

Graduate Capabilities for Undergraduate Psychology Education: A Proposal

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Introduction

We refer to Figure 1 and Table 1 in the main paper, depicting proposed interconnected graduate capabilities for undergraduate psychology education. These capabilities are defined in full below, and are referred to in brief as: Knowledge (including skills); Research Methods, Application of Knowledge to the Personal Domain, Application of Knowledge to the Professional Domain; Application of Knowledge to the Community Domain; Values & Ethics; Communication; Critical Thinking; and Cultural Responsiveness. In this Supplementary Material paper, we ‘unpack’ these capabilities in reference to the literature, keeping in mind that the capability of Cultural Responsiveness needs to be infused throughout all the capabilities.

But first, we consider how these capabilities relate to existing national listings of capabilities. Let us first consider the well developed APA (2013) Goals for Undergraduate Psychology Education: (1) Knowledge Base, (2) Scientific Inquiry and Critical Thinking, (3) Ethical and Social Responsibility in a Diverse World; (4) Communication; and (5) Professional Development. Goal 1 easily maps onto the Knowledge capability; Goal 2 maps onto Research Methods and Critical Thinking; Goal 3 maps onto Values & Ethics and parts of Communication and Application to Community; Goal 4 maps onto Communication; Goal 5 maps onto Application to the Professional Domain.

Similarly, the UK QAA subject benchmark for Psychology (2019), endorsed by the British Psychological Society (BPS, 2019), states that degrees in psychology should be underpinned by: (1) scientific understanding of the mind, brain, behaviour and experience; (2) knowledge and acquisition of research skills and methods; (3) understanding the relationships between theory and empirical evidence; (4) apply multiple perspectives to foster critical evaluation and reflection; (5) develop knowledge, including ethical and sociocultural

issues; (6) understanding of the application of psychological knowledge to ‘real-world’ questions. Principle 1 can be mapped to Knowledge; both Principles 2 and 3 map onto Research Methods; Principle 4 closely relates to Critical Thinking; Principle 5 aligns with both Values & Ethics and Research Methods; and Principle 6 maps to Application to Community and Professional Domains. Communication capabilities are not listed explicitly in the QAA principles for psychology education, but are mentioned later in the document as a generic capability that all psychology graduates should attain

Cultural Responsiveness

Capability: Display ongoing critical reflexivity in striving toward respectful relationships with individuals and groups from diverse cultures and backgrounds, in order to achieve personal, professional, and community goals.

Based on the work of Darlaston-Jones, Dudgeon and colleagues (e.g., Darlaston-Jones, 2018; Dudgeon et al., 2016), we define cultural responsiveness as the capacity to display ongoing critical reflexivity in striving toward respectful relationships with individuals and groups from diverse cultures and backgrounds, in order to achieve personal, professional, and community goals. Developing respectful relationships involves building meaningful, collaborative, and equal relationships. This capability requires that the individual (a) engage in critical reflective practice to recognise historical, economic, political, sociocultural, and biological influences on the current context, one’s own behaviour, and one’s discipline and practice, and (b) create culturally safe and respectful professional practice, including co-design of solutions and strategies. With cultural responsiveness, the interpretation of ‘culture’ is broad, and goes far beyond ideas of ethnicity (critically important though that is). It includes a consideration of cultures of minoritized groups such as LGBTIQ+, of organisational cultures - not just business/corporate but also university/higher education culture, ‘psychological science’ culture, and the culture that maintains gender/sex inequities. From this perspective, cultural responsiveness includes gaining a deep sense of ‘walking in someone else’s shoes’, and requires critical reflexivity (Walker et al., 2014). This capability would help to ‘arm’ our graduates to be agents of change, for the common good, as well as equipping them for employment in an increasingly global context.

Knowledge (including skills)

Capability: Understand and apply psychology Knowledge.

Some teaching Academics/Faculty think that: (a) ‘knowledge’ is equivalent to that which is found in a textbook and/or in the corpus/context of their own particular research topic, and (b) their responsibility as an educator is to present that material to students, hopefully in an engaging way (so as to produce good student evaluations and future research students), and to assess students’ acquisition of that knowledge. For many, the origins of this thinking may lie in their own experiences of being taught (Fraser, 2016). There are at least two points of challenge to that thinking.

