. This is necessary, of course, but insufficient. We can and must use psychological knowledge to help to remove the barriers for large-scale decisions, including matters of public policy. This can mean involvement in unfamiliar activities, such as serving on the committees that write standards and recommendations for equipment and buildings, responding to calls for public comments on draft documents, or engaging directly with decision-makers, all to ensure that the technologies that are promoted and adopted are those that simultaneously use less energy and create environments we want to inhabit.

Our built environment does not exist to be an energy-consumption machine – buildings and cities exist to serve us. In the 1970s, energy-efficiency strategies, such as reduced ventilation rates coupled with tightly sealed buildings, resulted in the legacy of sick building syndrome, while unthinking removal of light fixtures created visibility hazards. Reducing the energy used by buildings is undoubtedly critical to the achievement of a sustainable future, but purely technical solutions are unlikely to provide the spaces we need and want. Psychologists have roles to play in both the needed research and application leading to a sustainable built environment.

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Coping successfully with  
age-related memory change:

# Using psychological science to empower older adults



*Susan Vandermorris, PhD, C. Psych., Psychologist, Baycrest Health Sciences, and Angela Troyer, PhD, C. Psych., Professional Practice Chief of Psychology, Baycrest Health Sciences and Assistant Professor, University of Toronto*

**Older adults often notice changes** in their memory, such as forgetting the name of someone they know well, losing their keys or wallet, or forgetting to do things they intended to do. These memory mistakes, while common, can be a source of significant anxiety and frustration. Many older adults are not clear whether these changes are normal and are looking for practical solutions to help them better cope in their day to day lives.

Fortunately, psychological science offers many tools to empower seniors to take control of their experience of memory change. *Psychoeducation* can build knowledge (what's normal and what's not), elucidate strengths (some types of memory improve with age), and debunk myths (writing things down does not make your memory lazy). Facilitation of *group processes* can foster normalization and positive coping. *Behaviour change* techniques can increase the likelihood of healthy lifestyle change. *Practical training* in evidence-based memory strategies can help participants succeed in everyday memory situations. The Baycrest Memory and Aging Program in Toronto, Ontario combines these elements into a 10-hour memory intervention group program for older adults concerned about normal age-related memory changes. To date, over 1,200 older adults have participated in this face-to-face program at Baycrest.

We have conducted a number of controlled trials<sup>1-3</sup> of the Memory and Aging Program, showing that participants gain knowledge about memory and factors affecting memory, skills to generate and apply strategies to succeed in everyday memory situations, and confidence in their ability to remember what they want to remember. Program graduates are more

likely to adopt healthier lifestyle practices and avoid unneeded medical care for normal memory change. Qualitative evaluation<sup>4</sup> has identified normalization as the overarching participant benefit, with many reporting a significant reduction in memory-related anxiety (e.g., “I was actually panicking before I came here.”). Our ongoing quality assurance activities indicate that the large majority of participants meet their self-identified goals, and satisfaction with the program is uniformly high.

Our recent activities have focused on bringing the program to older adults outside of the Baycrest community. Facilitator's materials and a train-the-trainer workshop enable health professionals to provide the program in their home organizations. Recently, our group was awarded funds from the Centre for Aging and Brain Health Innovations to create an online version of the Memory and Aging Program. One of the key challenges in implementing this project is finding a way to reproduce the feelings of shared experience, community, and normalization that happen in our group intervention. Our qualitative research<sup>4</sup> has shown that the peer-learning that happens in the group setting is as important as what the facilitator teaches in ensuring a therapeutic benefit.

To successfully bring this program out of the clinic, we collaborated with community seniors, program graduates, e-learning experts, and software developers to create an e-learning experience that is informative, interactive, relevant, social, and practical. After many iterations of an agile development cycle, integrating end-users' feedback during each phase, recruitment is now underway for a randomized controlled trial of the online program. We look forward to sharing the results of the research in the near future, and making the program available to older adults across Canada.

To learn more about the program or to obtain program materials, please visit: <https://www.baycrest.org/memory>.

