

Assessing Teaching and Learning in Psychology

Current and Future Perspectives

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Assessing Teaching and Learning in Psychology: Current and Future Perspectives

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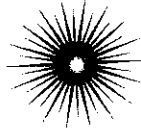
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Chapter 9



Assessing Psychological Literacy*

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*Assessment is the most powerful lever teachers have to influence
the way students respond to courses and behave as learners.*

(GIBBS, 1999, P. 41)

Some argue that the aims of psychology are to describe, explain, predict, and control human behavior. Others argue that the aim of education is to change human behavior. Psychology educators, then, should be experts not only in the measurement of the behavioral (learning) outcomes of education, but also in shaping the environment in a way that increases the possibility that behavior change (the result of learning) occurs. Indeed, we argue that psychology educators should aim to apply their psychological literacy, which Cranney and Dunn (2011) define as the adaptive use of psychological knowledge, to the domain of the university classroom in order to increase the opportunities for students to acquire psychological literacy.

In considering assessment in undergraduate psychology degree programs, we must first ask: what is it that is to be assessed? What are the expected learning outcomes of an undergraduate education? In the past five to ten years, there has been a growing movement toward accountability in higher education (e.g., Organisation

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for Economic Co-operation and Development, 2011) which has driven the specification of undergraduate psychology learning outcomes in a number of countries, such as *The APA Guidelines for the Undergraduate Major* (APA, 2007) in the United States, the EuroPsy Cycle 1 as part of the Bologna process (Lunt et al., this volume; Lunt et al., 2001; Lunt, Job, Lecuyer, Peiro, & Gorbena, 2011), and the U.K. Benchmarking Exercise (Quality Assurance Agency, 2002). In many cases, these are defined in terms of graduate attributes, defined as:

...the qualities, skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include, but go beyond, the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents for social good in an unknown future. (Bowden, Hart, King, Trigwell, & Watts, 2000, p. 1)

For example, the graduate attributes of the four-year Australian undergraduate program (Cranney et al., 2009) include knowledge, research skills, critical thinking, values, communication, and application. Each of these attributes includes a number of associated learning outcomes. Regardless of whether learning outcomes are used for graduate or undergraduate education, it is important to evaluate student learning relative to the outcomes.

Assessment is critical from three perspectives. First, assessment is a major driver of student learning. Students are motivated to study and learn when they know they are going to be evaluated (e.g., examinations). Second, a coherent curriculum includes clearly stated learning outcomes that are embedded within and developed across the years, and assessment (and presumably also learning and teaching strategies) is constructively aligned with those desired learning outcomes (APA, 2008; Boud & Falchikov, 2006). Third, assessment is the cornerstone of quality assurance: external evaluation of the quality of a degree program should ideally be based on the assessments that are taking place continuously within the program, rather than on a "one-off" (usually costly) examination designed to determine who may enter graduate school or a profession (e.g., Dunn, McCarthy, Baker, & Halonen, 2007).

With these considerations in mind, we address the assessment of psychological literacy. Psychological literacy is a relatively new concept, and so this discussion is only beginning. We briefly discuss some key concepts of assessment generally, then move to current conceptualizations of psychological literacy, which then form the basis for our discussion of the challenges and opportunities in assessing (and teaching) psychological literacy.

RELEVANT CONCEPTS IN ASSESSMENT

The importance of assessment for formatively helping students to develop life-long learning, rather than only as a summative grading or certifying exercise, has been emphasized by a number of scholars in this field (e.g., Barnett, 2000;

Boud, 2000; Orrell, 2008). In fact, Boud and Falchikov (2006) delineated eight principles underlying good assessment:

1. The importance of a standards-based framework to enable students to view their own work in the light of acceptable practice.
2. A belief by teachers that all students can succeed.
3. The need to foster confidence about students' capacity as learners because their beliefs about this affect achievement.
4. The need to consider separating comments from grades because grades distract from engaging with feedback.
5. The need to focus assessment on learning rather than performance.
6. The vital role of the development of self-assessment abilities.
7. Encouragement of reflective assessment with peers.
8. Ensuring that comments on assessment tasks are actually used to influence further learning (pp. 407-408).