Firstly, we know that knowledge is more than just the capacity to regurgitate under exam conditions. At the very least, we know from psychological research on memory that knowledge consists of both ‘what’ (i.e., episodic and semantic knowledge, a part of the latter being traditional ‘subject matter’) and ‘how’ (i.e., procedural knowledge, including skills, e.g., how to use that subject matter; Cohen and Squire, 1980; Tulving, 2005). Secondly, most educators are familiar with Bloom’s cognitive taxonomy, which Krathwohl (2002) explicitly

revised into a hierarchical, action-verb-driven knowledge processing dimension, ranging from *Remember*, to *Understand*, *Apply*, *Analyse*, *Evaluate*, and finally, *Create*. Krathwohl (2002) also extended Bloom's cognitive processing taxonomy by adding the dimension of knowledge *structure*, with categories ranging from the lowest level of Factual knowledge, through to Conceptual knowledge, Procedural Knowledge, and Metaknowledge. Metaknowledge includes a number of subcategories: Strategic knowledge, Knowledge about cognitive tasks, and Self-knowledge - the most challenging aspect (for some of the reasons stated in the background section of the main paper). Although we acknowledge that more research is needed to support this revised taxonomy, in presenting our model of graduate capabilities, we include 'skills' in our *Knowledge* capability concept.

We must also acknowledge the 'topic wars' – that is, arguments amongst psychology educators over exactly what should be taught (e.g., "all psychology majors must know... how to conduct multivariate discriminant analyses... about the function of the periaqueductal gray"). As has been illustrated with Boneau's (1990) definition of psychological literacy as knowledge of the 1,000 key concepts in psychology subject matter, key concepts change as a result of continuous knowledge creation. Thus, although some current key theories, empirical findings and methodologies should be known in some broad areas (e.g., Dunn et al., 2010, nominated biological, cognitive, social-cultural, and research methods), equal emphasis should be placed on how students can find and evaluate peer-reviewed research on any psychology topic (for now and in the future).

In line with this emphasis, the APA's recent Introductory Psychology Initiative (IPI) prioritized skills and themes over specific course content (APA, 2021a, 2021b; Gurung and Neufeld, 2022). The IPI advises instructors to choose content from among five broad areas, or pillars (e.g., biological, developmental), to assure breadth, all while centering scientific inquiry and incorporating integrative themes. Some of the seven integrative themes are: "Psychological science relies on empirical evidence and adapts as new data develop"; "Our perceptions and biases filter our experiences of the world through an imperfect personal lens"; and "Psychology values diversity, promotes equity, and fosters inclusion in pursuit of a more just society." The APA IPI framework is closer to psychological literacy than its predecessors.

We agree with Hulme's (2014) argument that "Embedding psychological literacy in the curriculum may enhance our students' intrinsic motivation to learn, by bringing psychology to life - but also bringing life to psychology" (p.936). In other words, we can draw upon students' natural tendency to try to explain their own experiences in the light of their psychological studies, whilst encouraging them to think more intentionally about applying their psychological knowledge to achieving personal, professional and societal goals. That is, we argue that Application of Knowledge is a critical graduate capability, and so we have specifically focused on that particular 'process' aspect of Knowledge in this model. Moreover, because *Application* is a higher-order Knowledge process, it is dependent upon and thus inclusive of the lower-order *Remember* and *Understand* Knowledge processes (Krothwahl, 2002).

In summary, (a) Knowledge processing not only involves understanding, but also applying, and (b) categories of Knowledge not only include semantic knowledge, but also procedural knowledge (e.g., skills) and, metaknowledge. Thus for some, the job of educator - to support students in acquiring discipline Knowledge – may just have become significantly more 'interesting'.

Research Methods

Capability: Ethically use research methods to create new psychology Knowledge.

The dominant knowledge-creation method in psychology is the scientific method, and there are many reasons why this is so (a consideration of which is beyond the scope of this paper). As such, in discussions of psychological literacy, scientific literacy is often mentioned (e.g., Murdoch, 2016), and parallels are drawn between these two concepts (Cranney and Dunn, 2011b). However, other methods have always been used, particularly in the early stages of investigation of a particular research question (Stanovich, 2013), and also of course, when experimental methods are not feasible, ethical, or desirable (Diener et al., 2022). In particular, qualitative methods have proven invaluable for understanding the lived experiences of individuals and communities, reflecting those voices richly and more meaningfully than quantitative methods can facilitate. Qualitative methods can also be used alongside quantitative methods, with the qualitative research informing the approach taken in quantitative studies, especially in under-explored topic areas, or enabling researchers to explain possible reasons ‘why’ certain patterns are found in quantitative research (e.g., why is there a quantitative attainment gap for certain groups of students?). Of course, there are advantages and disadvantages with both quantitative and qualitative research methods, and it is important that the appropriate methodological approach is chosen to answer the research question under consideration (Braun and Clarke, 2006, 2020; Dudgeon et al., 2018; Howitt, 2016, especially chapter 1). In addition, there are social justice and cultural responsiveness considerations; for example, participatory action research and similar methodologies focus on social activism and the direct involvement of the communities one is studying, facilitating under-represented or marginalized groups in creating their own solutions to issues in their communities, and so to take ownership and create buy-in from their wider community (Kidd et al., 2018; Rodriguez Espinosa and Verney, 2021). Equipping students with the competence to choose appropriate research methods (or combinations of research methods) to ensure that their research is both rigorous and ethical is crucial.