For a complete list of references, visit [www.cpa.ca/psynopsis](http://www.cpa.ca/psynopsis)

# Improving Learning in Education



*Henry L. Roediger, III, PhD, James S. McDonnell Distinguished University Professor of Psychology, Washington University in St. Louis, and Oyku Uner, doctoral student, Washington University in St. Louis*

**Educators face many challenges**, one of which is: How do students learn how to learn and what strategies are good for learning? Although children are natural learners from the day they are born, most seem ill-equipped for learning the kinds of material taught in schools. Further, teachers rarely instruct students in how to study and, even when they do, their advice is often wrong. For example, some study guides and websites argue that repeated study of one subject until it is “mastered” is the best way to study. It isn’t.

Cognitive psychologists have discovered three principles that, used in isolation or, better yet, in combination, greatly aid learning. These strategies can be used in classroom settings or while students study on their own, are useful for nearly any kind of material, and are free (no fancy software needed). Yet, despite these advantages, the techniques are rarely used.<sup>1</sup>

The first strategy is retrieval practice, which refers to testing oneself on material that has been learned. For example, if a student has just read a passage in her history book, closing the book for a few minutes and recalling the information to herself would greatly help her consolidate and remember it later. Retrieval practice is typically more beneficial compared to control conditions, such as reading the passage once or even reading it twice.<sup>2</sup> Retrieval practice also usually produces much greater learning on delayed tests compared to restudying.<sup>3</sup> Despite its robust advantages, few students hit upon the strat-

egy on their own. Most university students report rereading of material as their preferred study strategy.<sup>4</sup>

Another important strategy is spacing repetitions of information that students seek to learn. “Burning it in” by back-to-back study does not work well for long-term learning. Spacing study sessions is generally better, and the longer the spacing, the greater is learning for the long term.<sup>5</sup> Yet again, students often prefer to mass their study of a single topic to try to get it all at once without realizing the benefits of spacing.

Related to spacing is interleaving of study attempts. Consider math students learning to solve problems, such as how to find the volume of several solids. The nearly universal way of teaching such problems is to provide the formula for one type of solid (e.g., a wedge). Students learn the formula and then practice finding the volume of perhaps ten wedges. Then the students move on to learning about computing the volume of another solid (e.g., a spherical cone) and practice that one, before moving on to the next. This standard method is called blocked practice and it is also massed (i.e., no spacing between solutions). A different way of learning is by shuffling or interleaving practice. In this system, students are instructed in solving all the problems at the outset with minimal initial practice. Then they are given examples of different solids and they have to solve for the volume. One advantage of interleaving is that it teaches students how to discriminate among the problem types – “What type of solid is this?” – whereas blocked training does not. Students find interleaved practice difficult – they learn more slowly and may never achieve the

*Continued on page 21*

Intellectual humility:

# A key priority

## for psychological research and practice

Scott O. Lilienfeld, PhD, Samuel Candler Dobbs Professor of Psychology, Emory University and University of Melbourne;  
Shauna M. Bowes, graduate student, Emory University

**Daniel Kahneman**, who in 2002 became the first doctoral level psychologist to receive a Nobel Prize, observed that “sustaining doubt is harder than sliding into certainty.”<sup>1</sup> In many respects, Kahneman was underscoring the challenge of attaining *intellectual humility*, a dispositional attitude of doubt toward one’s beliefs. Although the concept of intellectual humility has until recently received little attention from the psychological community, one might contend that it merits recognition as among our field’s most essential concepts.<sup>2,3</sup>

Like all constructs, intellectual humility is an *open concept*<sup>4,5</sup> marked by fuzzy boundaries, an indefinitely extendable list of indicators, and an unclear inner nature. Consequently, it does not lend itself to a strict (“operational”) definition. At the same time, it appears to comprise several features: an awareness that one’s beliefs are fallible, a recognition that the evidence for one’s beliefs may be flawed, and an acknowledgment that one may be biased in evaluating this evidence.<sup>6</sup> Intellectual humility is also presumably associated with a smaller than average *bias blind spot*, meaning that it is related to a heightened awareness of one’s propensity toward bias.<sup>7,8</sup> Accordingly, intellectually humble people are unlikely to perceive their beliefs as inherently superior to those of others. Contrary to what many might assume, intellectually humble individuals are not typically diffident. To the contrary, they are often self-confident, because they strive tirelessly to minimize biases in their web of beliefs. As C.S. Lewis noted with respect to humility more broadly, humble people do not think less of themselves, but instead think of themselves less.<sup>9</sup> Corroborating this observation, intellectual humility appears to be unrelated or modestly positively correlated with self-esteem.<sup>10</sup>