A critical premise, therefore, is that students are required to reflect on formative assessment and incorporate their consequent learning into further assessment exercises (Boud, 2000; Sadler, 1989). Thus, although some of the examples given refer to final assessments such as examinations, they often also involve in-class formative experiences whereby the student can gain some indication of how they are progressing toward acquiring the desired learning outcome. As Boud (2000) implied, the development of the capacity to self-reflect and self-assess has become increasingly important in a society where individuals need to constantly upgrade knowledge and skills in order to succeed in the workplace.

Another important concept is "authentic assessment," which Wiggins (1993) defined as:

...engaging and worthy problems or questions of importance, in which students must use knowledge to fashion performances effectively and creatively. The tasks are either replicas of or analogous to the kinds of problems faced by adult citizens and consumers or professionals in the field. (p. 229)

McDonald (1992) also argued that authentic assessment should drive the curriculum, in the sense that the tasks that students need to perform should be progressively developed through the curriculum (i.e., "planning backwards"). Indeed, authentic assessment approaches facilitate the development of graduate attributes and employability (Macquarie University, 2008).

As psychological scientists (who pride ourselves on our capacity to accurately, reliably, and validly measure human behavior), we need to be better "scientist-educators" (Bernstein, 2011) in the classroom and utilize evidence-based methods to improve learning, or at the very least, integrate and reflect on the effectiveness of some of these principles of assessment in our classrooms (Worrell et al., 2010). In terms of authentic assessment, for example, psychology educators should be

particularly adept at shaping learning environments, including assessments, in a way that simulates post-graduation employment environments as closely as could be anticipated. Mayo (2010), for example, recently presented a solid and practical primer for this endeavor.

GRADUATE ATTRIBUTE TAXONOMIES OF PSYCHOLOGICAL LITERACY

McGovern et al. (2010) were among the first to define “psychological literacy” as encapsulating the common graduate attributes or capabilities that students should acquire while undertaking a major in psychology (see also Boneau, 1990). In particular, psychological literacy means:

- having a well-defined vocabulary and basic knowledge of the critical subject matter of psychology;
- valuing the intellectual challenges required to use scientific thinking and the disciplined analysis of information to evaluate alternative courses of action;
- taking a creative and amiable skeptical approach to problem solving;
- applying psychological principles to personal, social, and organizational issues in work, relationships, and the broader community;
- acting ethically;
- being competent in using and evaluating information and technology;
- communicating effectively in different modes and with many different audiences;
- recognizing, understanding, and fostering respect for diversity;
- being insightful and reflective about one’s own and others’ behavior and mental processes (p. 11).

McGovern et al. (2010) also introduced the term “psychologically literate citizenship,” which Cranney and Dunn (2011) elaborated to include the application of psychological literacy to problem-solve in a manner that is of benefit to their communities. This is clearly an aspirational, but achievable, outcome of higher education.

In requiring the adaptive application of psychological knowledge to achieve personal and societal ends, Cranney and Dunn’s (2011) explication of this concept implies “a relatively well-integrated and functional set of schemas that across individuals may show some variability in expression, but in terms of central tendency, can be recognized and assessed as ‘psychological literacy’” (p. 8).

The foundational conceptualization of psychological literacy is based on various listings of graduate attributes or learning outcomes, which can then be the

explicit target of assessment.¹ This approach is highly relevant to undergraduate psychology program accreditation, which is usually based partly on an evaluation of whether learning outcomes are integrated into the curriculum and partly on whether they are adequately assessed and to an acceptable standard. For example, the Australian Psychology Accreditation Council (APAC, 2011a) requires that departments not only indicate which courses cover each of the graduate attributes, but also how such attributes are assessed (APAC, 2011b).