It should be noted that for too long, much psychology research has focused on WEIRD (western, educated, industrialized, rich, and democratic) samples and been conducted by WEIRD researchers (Henrich et al., 2010). More recently, there is an increasing emphasis in psychological science on diversity and inclusion with respect to samples, researchers, and gatekeepers (e.g., editors, granting agencies) (Rad et al., 2018; Simons et al., 2017). Likewise, there is a strong global motivation to ‘decolonise the curriculum’ within psychology (and other disciplines), to ensure that psychology students are exposed to more culturally diverse research and perspectives from across the discipline, that better represent the diversity of humanity (e.g., Barnes and Siswana, 2018; Shahjahan et al., 2021).

An additional aspect of the creation of new knowledge is realizing that our field has been undergoing a revolution in ethical research and data practices -- one often referred to as ‘open science’ (Fanelli, 2018; Frankenhuis and Nettle, 2018; Spellman, 2015). These practices emerged out of a ‘crisis’ in which many studies failed to replicate (e.g., Maxwell et al., 2015), and they center around transparency with respect to research design, data, and analyses. New open-science ‘best practices’ continually emerge, making it essential that an open mind toward research methods and a willingness to learn new ideas and skills is central to the capacity to be an ethical creator and consumer of psychological science.

In general, students should learn how to implement a variety of methods, whereby they choose, ethically and inclusively implement, and evaluate methods relevant to answering

a research question in a specific context, which should lead to increased knowledge relevant to understanding, predicting, and changing human behaviour, in a culturally responsive way.

Application of Knowledge to the Personal Domain

Capability: Apply psychology Knowledge to the Personal Domain, in order to achieve valued personal goals.

“One might think that ‘Know thyself’ would be a central theme in psychological science. Certainly the average person on the street thinks of it as the sine qua non topic of psychology. A desire to figure themselves out is what draws many college students to our introductory-level courses. They are quickly disabused of this notion.” (Wilson, 2009, p.384).

Many psychology educators appear to be reluctant to *directly* address this domain. The reasons may include that: (a) educators fear that students will see them as personal counsellors, and educators are neither qualified nor paid for that role; (b) educators see the discipline of psychology as being part of the ‘science’ culture of objectivity, whereby the subjective ‘self’ putatively plays no part in the research process; this cultural attitude may flow into educational contexts. This reluctance does not prevent educators from providing interesting case studies, including examples from their own life, to illustrate abstract points, and to increase rapport and engagement (and thus student evaluations), but the value of explicitly addressing the relevance of psychology in the personal domain in terms of benefits to developing psychological literacy should be further explored (e.g., Hulme and Kitching, 2017).

As Wilson (2009) notes, students may be disappointed when educators show reluctance to provide formal educational opportunities for students to apply Knowledge to themselves. Murdoch (2016) raises ethical concerns, but many educators have successfully applied strategies that address these concerns (e.g., Cranney et al., 2016a; Hulme, 2018). Being able to understand, predict, and change their own behaviour is beneficial for students in their personal lives, in their current lives as students and citizens, and in their current and/or future professional lives. Distinctions can also be made amongst (a) *self-knowledge*, the definition of which is hopefully obvious (see Morris et al., 2018), (b) *self-management*, which has been defined as the capacity to effectively pursue valued goals, and to be flexible in the face of setbacks (Cranney et al., 2016b), but in other interpretations includes accepting and managing aspects of self that one cannot change (Seligman, 1995), and (c) *self-development*, which focuses more on the idea of developing one’s potential according to one’s interests and what one can indeed change (Seligman, 1995).