Systematic research on intellectual humility is in its infancy, ironically underscoring the need for intellectual humility in our conclusions regarding its nature and boundaries. Bearing this caveat in mind, the limited corpus of research suggests



that intellectual humility, when assessed by self-report questionnaires, is correlated with (a) openness to experience, tolerance for ambiguity, and non-dogmatic religious beliefs, (b) respect for opinions that differ from one’s own, (c) willingness to expose oneself to alternative perspectives and revise one’s views in light of contrary evidence, and (d) tolerance for politicians who change their minds.<sup>6,10,11</sup> Although intellectual humility overlaps with general humility, it is not isomorphic with it. In particular, intellectual humility appears to be more related to openness to experience and need for cognition than is general humility.<sup>12</sup>

Intellectual humility is rarely conceptualized as an essential aspiration for practitioners, although it should be. Evidence suggests that many physicians and psychotherapists are prone to overconfidence, especially on challenging tasks.<sup>13,14</sup> Such findings are worrisome in light of meta-analytic evidence that



among clinicians (N=1485), confidence is only weakly associated ( $r=.15$ ) with accuracy on judgmental and prediction tasks, such as violence prediction and psychiatric diagnosis.<sup>15</sup> Many people commonly, and often erroneously, rely on the *confidence heuristic*, a mental shortcut that regards confidence as a valid indicator of competence.<sup>15</sup>

Consistent with research on the “better than average effect,” whereby people believe themselves to be better than others on most attributes, psychotherapists seem to be as susceptible to overconfidence as everyone else. For instance, one study reported that the average clinician rated him- or herself at the 80<sup>th</sup> percentile of skill level and effectiveness among all clinicians; one quarter placed themselves at the 90<sup>th</sup> percentile.<sup>16</sup> *None* considered themselves below average. These cheery self-views may engender pernicious consequences, because most therapists substantially underestimate the proportion of their clients who are deteriorating during treatment.<sup>17</sup>

Regrettably, many laypersons apparently assume that science and intellectual humility are contradictory. Googling the phrase “science is arrogant” returns approximately 1,400 entries. This intuitive belief probably stems from a confusion between *scientists* and *science*.<sup>18</sup> Data suggest that scientists, especially highly creative ones, are more confident, dominant, and even arrogant than nonscientists.<sup>19</sup> Still, even though some scientists themselves are conceited, the scientific community operates to keep them in check, relentlessly pushing back against their unsubstantiated claims. As McFall observed, science is a systematic prescription for intellectual humility, reminding us that our inferences may be in error.<sup>20</sup>

Because of the scant scientific attention accorded to intellectual humility, a plethora of questions remain. On the assessment front, self-reports of intellectual humility seem likely to have their limitations. Intellectually humble people may be unaware of or reluctant to admit to their modesty, while intellectually arrogant people may be oblivious of their lack of it. It will therefore be essential to assess intellectual humility using additional modes of assessment, especially informant reports. Further, the extent to which the correlates of intellectual humility are attributable to general intelligence are unclear. On the etiological front, we know precious little about the sources of intellectual humility and the personality, cognitive, and attitudinal variables that shape its emergence.

Finally, on the intervention front, we know virtually nothing about the extent to which intellectual humility can be modified in adulthood or cultivated in childhood. In one study, fostering a “growth mindset” toward intelligence, which holds that cognitive ability can be fostered via concerted effort, yielded significant boosts in intellectual humility in adults.<sup>10</sup> Although this investigation offers provisional evidence that intellectual humility is malleable in the short term, more research is needed to determine the extent to which this trait is amenable to long-term intervention. Given that an awareness of one’s biases is a key barometer of wisdom and perhaps a protective factor against ideological extremism,<sup>21</sup> few scientific endeavours would appear to be more pressing for the forthcoming generation of psychologists.

