

The Psychologically Literate Citizen

Foundations and Global Perspectives

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Adaptive Cognition and Psychological Literacy

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We are at a critical point in the development of psychology undergraduate education. As a young discipline, we have been preoccupied with finding our feet and proving ourselves worthy of being taken seriously among the sciences (Stanovich, 2009). It is time for us to take a qualitative leap into disciplinary adulthood by not only asserting our strengths and acknowledging our limitations, but also taking a leadership role among the disciplines in providing our students with the opportunity to gain the knowledge, skills, and dispositions to contribute significantly to solving behavioral problems in local and global communities (Cranney, 2008).

This chapter proposes an integrative approach to undergraduate psychology education that draws upon the concepts of psychological literacy (defined in Chapter 1) and “adaptive cognition.” Adaptive cognition is defined as “global ways of thinking (and consequently behaving) that are beneficial to one’s (and others’) survival and well-being.” The adaptive cognition approach draws on a number of perspectives in psychology, including developmental psychology (by acknowledging the impact of early experiences on current thoughts, feelings, and behavior), evolutionary psychology (by acknowledging the capacities and limitations of the present-day brain given its evolutionary history), cultural psychology (by acknowledging the way in which our current behavior is shaped by culture given its history), and human ecology (by acknowledging the complex interrelationships between *Homo sapiens* and its biological and physical habitat). B. F. Skinner stated that current behavior is determined by genetics, developmental history, and the current situation (Skinner, 1983, cited in Myers, 2004). The adaptive cognition approach proposes that our current thoughts, feelings, and behavior—that is, our current psychological status—is determined by all of the above factors, as well as our knowledge thereof (metacognition). We 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. In doing so, we need to consider how we can also improve the chances of our

fellow human beings achieving the same ends—simply because our past general capacity to adapt and survive as a species has been very much dependent on our social nature. Psychology education is one arena in which this perspective can be shared and experienced, and in which there is potential for a contribution to our students' survival in response to pressures such as climate change.

ADAPTIVE COGNITION

The various building blocks of the adaptive cognition approach will first be considered, followed by a discussion of how these different components can be brought together, particularly to inform the “why” of undergraduate psychology education. Then, some strategies to support the “how” of this integrative approach will be suggested.

Developmental Psychology

Developmental psychology is part of mainstream psychology (the scientific study of thoughts, feelings, and behaviors), as ontogenetic processes strongly determine a human being's current thoughts, feelings, and behaviors. A major focus within developmental psychology is the interaction between genetic and environmental factors. Analogously, given a more holistic approach to understanding the current psychological status of a human being, one could argue that to fully understand the genetic determinants of psychological status, one needs to take into account evolutionary history (Fig. 18.1). Similarly, to fully understand the environmental determinants of psychological status, one needs to take into account cultural history and habitat.

Within the context of a single human being's lifetime, developmental factors are clearly extremely important to the determination of current thoughts, feelings, and behaviors, and the different theories of human development need to be taken into consideration when attempting to understand one's own and others' behavior (Chickering, 1976; Denson & Ing, Chapter 8 in this volume; Erickson, 1968). It is interesting to speculate within the context of this chapter about the development of two other entities. First, the discipline of psychology: there is no doubt that we are a young discipline. However, perhaps it is time to propel ourselves into adulthood, if we are to facilitate the development of “psychologically literate citizens” (McGovern et al., 2010) in a timely manner. In doing so, we need to fully acknowledge that our discipline overlaps with both biological and social sciences, as well as sharing subject matter with the humanities (P. Gray, 2008). Second, the species itself: in our lifetime, we cannot change the genetic underpinnings of our limited brain. However, perhaps through purposeful programs of education, we can promote the development of more adaptive ways of thinking in our students, and thus society.