Dunn and colleagues (2015; see also, Dunn et al., 2011) argued that the psychology of *human adjustment* course provides an excellent opportunity to both share and promote psychological literacy, here applying psychological insights toward self-improvement. Adjustment entails psychosocial processes that humans rely on in order to navigate the trials of everyday contemporary life. As part of course requirements, students can keep a daily *stress diary* designed to pinpoint the sources of ongoing anxiety and fatigue. Similarly, by tracking where their time goes in a *time management journal* they can determine where and when to curb activities (e.g., the internet, streaming videos) that draw them away from more important demands (e.g., course work, social activities). Morris and colleagues (2018) describe a similar unit on the psychological science of wellbeing.

The value of Application of Knowledge to the Personal Domain is illustrated in Figure 2, which builds upon ideas presented by Bronfenbrenner (1979), Cranney and Morris (2011), and Hulme et al. (2015). Firstly, one's past and current thinking and behaviour is influenced most by those closest to you (particularly the family in which one is raised), then by local systems such as those in schools, workplaces, and religious institutions, which in turn are influenced by national and global systems. One's own thinking and behaviour influence these systems to a lesser extent, and more likely in the 'close' system of family and friends. With psychology education, as well as education in other disciplines such as history, cultural studies and biology, one begins to better understand the influence of these various socio-cultural and biological factors on one's past and current behaviour. With this understanding comes the opportunity to apply that knowledge to one's interactions with the different systems, in order to better achieve personal, professional and community goals. The greatest opportunities for such influence are likely to be with 'closer' systems (including, "Self"; see Morris et al., 2018). Thus, with this advanced psychological Knowledge, one gains greater autonomy in choosing one's valued personal, professional and community goals, and greater competence in successfully striving toward and thus obtaining those goals (e.g., Sheldon and Elliott, 1999; Bahrami and Cranney, 2018).

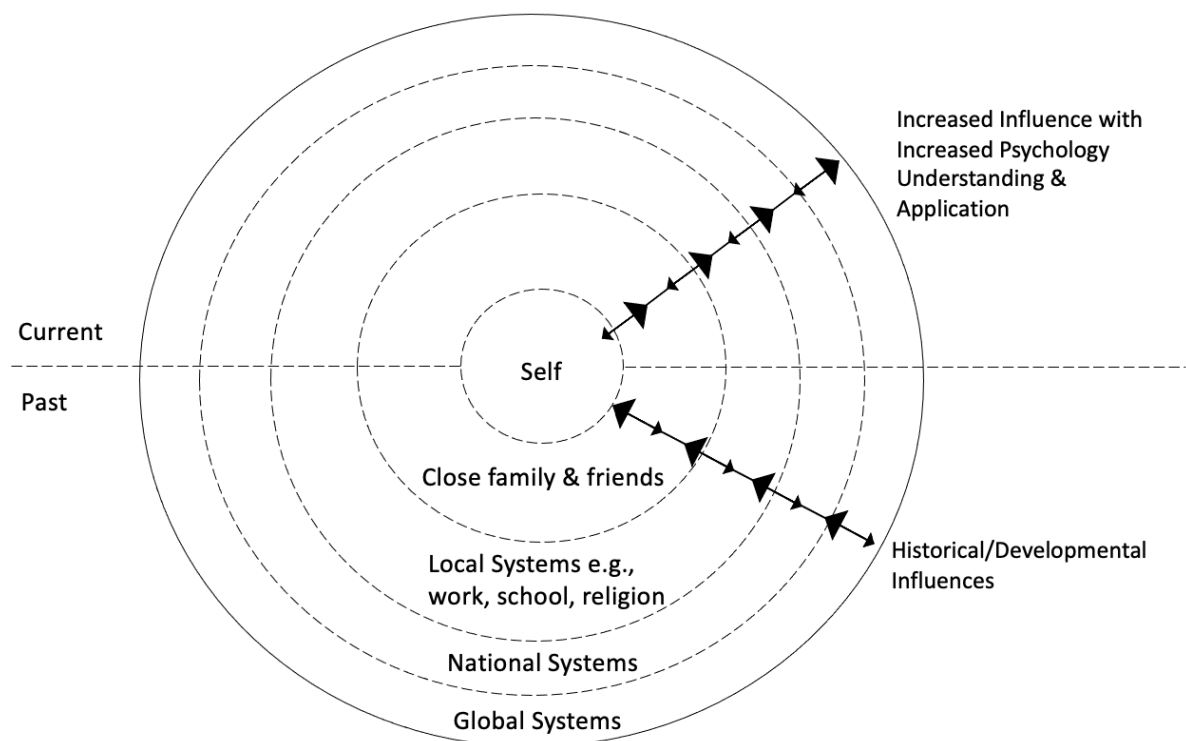


Figure 2. Ecology of Self and the Potential Influence of Psychology Education. Historical/developmental (past) socio-cultural influences on Self, and the hypothesised impact of the understanding and application of psychology Knowledge – that is, increased capacity of Self to (currently) influence those socio-cultural systems.