## Improving Learning in Education

*Continued from page 19*

level of performance as with blocked practice. However, several studies (in labs and classrooms) have shown that interleaved learning (mixing questions for the different solids) leads to better learning.<sup>6,7</sup> On a test given later, students who learned by interleaving maintain their level of performance, whereas those who study by blocking seem to have forgotten the solutions.

For students studying on their own, all three techniques we have recommended could be used simultaneously. Students can use retrieval practice (inherent in flashcards), they can space out their learning over days and weeks, and they can interleave topics. These techniques have all been shown to lead to more durable learning than the type of study students often prefer (and teachers often recommend): massed repetition that seems to make learning faster and easier, but which leads to rapid forgetting over time. The only caveat is that, when using flashcards and other similar techniques, students must continue to practice over widely spaced intervals to ensure that the knowledge is stable. Forgetting happens, and researchers have shown that students often choose to drop a card from the deck after getting it right once or twice when this is not sufficient practice.<sup>8</sup>

Many studies in the lab and the classroom show that these techniques can also be adapted for use in learning bodies of text. One such study asked whether questions inserted into a textbook chapter led to better retention through retrieval practice (with correct answer feedback) or whether having the questions at the end of the chapter was better (again with feedback). One of the control conditions was simply reading the answers without getting the questions at comparable placements. Retrieval practice led to greater recall than simply rereading the answers (61.5% to 44.8%), and the position of the questions did not matter on a test given two days later.<sup>9</sup> However, asking questions both within the chapter and afterwards led to the best recall (65.4%), probably due to spaced retrieval practice.

In summary, learning can be enhanced by using these three straightforward strategies that have been shown to work by decades of research.<sup>10</sup> Yes, retrieval practice, spacing and interleaving take a bit of work on the part of students and teachers, but they help lead to durable learning in ways that the typical strategies, such as massed practice, fail to do. Students and teachers can improve learning by redesigning courses and study schedules to better incorporate these proven methods.





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**15**



TABLE OF CONTENTS





**JUNE 26-30**  
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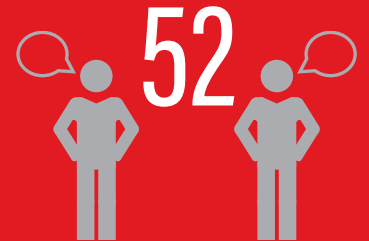
**19**



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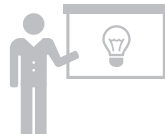


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This past year, we had a historic number of task forces led by experts in the psychology community and members of our board of directors. The reports from these task forces are important opportunities for psychology to bring its expertise to topics that are top of mind for Canadians and public policy. They can all be found at: <https://cpa.ca/aboutcpa/committees/cpataskforces>.

## Fitness to stand trial and criminal responsibility assessments

Our task force recommended changes to the *Criminal Code of Canada* that would improve access to qualified mental health professionals for those requiring fitness to stand trial and criminal responsibility assessments. We met with various MPs about the recommendations, and in June, the Standing Committee on Justice and Human Rights wrote a letter to the Minister of Justice and Attorney General of Canada to recommend that she consider amending the *Criminal Code*.

## Legalization of marijuana

Our task force made a series of recommendations for the legalization of cannabis in Canada, including investments in education, treatment, and research to help understand and mitigate negative psychosocial harms of cannabis use. We shared the task force's report with the Senate.

## Medical assistance in dying

Our task force recommended, among other things, that an individual should have the option to choose MAiD through the use of an advance directive, that the potential effects of mental illness on capacity to consent be considered in assessments, and that psychologists take an active role in developing and evaluating subjective reports of suffering for those seeking MAiD.

## Outcome and progress monitoring in psychotherapy

Our task force examined the literature on outcome and progress monitoring to provide guidance for psychotherapy practitioners and decision makers. They advocate for the implementation of outcome and progress monitoring, better training for students and continuing education for psychologist, and a revision the *Code of Ethics* to explicitly state the importance of assessing outcomes and progress.

## Responding to the Truth and Reconciliation Commission of Canada report

Our joint task force with the Psychology Foundation of Canada was commissioned to develop concrete, action-oriented recommendations to improve the field's service to Indigenous populations in Canada. The group presented its report at ICAP 2018 and our board has already approved the creation of a standing committee.