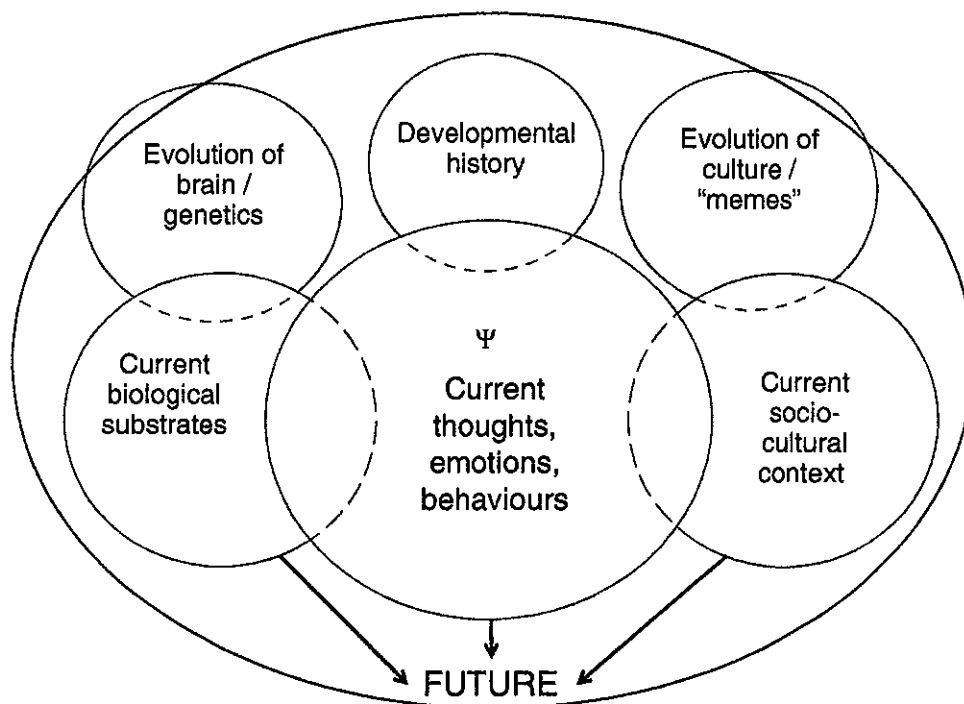


Figure 18.1 Our current psychological status (thoughts, emotions, and behaviors) is mediated by current biological substrates and influenced by the current sociocultural context as well as our own personal developmental history. The biological substrates are the result primarily of evolutionary forces, and the current sociocultural context is influenced partly by the evolution of culture. All of these components are influenced by past and present environments (habitats), and all components interact, as symbolized by the all-embracing circle. All components, including our potential awareness of these influences on our current psychological status (part of psychological literacy and adaptive cognition), influence our future.

Evolutionary Psychology

Through evolutionary psychology, mainstream psychology interacts with the disciplines of neuroscience (in acknowledging that our brain is the product of a long phylogenetic process) and especially evolutionary biology. “The goal of evolutionary psychology is to study human behavior as the product of evolved psychological mechanisms that depend on internal and environmental input for their development, activation and expression in manifest behavior” (Confer et al., 2010, p. 110). Davis (2009, p. 13) claimed that:

an evolutionary approach attempts to understand humans as part of the biological world in which they evolved. Many of those puzzling, irrational behaviors may stem from adaptations made by our ancestors. If so, we are stuck with mental modules that weigh us down in both laughable and dangerous ways. That mental equipment we carry in our modern skulls is over a hundred thousand years out of date. But instead of challenging our limitations and trying to remedy their effects, we create institutions that normalise them . . . From an evolutionary point of view, we are the descendants of

a long line of successful competitors. But times have changed. The Pleistocene Age, when the bulk of human evolution took place, is over, although it left some deep marks on our minds.

Essentially, Davis was arguing that many of our ways of thinking were likely adaptive during our evolutionary history, but may not be so adaptive now, particularly in situations where most of our basic needs (e.g., shelter, food), at least in Western societies, have been met.

In commenting on the seminal work of Tversky and Kahneman (e.g., Tversky & Kahneman, 1981), Lilienfeld, Ammirati, and Landfield (2009) stated that there is a “growing consensus that human thinking is not nearly as rational as once commonly believed . . . our judgement and decision-making, although reasonably accurate, are frequently clouded by a plethora of biases and heuristics” (pp. 390–391). They went on to discuss the role of confirmation bias in ideological extremism. Confirmation bias describes the tendency to seek information consistent with pre-existing views and to dismiss information that is inconsistent with pre-existing views; this results in people continuing to maintain views that have been widely discredited. Another example of a bias is spatial optimism, which allows us to believe that issues such as water shortages are problematic in places other than our own (Gifford et al., 2009).