In summary, this capability means that students learn how to use psychology Knowledge to significantly improve their personal lives, which will then have a 'ripple effect' in improving not only the domains in which they study, work and play, but will also improve the general public's valuing of psychology, which eventually will have a positive impact on how governments interact with the discipline and profession of psychology.

Application of Knowledge to the Professional Domain

Capability: Apply psychology Knowledge to the Professional Domain, in order to achieve valued professional goals.

The professional domain is the most important aspect of what Cranney and Morris (2011) described as the ‘local’ domain, because most of us spend about half of our week-day waking hours ‘at work’. General professional knowledge (including skills) consists of what both employers and professional bodies in many nations have identified as desirable capabilities for any graduate, and usually includes Critical (and creative) thinking, Communication skills (broadly including teamwork and leadership, and cultural responsiveness), and certain aspects of Values & Ethics (e.g., integrity, respect for diversity, commitment to professional codes of conduct)(e.g., CBI, 2018; Hamilton et al., 2008; Landrum, 2018). That is, it is acknowledged that the broad generic capabilities that constitute professional knowledge are common desired graduate capabilities for all graduates, not just psychology graduates. Murdoch (2016), in his eloquent analysis of psychological literacy as a meta-literacy, indicates that PL has three components – knowledge specific to psychology, those aspects of generic capabilities that are informed by psychology knowledge, and the application of psychology knowledge. The implication is that undergraduate students can usefully examine the integrity of proposed generic graduate knowledge/skills through the lens of psychological *Knowledge*; for example, students could be asked to examine whether the effectiveness of ‘popular’ leadership theories are supported by psychological research. Knowledge held by an often-undervalued specialisation in professional psychology, industrial and organisational psychology, is critically relevant to this capability, and can be usefully integrated into the undergraduate psychology curriculum in the form of ‘applied’ Knowledge units as well as foundational and capstone units (Cranney et al., 2015).

We should note that the term ‘employability’ is also used in the higher education sector, and Yorke (2006, p.8) defined employability as: “... a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy”. Most higher education institutions aspire to high ratings of graduate employment ratings, so like it or not, program directors do need to attend to this aspect of undergraduate psychology education. Indeed, the negative economic impact of the COVID-19 pandemic in many nations has resulted in governments mandating an increased employability ‘accountability’ in the higher education sector (e.g., in Australia, Australian Government, 2020a, 2020b, 2021; Schweinsberg et al., 2021; in the UK, Department for Education, 2019). To a large extent, employability is often measured by governments in terms of graduate earnings (at least in the UK) to the detriment of considerations such as benefit to the individual, or to the community in which they live (Hulme, 2019).

In many nations, including the UK, USA and Australia (but interestingly, not in others, such as Italy and some other European countries; see Cranney et al., 2021), there are ‘surplus to needs’ undergraduate psychology graduates. That is, the graduate professional psychology program places are extremely limited due to resource bottlenecks such as training costs and placement shortages, and there is also a limit to graduate research training positions (e.g., Cranney and Voudouris, 2012). For example, Monash University produces approximately 600 graduates each year from its undergraduate psychology programs, and yet there are only approximately 40 places in their accredited graduate professional psychology programs, and approximately 30 new graduate research training places each year. Thus, although some nations such as the USA have the theoretically laudable, but practically

questionable, liberal arts and sciences tradition driving the design of their undergraduate programs, in other nations, there is a narrow focus of psychology undergraduate education on so-called ‘foundational knowledge’ to serve professional psychology and research careers, for the few who can progress to such careers.