We also have task forces examining the prevention of opioid abuse, developing practice guidelines for medical assistance in dying, and considering use of the title "psychologist." Reports from each of these groups are forthcoming.

We would like to thank the chairs of our task forces, Drs. Joanna Hessen Kayfitz, David Teplin, Samuel F. Mikail, Giorgio A. Tasca, David Danto, Kim Corace, Kerri Ritchie, and Blake Jelley, as well as their task force members for their tremendous work. A full list of members can be found in our annual report.

# GROUPES DE TRAVAIL DE LA SCP



Au cours de la dernière année, un nombre sans précédent de groupes de travail dirigés par des experts du milieu de la psychologie et des membres de notre conseil d'administration a été actif. Les rapports produits par ces groupes de travail représentent, pour la psychologie, des occasions exceptionnelles d'apporter son expertise sur des sujets prioritaires pour les Canadiens et de façonner les politiques publiques. Ces rapports peuvent être consultés à l'adresse <https://cpa.ca/aproposdelascp/comites/cpataskforces/>.

## Évaluations de l'aptitude à subir un procès et de la responsabilité pénale

Notre groupe de travail a recommandé des modifications à apporter au *Code criminel du Canada*, qui amélioreraient l'accès à des professionnels de la santé mentale qualifiés pour les personnes qui ont besoin d'une évaluation de l'aptitude à subir un procès et de la responsabilité pénale. Nous avons rencontré différents députés pour discuter de ces recommandations et, en juin, le Comité permanent de la justice et des droits de la personne a écrit une lettre à la ministre de la Justice et procureure générale du Canada afin de lui recommander d'envisager de modifier le *Code criminel*.

## Légalisation du cannabis

Notre groupe de travail a formulé une série de recommandations relatives à la légalisation du cannabis au Canada, y compris des investissements pour la sensibilisation, le traitement et la recherche dans le but d'aider à comprendre et à atténuer les préjudices psychologiques causés par la consommation de cannabis. Nous avons transmis le rapport du groupe de travail au Sénat.

## Aide médicale à mourir

Notre groupe de travail a recommandé que les personnes puissent demander l'aide médicale à mourir par le truchement de directives médicales anticipées, que les effets potentiels de la maladie mentale sur la capacité de consentir soient pris en compte dans les évaluations, et que les psychologues jouent un rôle actif dans l'élaboration et l'évaluation des rapports subjectifs de la souffrance exprimée par les personnes qui demandent l'aide médicale à mourir, entre autres choses.

## Suivi des progrès et des résultats de la psychothérapie

Notre groupe de travail a examiné la documentation relative au suivi des progrès et des résultats du traitement afin de donner des orientations aux psychothérapeutes et aux décideurs. Le groupe de travail recommande la mise en œuvre du suivi des progrès et des résultats, l'amélioration de la formation offerte aux étudiants et de la formation continue offerte aux psychologues, ainsi que la révision du *Code de déontologie* afin d'énoncer de manière explicite l'importance d'évaluer les résultats et les progrès de la psychothérapie.

## Réponse au rapport de la Commission de vérité et réconciliation du Canada

Conjointement avec la Fondation de psychologie du Canada, notre groupe de travail a été chargé d'élaborer des recommandations pragmatiques et concrètes pour améliorer les services sur le terrain fournis aux populations autochtones du Canada. Le groupe a présenté son rapport lors de l'ICAP 2018, et notre conseil d'administration a déjà approuvé la création d'un comité permanent.

Nous avons également des groupes de travail chargés de se pencher sur la prévention de l'abus d'opioïdes, d'élaborer des lignes directrices de pratique clinique relativement à l'aide médicale à mourir et d'étudier l'utilisation du titre de « psychologue ». Les rapports de chacun de ces groupes sont à venir.

Nous tenons à remercier les présidents de nos groupes de travail, les Drs. Joanna Hessen Kayfitz, David Teplin, Samuel F. Mikail, Giorgio A. Tasca, David Danto, Kim Corace, Kerri Ritchie et Blake Jelley, ainsi que les membres de leurs groupes pour leur travail remarquable. La liste complète des membres se trouve dans notre rapport annuel.



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**ABSTRACT SUBMISSIONS DUE NOVEMBER 15**

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## Innovations in weight loss programs

From page 8

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