A primary feature of our success as a species has been our social nature, which has been transformed through the development of language, and now again through the development of communication technologies. But first, what is the essence of our social nature? Our social behaviors may have evolved as the adaptive advantage of vulnerable neonates and the consequent nurturance requirements co-evolved (Gould, 1977). Parental motivation to protect offspring may be the basis of altruism, the tendency to give up one's own immediate needs for that of others. The “extended family” evolved into tribes/clans/dynasties, mostly based on family connections, which must have had additional advantages for protecting the young, and also extended the notion of altruism to loyalty to the clan. With this development came the concepts of neighborhoods and local communities. Such communities engaged in coordinated hunting, agriculture, and herding of domesticated animals, which again would have led to increased survival rates for our species. These social developments would have been possible only as a result of the increasing capacity of the brain/mind to inhibit immediate desires to fulfill personal needs, thus allowing compromise and a balance between individual and community needs, mediated by community values—the beginning of “citizenship.” Eventually tribal systems, through warfare or compromise, evolved into national systems, and the concept of “nation-hood” and national citizenship evolved. In essence, we are arguing that parental motivation to protect the young was the beginning of altruism, which is the basis of modern citizenship (Brown & Brown, 2006; Cohen, 1995; Hamilton, 1964; Ward, 2001).

One example of a specific social-cognitive mechanism that may have served a protective role in tribal communities is *ingroup/outgroup* thinking and behavior (Brewer & Brown, 1998). In essence, we tend to favor members of the ingroup and

denigrate members of the outgroup. In primitive cultures, particularly where intertribal warfare and sometimes cannibalism were common, this would have been an adaptive mechanism. Its adaptive capacity in Western societies could be questioned, however, and its role in the maintenance of discord (in the form of prejudice and racism) in multicultural societies needs to be fully acknowledged in any attempt to promote tolerance of diversity.

Another example of a specific social-cognitive mechanism that may have served to “advance” human communities is *social comparison* (Festinger, 1954; Turner, 2006), which is the human drive to evaluate oneself, specifically by comparing oneself with others. In other words, it is highly probable that this mechanism is part of our genetic inheritance and has played an adaptive role in our motivation to “better ourselves” in our local communities (even attempting to mimic our heroes and heroines) and to “ensure that our children are better off than we are.” However, it also has some negative consequences in Western societies in the form of, for example, peer pressure toward maladaptive behaviors such as dieting and drug-taking, and peer pressure towards materialism (“keeping up with the Joneses”). Thus, this is another example of an evolved social-cognitive mechanism that may have served us well in the past but has some maladaptive consequences in our current world.

In summary, the brain (and thus mind) of the average human is built to focus on present and immediate future needs and has limited capacity to consider the long-term future needs of itself, let alone children and grandchildren. Moreover, it has limited capacity to learn from its own past, let alone the long past of the species and of its habitat. This was not a problem for the species until relatively recently, when it breached its local tribal borders and through technological innovation became the dominant species on Earth, using global resources for today with little thought for tomorrow.

Cultural Psychology

Through cultural psychology, mainstream psychology interacts with the disciplines of history, anthropology, geography, cultural studies, and linguistics. Cultural psychologists study the way in which people are influenced by their culture, where culture is defined as “the shared rules that govern behavior; it is a filter through which we see and understand our reality” (p. 764, Burton, Westen, & Kowalski, 2009). The extent to which cultural psychology is different from the traditional (Western) notion of social psychology is questionable. One might posit that social psychology is the study of the influences of social processes on the way people think, feel, and behave (Allport, 1968), whereas cultural psychology acknowledges the long “evolution” of the specific culture (encapsulating the concept of “memes”) that resulted in that particular social situation (see Fig. 18.1). Cultural psychology also acknowledges that there are both commonalities and differences in social mechanisms across cultures.

Cultural (and to a certain extent “social”) psychology increasingly recognizes its long history, from pre-Greco-Roman times through to modern Western

cultures, and realizes that such historical accounts often ignore non-English-speaking and indigenous cultures. Cultural psychology interacts with evolutionary psychology to the extent that it acknowledges the challenges engendered by the social and technological revolution that has transformed our small group/tribal social situations to our current "flat-world" social situation (Friedman, 2005), whereby the behavior of one group in one part of the world (e.g., the training of a terrorist, the failure of a bank) may have consequences across the globe. Because of this, we now have a need to force cultural and psychological evolution by facilitating the development of "global citizens."