There is very little data regarding the career destinations of the remaining majority, with the few studies suggesting human resources and marketing being prominent destinations (e.g., Australia: Bryan et al., 2012). In the UK, beyond the professional psychology careers, psychology graduates frequently progress into health and social care professions, education, scientific research and development, and marketing and advertising (BPS, 2017). It is often argued by Heads of Departments that our psychology graduates are well placed to succeed because of their capacity to apply their psychology Knowledge to any work setting, however there are some reports that psychology graduates are initially underemployed compared to other graduates, but eventually do ‘recover’ to national employment averages (e.g., BPS, 2017). They also tend to be employed in lower-paying positions (Rajecki et al., 2011). Moreover, psychology graduates tend to feel relatively unprepared for employment and perceive that their degree is less marketable than others (Vespia et al., 2018). Indeed, many educators have questioned how well prepared our graduates are for diverse work settings, and have argued strongly for appropriate integrated curricular strategies, such as work-integrated learning (e.g., Hamilton et al., 2018; Landrum and McCarthy, 2018). Moreover, career guides (e.g., Dunn & Halonen, 2020; Machin et al., 2022; Reddy et al., 2013) should be integrated into the curriculum with assessable activities (see also Spencer, 2021).

Of course, some undergraduate psychology graduates do undertake graduate research and professional psychology training. For the latter, it is important that students are given a ‘taste’ of the *diversity* of professional psychology specialisations to ensure an ongoing pipeline of graduates contributing to a diversity of community and society needs. There has been too much emphasis, for various reasons, on ‘clinical’ specialisations. which are extremely valuable; however, psychology offers so much more to (a) *society* in terms of different areas of specialization, and (b) *graduates* in terms of satisfying career destinations.

In addition, undergraduate students in general, not just those who go on to research training careers, need authentic research experiences, not only so that they can acquire an appreciation of the processes of knowledge creation, but also because Research Methods capability is highly regarded in diverse workplaces. Such workplaces are likely to utilize survey, interview, focus group, program evaluation and quasi-experimental approaches, and there needs to be adequate training in such techniques. Importantly, the kind of critical research thinking that should be acquired during undergraduate psychology education is essential to be able to make accurate inferences and conclusions about the results of these non-experimental workplace studies.

It should be noted that having a well-developed personal Values & Ethics capability is essential for being able to deeply engage with professional codes of ethics, and to know how to deal with conflicts between personal values/morals and work-based Ethics codes. An appreciation and celebration of diversity, as reflected in a deep sense of cultural responsiveness, is also essential for sustainably productive global workplaces.

It is important to be aware that many psychology major graduates take up careers in the public service, with the potential to advise government Ministers of Education, Health and Science. Thus, there are benefits to having all undergraduate psychology major students

appreciate the value of their psychology education in both their personal and (diverse) professional lives (Cranney, 2020).

Finally, within pre-tertiary education contexts, there may be less emphasis on this particular kind of application, because such students are less likely to have firm career destinations in mind. This does not preclude providing them with information about the diversity of specialisations in psychology professions, and the advantages of studying psychology for a variety of different careers such as medicine, law, education, and business.

In summary, this capability is essential for preparing all undergraduate psychology students for their graduate professional lives, regardless of career destination. Again, this requires a major reorientation for the average undergraduate curriculum, and again, there is already some very innovative practice that can be shared.

Application of Knowledge to the Community Domain

Capability: Apply psychology Knowledge to the Community Domain, in order to achieve valued community goals.

This capability rests on the truism that humans are social animals, and from an evolutionary perspective, rarely survived, let alone thrived, outside of a local community. Historically, the local community/group (usually based on family/kin systems) provided protection, but also demanded conformity to socio-cultural norms so that the group could function successfully. The psychological consequences are reflected in dimensional theories of culture, such as individualism-collectivism (Triandis, 2018), and in the tension between the psychological needs of autonomy and relatedness (Ryan and Deci, 2000). That human behaviour is developmentally and currently influenced by socio-cultural factors is reflected in Bronfenbrenner's (1979) bio-ecological theory (see also Cranney and Morris, 2011; Hulme et al., 2015, for psychological literacy perspectives), and in First Nations' perspectives of humans as being one species within a delicate ecosystem in which they play a custodial role (e.g., Steffensen, 2020). The advent of the Industrial Revolution within Western societies appears to have had a number of consequences, including: a swing toward individualism (cf. collectivism); a devaluing of guardianship of community and ecosystem/habitat; and the promulgation – including by psychological scientists – of the notion that humans are more likely to be selfish than genuinely 'community-minded' (Bregmann, 2020). Note that one professional psychology specialisation, Community Psychology, specifically counters this view in their emphasis on working for and with the community in the pursuit of social justice and community wellbeing. In the course of human evolution, the scope of 'community' has grown from local to national to global, largely as a result of advances in science and technology, achieved through human collaboration.