To facilitate student learning, as well as provide evidence of educational quality, two strategies are particularly useful, not only for the graduate attribute approach to psychological literacy, but also for the alternative approaches set out in the next two sections of this paper. The first strategy involves using a graduate attribute portfolio introduced in a first year psychology course and then utilized throughout the program. Cranney and Morris (2011) suggested that these portfolios should be structured in such a way that the student is required to reflect on what they already know, what they are learning in that particular unit, how the content affects their life outside the unit, what else they need to accomplish, and their plans to achieve that end. This review initiates a cycle of intentional reflection regarding both their learning during the program of study, and its application outside the classroom. To further facilitate this process, it would be desirable if each psychology unit thereafter could include at least a small assessable activity that leads to the further development of the portfolio. In the final year of the psychology major, emphasis on this activity should be increased. As an example of the last attribute specified by McGovern et al. (2010; see above), first-year students would be introduced to the "Using Strengths in a New Way" activity (Peterson & Seligman, 2004), in which they work on identifying and developing a strength, then reflecting upon the experience. Having identified this strength, the student can iteratively reflect on how they intentionally support its development both within and outside their psychology courses, across their degree program.

Alternatively, the portfolio could be introduced in a later (third- or fourth-year) "capstone" course. The portfolio might include sections for each of the graduate attributes, and students would gather evidence for each, usually in the form of assessments. This portfolio can then be drawn upon for use in job applications (see Cranney et al., 2005). In terms of portfolio assessment, students could be asked to include, with their entire portfolio submission, a summary of their progress toward meeting each attribute. Then the instructor could randomly choose just one of the summaries to assess in detail. In this way, students become aware of the intentional

¹ One might assume that knowledge would be easier to assess than skills (e.g., multiple-choice examinations vs. one-on-one skill testing), and attitudes would be the most difficult to validly assess (e.g., ethical attitudes as indicated by behavior; but see Davidson & Morrissey, 2011). From an educational psychology perspective, however, there are a number of taxonomies that should be applied even to the simple concept of knowledge, such as Krathwohl's (2002) revision of Bloom's taxonomy, which defines factual, conceptual, procedural, and metacognitive types of knowledge, as well as processes ranging from the lowest level of remembering to the highest levels of evaluating and creating. Very few psychology educators explicitly tap into the richness of these knowledge taxonomies (cf. Hayward et al., 2012).

alignment between their learning activities, assessments, and the learning outcomes, and the instructor does not have an overwhelming assessment task.

The second strategy for assessing student learning can be accomplished through a capstone course, or at least a capstone experience, which is defined as “a culminating experience in which students are expected to integrate, extend, critique, and apply the knowledge gained in the major” (Wagenaar, 1993, p. 209). There is large variation in the nature of capstone courses. At a relatively rudimentary level, they consist of professionally-oriented courses (e.g., the psychology of law) where the instructor explicitly indicates how different core content (e.g., social and cognitive psychology) is applied in this area. Other capstone courses involve third-year group research projects, or a work experience in either a professional psychology placement, any human service work placement, or specifically in a volunteer organization. Although in some departments capstone courses are optional, Dunn et al. (2010) argued that it should be a requirement. In terms of assessment, the placement experiences may involve (a) hurdle assessments such as the acquisition of a police clearance card, and an adequate written *pro forma* contract between the student and the work place supervisor, (b) reflective journal assignments, and (c) a final essay on what they have learned (in relation to graduate attributes or employability criteria). Graduate attribute portfolios may also be an integral part of the assessment in capstone courses. As Cranney and Morris (2011) argued, capstone experiences should serve to integrate the various attributes in an applied sense, thus leading to the student’s explicit appreciation of their level of psychological literacy.