Human Ecology

Through human ecology, mainstream psychology interacts with the disciplines of biology (specifically ecology), geography, and other social sciences. Human ecology is a relatively new transdisciplinary field, and psychology's contribution involves acknowledging the complex interrelationships between *Homo sapiens* and its biological and physical habitat.

Human ecology views humans as just another species in an ecosystem that contains both animal and plant species in the biosphere, interacting with the lithosphere, hydrosphere, and atmosphere. In relatively recent evolutionary history, our ancestors breached the boundaries of their original habitat in Africa and managed to adapt to almost every part of the planet. Our short-sightedness as a species has led us to consider that the resources of our habitat are ultimately controllable by us, with the additional assumptions of never-ending supply, or our creative capacity to solve resource supply problems. For example, any concerns that the oil supply may not be endless are countered by our claims that we can easily develop alternative energy sources. In the race for profitable energy supply, we do not consider the harm that is being done to our habitat. This reality is exemplified by the 2010 Gulf of Mexico oil pipe breakage, which has had immediate, and will have long-term, negative consequences not only for human economies in the immediate area, but also for ecosystems at considerable distances, given the "non-regional" nature of the hydrosphere.

Will it be possible to create "global citizens" with an appreciation of these issues, and with the capacity to lead the rest of humankind to treat our habitat with more respect, thus potentially ensuring our long-term survival? In striving to be such citizens, we have much to learn from some "first nations" peoples such as those in America, Australia, Africa, and some Asian countries.

Human ecology overlaps with another relatively new subdiscipline of psychology, environmental psychology, which is the scientific study of the interaction between humans and physical environments. It recently has focused on environmental problems that have been caused by human behavior, including climate change. The internationally renowned psychologist and neuroanatomist George Paxinos (1992) has persistently stated that the human brain is the "wrong size." The human brain is big enough to have invented ways in which, for example,

human beings can be transported to the moon and ailing hearts can be replaced, thus allowing some of us to live more exciting or longer lives. However, so far the human brain has been too small to prevent the ongoing destruction (through global warming) of one of the natural wonders of the world, the Great Barrier Reef (S. Gray, 2008). Perhaps the mission of psychology is to accelerate evolution, not by changing the genetics of survival but by “sprucing up the software”—that is, by facilitating the development of metacognitive capacity and ethical attitudes and behavior in our “cognitive elite,” who can then lead the less fortunate others toward sustainable well-being.

AN INTEGRATIVE APPROACH

As already noted, B. F. Skinner stated that current behavior is determined by genetics, developmental history, and the current situation (1983, cited in Myers, 2004). Should our knowledge of the influence of these factors make a difference to this formula? The adaptive cognition approach proposes that our current psychological status is determined by all of those factors—specifically, the influence of our developmental, evolutionary, cultural, and human ecological history and current situation—as well as our knowledge of this confluence of factors (i.e., metacognition; see Fig. 18.1). How can we use this knowledge? That is, what could or should be the consequences of possession of this knowledge? At the very least, it should make us more interesting people to be with—for example, we can talk to our friends with some authority about the nature of human relationships or of our cognitive biases. We could apply this knowledge to gain better employment and a better standard of living. We thus gain better access to healthcare and have more purchasing power—more possessions, more costly entertainment, more educational opportunities for our children.

Despite better access to health services and to healthy food, however, are we healthier? Although *in general* the global life expectancy is increasing (World Health Organization [WHO], 2010a), there are contradictions such as increased health costs and deaths due to lifestyle (i.e., behaviorally determined) diseases such as obesity and smoking (WHO, 2009). Moreover, in Western countries there appears to be an unprecedented increase in mental health problems such as anxiety disorders and depression, with a particularly chilling aspect being significant youth suicide (WHO, 2010b). Why is this happening in countries where young people have increasing access to education, healthcare, and technological innovation? If we are wealthier, why are we not happier? Classic U.S. research on life satisfaction (Diener & Seligman, 2004) indicates that despite increases in relative income over the past few decades, people are not happier. Why are we not happier; what else are we looking for in our lives?