Psychological knowledge about the way in which humans interact within social groups can be utilised for individual gain, such as the psychology of marketing, or for the 'common good', such as health promotion (Sokol and Kuebli, 2011). For the purpose of our current discussion, we focus on the 'common good' aspect of the application of psychological knowledge to the community domain, such as addressing societal issues and increasing community wellbeing. Within educational contexts, strategies may range from students being asked 'in theory' to apply psychological knowledge to address a particular community issue, to full-blown service-learning projects that involve collaborative engagement with community leaders in program design, implementation and evaluation (Bringle et al., 2016, in

press). Importantly, Bringle et al. (in press) argue that experience of service learning “creates democratic communities, and tensions between the self and others are bridged” (p.6).

“Service learning (SL) is a high impact pedagogy that integrates academic material, relevant community-based service activities, and critical reflection to achieve academic, social responsibility, and personal learning objectives in order to develop psychologically literate citizens. SL enhances knowledge and fosters social responsibility in students to democratically address challenges in diverse societies. SL rests on the sound pedagogical principles of active and experiential learning” (Bringle et al., in press, p.2)

It should be noted that this capability to apply psychological knowledge to the community domain builds upon application to the other two domains (personal, professional), but there is also some two-way interaction, for example, community domain experiences may impact the personal domain (e.g., coming to understand through a service learning experience the source of one’s attitudes toward a service learning ‘target’ group; Altman, 1996, Cranney and Morris, 2011).

Of relevance within this domain is the notion of ‘citizenship’, a term that necessarily implies both rights and responsibilities as a member of a particular community. As a psychologically literate local community citizen, one might apply psychological knowledge to help persuade resistant community members that the building of a centre for the developmentally disabled is nothing to fear (see McGovern et al., 2010, Case Study 2). As a psychologically literate national community citizen, one might utilise psychological knowledge to develop education programs to promote the valuing and celebration of First Nations Knowledge. As a psychologically literate global citizen, one might apply psychological knowledge to mount globally informed campaigns to promote government support of solar energy adoption, in order to slow global warming caused by fossil fuel energy sources. Within undergraduate psychology education courses, students should be given the opportunity to engage at least at a minimal level in such psychologically literate citizenship activities, as such meaningful engagement will not only deepen psychological Knowledge acquisition, but also provide experience that will be valuable to them in their professional and citizenship lives.

Finally, as McGovern et al. (2010) argued, the notion of ‘global citizenship’ is a transdisciplinary concept, whereby (a) other disciplines and professions contribute to a comprehensive understanding of global citizenship, (b) the application of Other Discipline Knowledge to this domain can similarly be described (e.g., with political science, “politically literate global citizenship”), and thus (c) with this level of application, psychology students/graduates appreciate and celebrate the contribution of Other Discipline Knowledge to a full understanding of global citizenship.

In conclusion, this capability is one of the most complex, but also one of the most valuable, because it has the potential to transform the psychology major student into an agent for the common good, which, as Auger (2019) argued, will translate into significant individual wellbeing and community benefit (if not immediate financial gain for the individual). Perhaps one worthwhile ‘service learning’ project could be the promotion of the public valuing of psychological wellbeing as a societal ‘success’ index.

Values & Ethics

Capability: Utilise psychological and multidisciplinary Knowledge of values and ethics to achieve personal, professional and community goals.

Psychology educators have mostly avoided engaging deeply with this capability, other than within the *professional* domain by considering research ethics and national psychology professional codes of ethics – which itself is no mean feat, and there are some excellent resources available for those aspects of this capability (e.g., see the STP resources, and APA, 2013, BPS, 2015). Few, however, have grappled directly with values and ethics within (a) the *personal* domain, for example, allowing students opportunities to examine their underlying values frameworks and moral philosophy (but see Davidson and Morrissey, 2011, Morris et al., 2018, for some excellent practical resources), and (b) the *global* domain, which should, for example, consider global ethical frameworks such as the United Nations Sustainable Growth Goals (United Nations, n.d.). Making consideration of all these different levels of values and ethics frameworks explicit throughout the psychology curriculum, including consideration of how psychological research has contributed to understanding these frameworks, could well inspire students through providing them with a thorough understanding of *why* they value their undergraduate education and career development learning. Interestingly, given their own formative education primarily in psychological science, which has traditionally and mistakenly been purported to be a ‘values-free’ endeavour, early-career psychology educators have little appreciation of the importance of having an explicit values framework to drive and guide their curriculum design and delivery. We intend to discuss that issue in a future paper elaborating on “Psychological Literacy as a Pedagogical Philosophy”.