In terms of graduate attribute portfolios, students are usually required to accumulate evidence of development of specific learning outcomes, which brings us back to the assessment of such. One approach to a summative accumulation of evidence relates to the higher-order cognitive capacity of application of psychology. Recent analysis of different international models of education and training (Cranney et al., 2008; 2009) suggests that an “applied” emphasis in undergraduate education would enhance psychological literacy (see also, Dunn et al., 2010, who suggested that at least one course in the undergraduate curriculum should be applied in nature). Cranney et al. (2011) defined “applied” psychology in the context of undergraduate education to mean the “successful application of psychological knowledge, skills and professional dispositions (graduate attributes) to new problems and in new situations, whether this be in educational, personal, professional or community contexts” (p. 147). They argue that application involves purposefully applying psychological principles to new problems or in new situations, usually in an experiential and active manner, thus increasing the probability of transfer of learning. Examples of such applications include:

1. *Knowledge*: An exercise where students need to choose one of their own behaviors which they wish to modify, and then implement a behavioral modification program, followed by a written or oral presentation of the process and results, which is then assessed.

2. *Research training*: First-year psychology students collaboratively design (within a limited set of parameters) a study which they then undertake and report in oral presentation format, including background research, methodology, results, and discussion. The presentation is assessed by two instructors (and can also be peer-assessed).
3. *Critical thinking skills*: In a lecture setting the instructor can ask students in small groups to design a study to address a particular “hot issue” in human behavior; the instructor then randomly picks groups to describe their designs. There is class commentary on the pros and cons of each design. Students are given a similar question in a final examination.
4. *Values*: Groups of students are given prescribed ethical dilemmas to evaluate in relation to relevant professional codes of conduct. They are then given immediate feedback regarding their evaluation, and a similar ethical dilemma is given in a final examination (see Davidson & Morrissey, 2011).
5. *Communication skills*: Students are required to write a letter in response to a request from a teacher/company director/other non-psychologist, outlining the psychological principles involved in a particular area and the evidence for and against (e.g., whether parents should allow their child to continue to speak their [non-English] native language in the home); this letter is then assessed.
6. *Learning and application of psychology*: Each student is required to write a newspaper article where they interview themselves with some focused common questions relevant to psychological concepts; this article is then assessed.

Other assessment approaches have specified a developmental rubric for specific graduate attributes, which can then form the basis for assessment. For example, Halonen et al. (2003) created a rubric for a whole-of-program approach to research training, which mapped the developmental nature of this attribute from pre-higher-education through each of the undergraduate levels. One example of assessment based on this rubric is as a student self-assessment process. Using assessment with this rubric provides students with the ability to self-reflect on their progress and to see the learning required to achieve their goals at any given stage. Such reflection could be recorded in an assessable journal. More recently, Dunn, Cautin, and Gurung (2011) outlined a developmental rubric that again provides milestones for assessment. These authors identified eight aspects of psychological literacy: writing, speaking, research, collaboration, information and technology, the ability to define and describe the concept of psychological literacy, the ability to think and act ethically when applying psychological knowledge, and the ability to demonstrate an understanding of and respect for diversity.

There is no doubt that the assessment of some aspects of learning outcomes, such as ethical behavior and interpersonal communication, may be more challenging or resource intensive than others. Innovations such as those afforded by

technology may eventually provide some solutions. Nevertheless it is likely that the valid measurement (i.e., assessment) of some outcomes (e.g., ethical behavior) will remain a challenge, and this needs to be openly acknowledged. This is particularly the case in the context of accreditation that affords entry into the profession.

In summary, this approach to the assessment of psychological literacy based on specific graduate attributes is relatively well-developed for most graduate attributes, and is relevant to students majoring in psychology regardless of their career destination. In addition to the resources already mentioned, the *Assessment Cyberguide for Learning Goals and Outcomes* (Pusateri, Halonen, Hill, & McCarthy, 2009) provides a critique and evaluation of optimal assessment strategies for a number of generic psychology attributes. We turn now to two alternative conceptualizations of psychological literacy in terms of taxonomies of learning outcomes.