The field of happiness research has recently morphed into the positive psychology movement (e.g., Seligman & Csikszentmihalyi, 2000), which constitutes a paradigm shift from the traditional focus on psychological dysfunction emanating from the post-World War II era, to the human optimization approach (which

draws on the work of Maslow and Rogers), and can be traced back to Socrates' notion that self-knowledge is the path to happiness. One could argue that the positive psychology movement could only have originated in the United States, where the 1776 Declaration of Independence states that a right to happiness is an inalienable right. Unfortunately the political and economic systems of democracy and capitalism appear to have fallen short of delivering that "right."

As most proponents clearly state, positive psychology is not about "being happy and experiencing no negative emotions." Rather, like the evolutionarily adaptive consequences of negative emotions such as fear that normally serve threat-avoidance functions, positive emotions also lead to adaptive self-preserving or goal-directed behaviors (e.g., Tugade & Fredrickson, 2004). For example, Fredrickson's (1998) "broaden-and-build" theory asserts that positive emotions allow us to build our personal resources, which help us to adaptively solve problems to reach our goals. Fredrickson also relates this approach to the increasingly popular research area of resilience (Tugade & Fredrickson, 2004). Taking a slightly different approach, Lyubormirsky, Sheldon, and Schkade (2005) proposed that chronic happiness level is determined by three factors: set point (genetically determined), life circumstances (incidents beyond our control), and "intentional activity" (which is within our control). Their research has demonstrated that positive psychology interventions, whereby people intentionally engage in various activities such as writing letters of gratitude, helping others, and recording positive experiences each day, lead to long-term increases in physical and mental well-being (see, e.g., Peterson, 2006).

Are we in the West "discovering" an approach to thinking about ourselves and our world that has long been known in some Eastern cultures, for example the beneficial effects of mindfulness meditation in Buddhist practices (e.g., Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008)? It may be fruitful to align the various movements toward individual and societal well-being (e.g., Kabat-Zinn, 1990) and to acknowledge the contextual factors that may limit the success of some Western positivity practices in certain cultures, for example those characterized by extreme poverty and lack of access to health and education.

Adaptive cognition overlaps conceptually with positive psychology and advocates the use of intentional positivity strategies. However, it takes a broader approach to adaptive behavior, emphasizing adaptive goal seeking not only at the individual level but also at the species level, thus taking a longer and broader evolutionary, cultural, and ecological perspective (see Fig. 18.1). The adaptive cognition approach also emphasizes the notion that our success as a species is based on our capacity to extend our adaptive social networks beyond family to all human beings.

A note of caution, however: in Western societies, most of us are in the privileged position of being able to choose to use strategies that we know will improve our chances of achieving the goals of living a purposeful and fulfilling life (for example, Sternberg, 2009). We need to acknowledge and be alert to two realities in our personal, professional, and leadership roles: (a) not all people in our society and in other societies are in such privileged positions, and (b) there will be some people who will never be able to benefit from this approach, for various

reasons. Nevertheless, in adopting the adaptive cognition approach, we need to constantly consider how we, as well as our fellow human beings, can achieve the goal of living a purposeful and meaningful life.

In summary, adaptive cognition involves “seeing the big picture,” in the long term, from an *evolutionary* perspective (see Fig. 18.1). As such, the concept overlaps to a large extent with the concept of psychological literacy, and importantly has “moral” consequences—that is, a primary assumption underlying the approach is that we need to look after other members of our species, as well as ourselves, for the species to survive in the long term. Thus the notion of “citizenship” is relevant, particularly “global citizenship” (Marshall, 2010), with the psychological version being the “psychologically literate citizen” (McGovern et al., 2010). In thinking about the development of psychological literacy (PL) from the perspective of adaptive cognition, one might distinguish three levels (Fig. 18.2):

- **Level 1 PL:** Purposefully applying psychological principles in a way that is adaptive (i.e., planning and solving problems to meet needs/