We need to acknowledge, however, that Values & Ethics are notoriously difficult to assess, and therefore their inclusion in the curriculum involves careful consideration of measurable learning outcomes (Halonen et al., 2020). Yet, development of the ability to apply ethical standards, build interpersonal relationships, and develop diversity-related skills, is an essential part of psychological literacy, an enhancement to employability, and foundational to global citizenship. These and related values and ethical perspectives are included in the APA (2013) Guidelines for the Undergraduate Psychology Major under the goal: Social and Ethical Responsibility in a Diverse World. The Guidelines emphasize the importance of values that strengthen community locally, nationally, and globally.

Communication

Capability: Utilise psychological and multidisciplinary knowledge of communication to achieve personal, professional and community goals.

Communication entails the sharing and dissemination of information between people. For communication to be effective, attention must be paid to both the purpose involved (e.g., persuasion, education) and the intended audience (e.g., peers, professionals, lay people). Context also matters, as what works in one setting may not necessarily carry over to another. Presumably, psychology students’ communications skills develop across their program experiences; that is, simpler messages in the introductory unit and complex, detailed ones as the baccalaureate degree is obtained. Communication can be oral, written, formal (i.e., professional) or informal (i.e., conversational), and may involve arguments or advocacy for particular stances regarding psychological knowledge. A key aspect of communication where psychology is concerned is the use of APA Style language for the presentation of research results, as well as attending to issues of cultural responsiveness when it comes to appropriately addressing and engaging particular groups of people due to their race/ethnicity,

religion, disability, gender, sexual orientation, and so on. Intersectionality should be a central consideration. Finally, as articulated in the APA (2013) *Guidelines 2.0*, students should learn to interact effectively with other people, notably those with different backgrounds and experiences – this is the domain of culturally sensitive interpersonal skills and teamwork, including inclusive leadership. It should be noted that cultural responsiveness leads to and is demonstrated by culturally sensitive communication. Where contemporary modes of communication are concerned, students should know how to write concise emails, to blog on relevant issues, to highlight important matters via pithy Tweets, and to write in appropriate detail about research, theory, or applications of both.

Finally, it should be acknowledged that it is resource-intensive to develop and assess communication skills, and we could look to what education in other disciplines/professions has achieved (e.g., medicine). Regardless, students should be encouraged to critique putative ‘best ways’ of communicating by interrogating the peer reviewed research in that field, or indeed, designing and implementing their own research on the topic.

Critical Thinking

Capability: Utilise psychological and multidisciplinary knowledge of critical thinking to achieve personal, professional and community goals.

Critical thinking relies on using mental strategies or skills that enhance the chance that some desirable outcome will result (Halpern and Dunn, 2021). Critical thinking occurs when an individual engages in reasoned, goal-focused, and purposeful thought aimed at solving a problem or making some decision (see Halpern and Dunn, in press). Critical thinking can be a form of scientific reasoning or inquiry, one which underlies the entire psychology curriculum. The familiar terms and outcomes tied to critical thinking are clearly representative of psychological literacy. Psychologically literate students routinely rely on critical thinking in their course work, vocations, and avocations in order to better understand cause and effect relationships or to identify those correlational relationships that defy conventional clarity. Indeed, psychologically literate individuals should be able to critique research reports and claims; recognize individual, personal or sociocultural biases that complicate conclusions; design and execute research investigations in psychology; and analyze and report findings that clarify relationships among variables (see also, *Guidelines 2.0*, particularly Goal 2; APA, 2013).

As indicated in the Introduction of the main article, critical thinking is particularly important in the current context of the spread of misinformation and intentional disinformation about a range of societal problems relating to human behaviour (e.g., racism, vaccine resistance). From a societal perspective alone, the development of this capability in any educational context should be considered a priority, and should be a selling point for psychology graduates in diverse career contexts. Finally, during the writing of this article, it was tempting to expand this capability to include ‘Creative’, that is, Critical and Creative Thinking. We think that these two concepts are linked (e.g., creative problem-solving), but we leave it to an international committee to make a decision about that proposition.

Conclusion

As indicated in the main article, we invite psychology educators across the world to consider what could and should be the graduate capabilities for the undergraduate psychology program. Here is a unique opportunity to bring to fruition Halpern et al.’s (2010) argument

that “the need to be psychologically literate is similar to being able to read or use numbers in thinking” (p.172), echoing Miller’s (1969) plea to “give psychology away” (p.1071) for the betterment of humankind:

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