"DOMAIN OF APPLICATION" TAXONOMY OF PSYCHOLOGICAL LITERACY

Cranney and Morris (2011) recently developed the concept of "adaptive cognition," which in essence provides an integrative theoretical rationale for the importance of promoting psychological literacy. They define adaptive cognition as "global ways of thinking (and consequently behaving) that are beneficial to one's (and others') survival and well-being" (p. 251). The adaptive cognition approach draws on and integrates a number of perspectives in psychology, including developmental psychology, evolutionary psychology, cultural psychology, and human ecology. Cranney and Morris further argued that educated human beings "are in the privileged position of being able to choose strategies that we know are likely to improve our chances of achieving the goals of living a purposeful and fulfilling life . . . we need to consider how we can also improve the chances of our fellow human beings achieving the same ends . . . education is one arena in which this perspective can be shared and experienced" (p. 251). Within the framework of adaptive cognition, Cranney and Morris (2011) defined three levels of psychological literacy:

- **Level 1:** Purposefully applying psychological principles in a way that is adaptive for oneself, and one's immediate set of family members and friends.
- **Level 2:** Purposefully applying psychological principles in a way that is adaptive for one's local community.
- **Level 3:** Purposefully applying psychological principles in a way that is adaptive at a level that goes beyond one's local community and potentially has global impact.

These levels can be conceptualized as different domains in which psychological literacy is evident: that is, psychological principles are being applied either to

oneself, to close others, to one's activities in local communities (local leaders), or to projects that may have global implications (global citizens). Thus, for the purposes of this assessment chapter, we re-label "levels" as "domains of application."

Although this taxonomy may appear simplistic, the capacity to apply psychological principles in these different domains involves a high level of cognitive and emotional development (e.g., the capacity to take multiple perspectives; Hayes, 1997). For that reason, one might think of this taxonomy as being somewhat aspirational in nature, but we argue that it is critical that psychology educators provide opportunities for their students to develop this capacity (Cranney & Morris, 2011). This is a relatively new approach to thinking about psychological literacy, and so we offer "start-up" examples as well as discuss some of the challenges.

Domain 1: Self and Close Others

- *Self-knowledge through inventories:* Many valid web-based inventories provide automatic feedback to students and allow them to compare themselves to others in terms of various strengths, personality traits, values, and so on. Students can be instructed to take this test by themselves, and then reflect on the outcome in an assessable journal (see Cranney & Morris, 2011; Cranney et al., 2011).
- *Study strategies:* Students may be introduced to some of the key evidence-based strategies for improving learning outcomes through interactive tutorials, and asked to implement these strategies and reflect on the outcomes in an assessable journal, and finally be examined on their knowledge of the strategies (see Cranney & Morris, 2011).
- *Positive psychology strategies:* This approach is similar to the study strategies above, except the proposed outcome is increased emotional well-being (see Cranney & Morris, 2011). One particularly salient method is to have students complete the Brief Strengths Survey on the Authentic Happiness website (<http://www.authentic happiness.sas.upenn.edu/Default.aspx>) and then undertake a series of exercises around this, which they then reflect on in their assessable journal.

Knowledge of self is in some ways a prerequisite for Domains 2 and 3, inasmuch as the definition of local and global communities is predicated on a self-definition of ones' in- and out-groups. Moreover, knowledge of ones' strengths and limitations provides a valuable foundation for determining the optimal approach that any individual should take in developing psychological literacy in Domains 2 and 3. Nevertheless, it needs to be acknowledged that although most psychology students are willing and able to apply psychological principles to themselves as part of assessable activities, other students are not, and so Domain 2 may be the arena in which these latter students are more willing to engage, and consequently indirectly increase their own self-knowledge through application of psychological principles in local social contexts. Teachers should be careful about how these exercises are implemented, so as to avoid situations in which students self-disclose to an inappropriate extent.

Domain 2: Local Communities

Students undertake a needs analysis in an external setting, and then design, implement and evaluate an intervention, which they write up as an assessable report (Cranney et al., 2011). An example of the initial phases of this process is the Dr. Cantrell case in McGovern et al. (2010), where students developed hypotheses about why a new school counselor was not being utilized, gathered data to test those hypotheses, and were thus able to identify the causes which could then be addressed through suggested interventions, followed by an evaluation thereof.