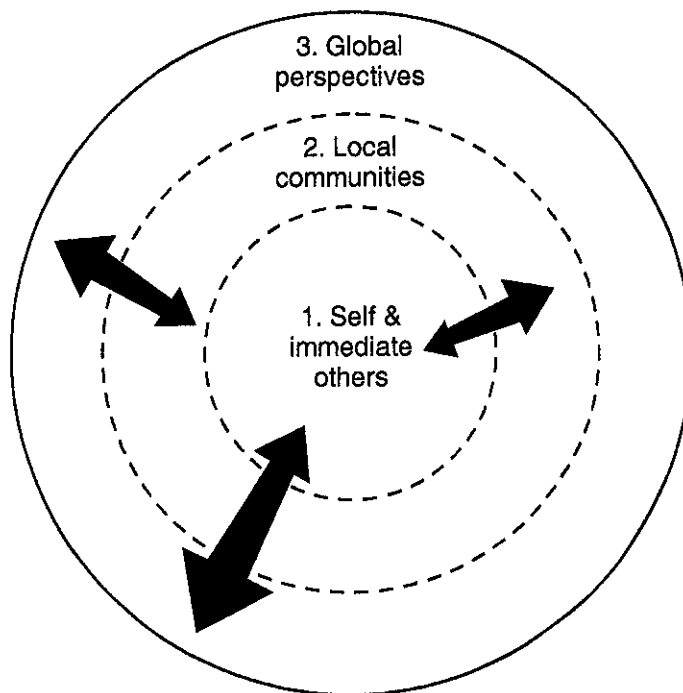


Figure 18.2 The different levels of psychological literacy (PL) development in the context of the adaptive cognition approach. Level 1 focuses on application of psychological principles adaptively to oneself and one’s immediate set of family members and friends. Level 2 focuses on application of psychological principles in a way that is adaptive for one’s local community. Level 3 focuses on applying psychological principles in local, national, or global contexts, in a way that reflects an awareness of global issues, and where it is highly likely that one would need to play a leadership role. Development at the different levels may interact, as indicated by two-way arrows. Undergraduate psychology education should provide opportunities for students to develop PL at all three levels, but with an emphasis on Level 1, as often students take an introductory psychology unit, for example, in the hope of gaining better self-understanding.

goals) for oneself and one's immediate set of family members and friends (see McGovern et al., 2010, Case Study 1).

- **Level 2 PL:** Purposefully applying psychological principles in a way that is adaptive for one's local community (e.g., employment setting, school, recreation club). One may need to play a leadership role at this level.
- **Level 3 PL:** Purposefully applying psychological principles in a way that is adaptive at a level that may reach beyond one's local community (e.g., creating behavioral change strategies to improve health outcomes that can be implemented in a number of communities, and perhaps globally; see McGovern et al., 2010, Case Study 2). It is highly likely that one would need to play a leadership role at this level (see Cranney et al., 2008).

It is not necessarily the case that one needs to develop Level 1 PL fully before moving on to Level 2, and so on. For example, it may be that one finds oneself in a leadership role at Level 2, which leads to an increase in Level 1 PL. Moreover, a certain individual may be applying certain psychological principles at Level 2, and others only at Level 1. However, we are proposing that development of Level 1 PL may be necessary for optimal development of Level 2 PL, and so on.

UNDERGRADUATE EDUCATION: A CALL TO ACTION

Psychological Literacy and Adaptive Cognition: the Pedagogical Approach

What happens to the majority of psychology majors, at least in Australia, Britain, and the United States, who do not become professional psychologists? In Australia and Britain, where an accredited psychology undergraduate degree is the primary (if not the only) pathway to professional psychology training, it is possible that many such graduates are disenfranchised with psychology, either because they have not "made the grade" to graduate training or because their expectations about psychology have not been met (Over, 1983). In the United States this is less likely to be the case, because (a) the psychology major serves the highly valued tradition of a liberal arts and sciences undergraduate education (McGovern et al., 2010); (b) there are other pathways to professional training; and (c) it is well recognized that there are few places for the required doctoral training for professional psychology. Regardless of these differences in educational systems, it is interesting to speculate about what entering students may want from their psychology major. It is likely that most expect that their psychology education would provide opportunities (a) to learn more about themselves and their immediate others (e.g., family, friends, coworkers), and perhaps also (b) to apply psychological principles to achieve their personal and professional goals. This is what we

have termed above “Level 1 PL.” What might be needed to increase the probability of these opportunities being made available in the undergraduate curriculum? We will provide some ideas below.