Domain 3: Global Perspectives

Well-structured group work with a super-ordinate goal, either within a unit or through an extracurricular outreach program (such as organizing and implementing tutoring in a local high-school for at-risk students), could help not only with the development of interpersonal skills with diverse group members and “clients,” but should also contribute to the development of global citizenship capacity (Cranney & Morris, 2011). These capacities could be assessed through peer assessment of interpersonal skills, and through journals.

A PRAGMATIC TAXONOMY OF PSYCHOLOGICAL LITERACY

The pragmatic taxonomy of psychological literacy takes into consideration the perspectives of the consumer stakeholders of undergraduate psychology education, that is, the student (what will I get out of studying this major, both during and particularly afterwards?), the student’s parents (i.e., what are we paying for? will it help our child become successfully independent of us?), prospective employers (i.e., what does this graduate have to offer me?), and indeed society (i.e., what is the tax-payer dollar supporting, in terms of sustaining and improving the health of this society?). Consumer-oriented taxonomies need to be simple, and thus we identify three concepts that currently have meaning in higher education and society generally: scientific literacy, employability, and global citizenship.

Scientific Literacy

Scientific literacy in Western nations is at a low level (e.g., Santow, 2010), with a great degree of public skepticism regarding the role of the scientific community in dealing with significant societal and global problems, such as the link between human activity and climate change, and the spurious link between vaccination and autism. By failing to grasp the empirical approach taken by scientists, the public (a) do not understand that the presence of a single result

that is incongruous with many consistent findings from repeated studies does not mean that the scientific process is corrupt; and (b) seem overly influenced by individual results that support their world-view even in the face of massive disconfirming evidence produced by the mainstream scientific process. Given that most current societal problems are caused by human behavior (e.g., climate change, obesity, terrorism; Marsella, 2007), the need for graduates with strong scientific literacy as applied in the domain of psychology is greater than ever before. So what, then, is scientific literacy? How is it defined?

Scientific literacy is the knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity. . . . Scientific literacy means that . . . a person has the ability to describe, explain, and predict natural phenomena. Scientific literacy entails being able to read with understanding articles about science in the popular press and to engage in social conversation about the validity of the conclusions. Scientific literacy implies that a person can identify scientific issues underlying national and local decisions and express positions that are scientifically and technologically informed. A literate citizen should be able to evaluate the quality of scientific information on the basis of its source and the methods used to generate it. Scientific literacy also implies the capacity to pose and evaluate arguments based on evidence and to apply conclusions from such arguments appropriately. (Academy of National Science, 1996, cited by (National Research Council, 1996, p. 22)

As should be clear, this definition closely resembles the concept of psychological literacy, particularly the emphasis on research skills and critical thinking, and so any of the assessment strategies already mentioned under these headings would be relevant here. The notion that scientific literacy is a core attribute that should be acquired by every psychology major is not new (e.g., Beins, 2007; Dunn et al., 2010), and is reflected in the traditional emphases in accredited undergraduate psychology programs in the U.K. and in Australia (e.g., APAC, 2011a; Trapp et al., 2011). However, there are obvious challenges to achieving scientific literacy, particularly with students who may not have a science background and who expect primarily to learn “how to help people” during their undergraduate program (e.g., Thieman, Clary, Olson, Dauner, & Ring, 2009; see Holmes & Beins, 2009 for potential solutions).

Employability

In this age of accountability of educational institutions (e.g., National Centre for Public Policy and Higher Education, 2006), a key outcome that is increasingly being emphasized, particularly in Britain (Trapp et al., 2011) and Australia (Oliver, 2010) is employability. Although there are a number of models of employability available that incorporate supply and demand factors (e.g., Dacre Pool & Sewell, 2007), employability can be defined most simply at an individual level

as the minimum generic skill levels or competencies needed by high school and university graduates to enter an appropriate labor market (Clarke, 2008). In Australia, for instance, the top three desirable graduate attributes for employers are communication skills, the capacity to work well in a team, and problem-solving skills (Australian Chamber of Commerce, 2002). One might think that employability skills would not be relevant to psychology majors in the short-term, given the expectation that they will go on to graduate school. However, recent data indicate that in the United States, Britain, and Australia, less than 50% of psychology majors go on to graduate school in psychology (Lipp et al., 2007; Halpern, 2010; Trapp et al., 2011; Upton & Trapp, 2010). This percentage is likely to increase if the popularity of the psychology major increases (Takooshian & Landi, 2011) and the number of graduate training places remain static (Voudouris & Mrowinski, 2010). Thus, from an ethical perspective, psychology educators need to ensure that they have provided students with the opportunity to develop generic skills that are generally desirable to employers, and which take into account the fact that graduates are likely to have multiple positions and multiple careers across their lifetime.

As it happens, the core graduate attributes overlap to a certain extent with the attributes that employers desire. However, three changes to the curriculum need to be made: (a) more emphasis on general career development, (b) more opportunities to apply psychological principles to real or imagined work settings (regarding undergraduate placements see Trapp et al., 2011; and Upton & Trapp, 2010; note also that this practice is found in U.S. universities such as Boston University), and (c) more explicit opportunities for work-integrated learning. One example is to introduce career development in first-year psychology through the involvement of the institution's career services organizational psychologist, who not only engages the students in relevant career-development skill training, but also employs pre- and post-training submissions of resume and "expression of interest" for a hypothetical but authentic employment position, with significant assessment weighting on the post-training submission (e.g., Cranney et al., 2005, 2011). Another example is to develop some low-level professional knowledge and skills in preparation for a variety of careers, including professional psychology. For example, teamwork skills can be developed and assessed in first-year courses (e.g., Cranney et al., 2008). The graduate attribute portfolio and workplace capstone experiences described earlier are also relevant here, as well as Lantz's (2011) guide to employability.

Global Citizenship

Higher education institutions often state "global citizenship" as one of the aspirational capabilities or attributes they hope to inculcate in their graduates. For example, Australia's University of New South Wales recently defined global citizens as having an appreciation of (a) relevant applications of their discipline to problems in their local, national and international context, and (b) the need to respect diversity, be culturally aware, be socially just/responsible, and be environmentally responsible (University of New South Wales, 2010). As psychological

scientists, we would prefer to operationalize this concept in terms of observable behaviors, and that is the primary challenge in terms of assessment. Nevertheless, two examples of learning and teaching and assessment strategies are given here. Firstly, Macquarie University's "participation" capstone involves having students undertake a non-paid work experience in a local or overseas community where there is a clear need (e.g., assisting victims of a tsunami; assessing health needs of central Australian indigenous youth; implementing environmental education in local communities). Assessments include reflective pieces during and at the end of the experience (see also Harré et al., 2011). Secondly, Cranney et al. (2011) described an exercise whereby first-year students develop a cultural diagram of their key cultural influences in life and use an assessable reflective journal to record their increasing understanding of that concept, including finding examples in everyday life; thus, students explore their individual cultural identity in the context of various interactions with their peers, thus enhancing their awareness of cultural issues—a fundamental aspect of global citizenship.

CONCLUSION

We presented overlapping conceptualizations of psychological literacy in terms of graduate attributes, domains of application, and the pragmatics of learning outcomes of the undergraduate psychology major. Throughout, we have provided examples of assessments that should be inextricably tied to the learning and teaching strategies employed to support student achievement of those outcomes. For both quality assurance at an acceptable level of psychological literacy, and for the student to have an acceptable opportunity to integrate their learning, it is essential that a whole-program approach to assessment of psychological literacy be undertaken. Educators will need to use their own psychological literacy to work together to achieve this end. From the "high end" of psychological literacy, this task is essential to the integrity of quality psychology education and to our students' future.