Beyond the students, one might also ask, what does the *discipline* want? The discipline is usually represented by the named university departments, and it is evident that the primary aims of such departments are to (a) create knowledge through faculty research and indirectly through research training, and (b) train professional psychologists (we momentarily ignore, for the sake of argument, the many excellent liberal arts colleges whose primary mission is undergraduate education). Most university departments of psychology meet these two aims very well. A continuing complaint of faculty from these university departments, however, is the *misunderstanding by the public* (including granting bodies and university administrators) of the discipline and profession of psychology (Badcock, Hammond, Gillam, Brewer, & Andrews, 2007).

How might we address this issue? One obvious answer is to help our undergraduate psychology major (and first-year) students to become better “ambassadors” for psychology—to “spread the good word” about how useful psychology can be in solving problems related to human behavior (see, e.g., Klatzky, 2009). For this, they will need to have developed at least Level 1 PL, and for even better “demystifying” of the general public, Level 2 PL. This approach could also be facilitated by the creation of educational pathways (e.g., double majors) that allow education in psychology to be combined with other employment-relevant fields, such as education, criminology, human resources, medicine, and neuroscience. However, educational strategies may be necessary to increase the transdisciplinary learning by, for example, having a final-semester capstone unit that explicitly requires students to integrate knowledge from the two areas.

Beyond the ivory tower, what might the *world* want? We propose that our habitat needs psychology graduates who can help to solve current (and projected future) local and global problems, many of which relate to human behavior (Marsella, 2007). How can educators meet this proposed need? Essentially we should endeavor to provide our students with opportunities to develop Level 3 PL, to become what McGovern and colleagues (2010) called “psychologically literate citizens,” and from a transdisciplinary perspective, better “global citizens” (Marshall, 2010). It could also be argued, given Figure 18.1, that Level 3 PL involves an appreciation of the strengths and limitations of psychology, relative to other disciplines and professions, in solving human problems.

These different needs and wants are not incompatible: with some rethinking of the aims of undergraduate psychology education, and some sharing of existing innovative and economical learning and teaching practices, it should be possible to afford students many opportunities to (a) develop psychological literacy, which includes knowledge, research methodology, critical thinking, values (including professional dispositions), communication, and application of psychology, (b) increase their employability by making explicit how their knowledge, skills, and professional dispositions can be applied in work settings (Upton & Trapp, 2010), and possibly also (c) develop some low-level professional knowledge and skills in preparation for

a variety of careers, including professional psychology. The importance of facilitating the development of graduates who can use their psychological literacy for the "greater good," however, cannot be overemphasized.

Overall Curriculum Approaches

If the purpose of undergraduate psychology education is to facilitate the development of adaptive cognition in our students, then we need to shape the curriculum to afford such opportunities (cf., Dunn, Cautin, & Gurung, Chapter 2 in this volume; Dunn et al., 2010). Some might argue that the curriculum is already packed with the required "knowledge" and "research methods" content, and there is little room to expand on "critical thinking" (such as practice in recognizing our cognitive biases), "values" (including ethics), "communication," and "application" of psychology, beyond the minimal components required through processes such as accreditation (e.g., the capacity to write research reports). However, we would argue that it is possible to shape the curriculum to increase the acquisition of psychological literacy from the perspective of adaptive cognition without losing the essence of "content" in the form of knowledge and research methods. Psychological literacy *does* require knowledge, and an appreciation of how that knowledge was gained (through the scientific method), before it can be applied in a values-driven way to psychological issues. We propose that throughout the curriculum, the development of graduate attributes (learning outcomes) emphasize application (Cranney et al., Chapter 11 in this volume), with an *explicit* developmental sequence from knowledge of self (Wilson, 2009), to knowledge of others and interpersonal relationships, to knowledge of systems, organizations, and cultures (see Fig. 18.2). In other words, the development of psychological literacy is explicitly build upon and into compulsory core units in psychology, with a whole-of-program approach (e.g., the use of graduate attribute portfolios across the program, and a capstone course) leading to the greatest development of psychological literacy.

In particular, from the very first unit in psychology, the expected learning outcomes of the unit and of the degree program, as well as the implications for employability, can be made explicit through the use of attribute portfolios and realistic employment-relevant activities (e.g., Cranney et al., 2005). Attribute portfolios should be structured in such a way that students are required to reflect on what they already know, what they are acquiring from their learning in that unit, how this affects life outside the course, what else they need to accomplish, and what plans are needed to achieve that. This initiates a cycle of intentional reflection regarding both their learning during their 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 attribute portfolio. In the final year of the psychology major, emphasis on this activity should be increased, with an optimal approach being a compulsory unit with some formal training

and perhaps a work-integrated learning experience that serves to integrate the various attributes in an applied sense, thus leading to the students' explicit appreciation of their level of psychological literacy (e.g., a report on how psychological theory was relevant to explaining the effectiveness of an intervention following a needs analysis in a work setting). This kind of experience is also likely to increase a student's employability, and may involve some low-level, low-cost skill training (e.g., interviewing techniques) that would be relevant to many different human service professions, including professional psychology. Finally, well-structured group work with a superordinate goal, either within a unit or through an extra-curricular outreach program (such as organizing and implementing tutoring in a local high school for at-risk students), could not only help with the development of interpersonal skills with diverse group members and "clients," but should also contribute to the development of global citizenship capacity.

SOME SPECIFIC LEARNING & TEACHING STRATEGIES

Many of the specific learning and teaching strategies mentioned in other chapters in this volume could be classified as taking an adaptive cognition approach. Some strategies we have employed with our first-year students are briefly described below.

Self-Knowledge Through Inventories

There are now many reasonable Web-based inventories that give automatic feedback to students and thus allow them to compare themselves to others in terms of various personality traits, values, and so on. For example, Seligman's "Authentic Happiness" website has the Brief Strengths Test (see <http://www.authentic happiness.sas.upenn.edu/Default.aspx>). Students can be told to take this test by themselves, then either reflect on the outcome in a journal or discuss the characteristics of the test, and their outcomes, in a tutorial. They need to be told that they do not have to discuss any aspect of the outcome publicly if they choose not to. A subsequent homework exercise of building on a chosen strength, can be an empowering experience for students.

Study Strategies

A handout (available from the authors) is given to students in a tutorial class, and the instructor briefly discusses the content, which consists of seven different strategies or approaches to increasing the effectiveness of studying. These evidence-based strategies are (1) Time on task, organizational and time management skills, study environment; (2) desirable difficulties and positive attitudes toward study; (3) improve the quality of your study time; (4) space your learning;

(5) improve your general cognitive skills; (6) improve your specific academic skills; and (7) deal with barriers and keep healthy. Students are then asked to form pairs for the next three weeks. In their pair, they are asked to discuss which strategy they will try out over the next week, and they are to report back on their experiences—for example, on the impact of the strategy—to their partner in the next tutorial. In the following week's tutorial, that discussion ensues, and again, they choose a strategy (same or different) to try the next week. At the end of three weeks, they are required to give ratings of the effectiveness of the overall approach, and are also asked specific questions about the approach in a short journal entry, which is assessable. They are told of these requirements at the beginning of this exercise so that there is an extrinsic reason for them to focus on the activity, the medium-term effectiveness of which could then be assessed in a final unit evaluation.

Positive Psychology Strategies

This approach is similar to the study strategies above, except that it contains six well-researched positivity strategies (again, available from the authors). These evidence-based strategies are (1) three blessings; (2) the gratitude letter; (3) control negative thoughts; (4) active and constructive responding; (5) do good things; and (6) using your strengths in new ways.

CONCLUSIONS

If we take our role as educators seriously, then we need to re-examine the goals of undergraduate psychology education (Halpern, 2010). This chapter presents a novel integration of different fields of psychology in the construction of a mature understanding of the potential of the discipline in the form of adaptive cognition. Adaptive cognition provides the pedagogical imperative for educators to provide explicit opportunities for students to develop psychological literacy within our curriculum. As we continue to make explicit the proposed benefit of psychological literacy to the student, to their community, and to the world at large, we anticipate the discipline of psychology becoming more popular in its appeal, as its potential to have a beneficial global impact is increasingly recognized. It is the authors' wish that as educators and students respond to this call for action, this proposed approach will be shaped across time and adapted across different spaces to optimize the well-being of students and their communities into the future.

The aim of education is not only to prepare students for productive careers, but also to enable them to live lives of dignity and purpose; not only to generate new knowledge, but to channel that knowledge to humane ends; not merely to study government, but to help shape a citizenry that can promote the public good. Thus, higher education's vision must be widened if the

nation is to be rescued from problems that threaten to diminish permanently the quality of life. (Boyer, 1990, pp. 77–78)

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