

Developing the next generation of responsible professionals: Wisdom and ethics trump knowledge and IQ

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In this article, I describe the ACCEL (active concerned citizenship and ethical leadership) model for university education. I then apply it to the teaching of psychology. The goal of the model is to develop university students who are active concerned citizens and ethical leaders, where leaders are viewed as people who make a positive, meaningful, and potentially enduring difference to the world at some level. I discuss the role education can play in developing the elements of ACCEL – creative, analytical, practical, and wise thinking – and I give examples from my own classrooms teaching various aspects of psychology and human development.

FIRST, THE GOOD NEWS: IQs rose 3 points every decade in the 20th century (the so-called ‘Flynn effect’ – see Flynn 2016). That is a total of 30 points over the course of the century. Put another way, an individual identified as intellectually gifted (IQ = 130) in 1900 would have been viewed as entirely average (IQ = 100) in 2000. An individual identified as intellectually average (IQ = 100) in 1900 would have been viewed as borderline intellectually deficient in 2000 (IQ = 70). The average IQ remained 100 only because test publishers continually re-standardised the tests to set the mean at 100. (The cause of the Flynn effect is debated. Some investigators have argued, on the basis of less than compelling evidence, namely changes in simple reaction times, that, despite the Flynn effect, intelligence has been going down since the Victorian era – Woodley et al., 2013.)

Next, the not-so-good news: The intellectual level of our society does not seem to match the astonishing rise in IQ’s identified as the Flynn effect. In the UK, the Brexit vote was one of the more fraught in UK history. In the US, Republicans and Democrats alike seem to agree that the intellectual level of the 2016 presidential campaign was the most

puerile in memory. One final candidate spoke at the 4th grade level, the other at the 8th grade level (according to the Flesch-Kincaid formula – <https://www.bostonglobe.com/news/politics/2015/10/20/donald-trump-and-ben-carson-speak-grade-school-level-that-today-voters-can-quickly-grasp/LUCBY6uwQAxILvXbVTSUN/story.html>). If there is one thing we have learned in recent years, it is that smart people can be foolish (Sternberg, 2002). The French presidential election of 2017 descended into some of the same puerile insults as the American one.

When we teach the psychologists of the next generation, we want their performance to reflect their higher levels of intelligence, or at least IQ, not the increasingly puerile level at which aspects of our society seem to be functioning. It is not just presidential campaigns. Textbook publishers are constantly putting pressure on authors – including me – to dumb down the level of their textbooks.

Some people do not seem to care or distinguish what is true from what they want to believe or ‘feel’ should be true. Rising IQs may have helped people deal with the increasingly great technological challenges

of living in modern society (cell phones, computers, TV remote-control devices, etc. – Flynn, 2016), but appear to have done little to solve the world’s most pressing problems, such as climate change, poverty, increasingly disparate incomes between the more and less economically fortunate, wars, terrorism, prejudice, and discrimination.

Many of us still think in terms of the metaphorical ‘Great Chain of Being’ (Lovejoy, 1936). Humans have the distinction of being the self-proclaimed most intelligent species ever to have lived. We are also the first species steadily moving toward destroying ourselves and taking other species with us. According to WWF Global, the rapid loss of species we are experiencing today is estimated by experts to be between 1000 and 10,000 times higher than the natural rate of extinction (http://wwf.panda.org/about_our_earth/biodiversity/biodiversity/).

The field of psychology is beset with many of the same problems as those found in other fields and even society at large: failure to replicate results, outright fraud, focus on production to get promotions/tenure at the expense of studying important problems, lack of emphasis on developing the next generation, or developing them in the wrong way, in many major universities because developing students doesn’t ‘count’ enough. So we need to teach future psychologists, not just the general population, to think and act in more effective and sometimes more truthful ways.

The purpose of university education

What, exactly, is the purpose of a university education? I would identify three models that drive much of our thinking about this purpose. In the *knowledge-storehouse model*, teachers impart facts to students so that they can thrive in a knowledge economy. In the *job-preparation model*, teachers prepare students for jobs, teaching them job-relevant knowledge and skills. In the *student-as-scholar model*, teachers develop students as scholars/researchers so that they can think critically

and evaluate information that is presented to them.

All of the models have at least some positive features. With regard to the knowledge-storehouse model, one cannot think critically or otherwise in the absence of knowledge. With regard to the job-preparation model, if university does not prepare students for jobs, what will? With regard to the student-as-scholar model, research skills are important at all points in a student’s life.

The models also are all problematic in at least some respects. What’s wrong with the knowledge-storehouse approach? It is based in part on the idea that we have moved into a ‘knowledge economy’ (Mokyr, 2004). The term ‘knowledge economy’ is misleading, however. In a sense, memorised knowledge is less important than ever before, because so much knowledge is available with a few touches of a computer keyboard. Someone could memorise 100 per cent of his or her psychology textbooks and still be a mediocre teacher, scientist, or practitioner. Moreover, knowledge quickly becomes outdated. How much of the knowledge from your introductory psychology course is relevant today, beyond its historical significance?

Now, what’s wrong with the job-preparation model? Many students appear to think of the university in terms of this model. A problem is that although general thinking and communication skills are always useful, the specific job-related knowledge and skills needed to succeed in many of today’s jobs will become of lesser relevance or even irrelevant within a small amount of time. So this model risks training tomorrow’s professionals for today’s, not tomorrow’s jobs. Many of the jobs that the students will take do not even exist yet, so it is impossible for them to develop specific knowledge and skills relevant to the jobs because we do not know what the jobs are.

Finally, what’s wrong with the student as scholar/researcher model? Most students will not go on to become scholars or researchers after university. Moreover, we know that transfer of training tends to be meager unless

we, as teachers, make efforts to build the transfer into our teaching. Students trained in this model thus often find themselves unable to apply what they have learned in the university to the demands of their professional lives. The risk is that students' university education will be viewed as disconnected from their life experience.

A new ACCEL model

The ACCEL model (Active Concerned Citizenship and Ethical Leadership – Sternberg, 2016) views the university as preparing students to be active concerned citizens and ethical leaders who will make a positive, meaningful, and potentially enduring difference to the world at some level. Students often come out of the university lacking the skills to be good and effective citizens and leaders, where 'leaders' are not defined merely as people who influence others, but rather as individuals who make a positive, meaningful, and potentially enduring difference to the world at any level. Leaders do not just go and 'boss people around'. All leaders are also followers – all individuals in society are responsible in their lives to others, not just to themselves.

What are the attributes of ACCEL citizens and leaders? According to Sternberg (2016), they think

- *Creatively* to generate ideas that are novel, surprising, and compelling.
- *Analytically* (critically) to evaluate the soundness of their ideas and those of others.
- *Practically* to put their ideas into practice and to be able to persuade others of the value of their ideas.
- *Wisely* and *ethically* to help ensure that their ideas help to achieve a common good by balancing their own with others' and larger interests.

Creative thinking

Creativity is an attitude toward life, not merely an ability (Schank & Childers, 1988; Sternberg, 2000). Moreover, it always takes place within a system (Csikszentmihalyi,

1999; Gardner, 1993; Kaufman, 2016). The creative attitude is one of buying low and selling high – taking good ideas that others are reluctant to accept, persuading others of their value, and then moving on to the next unpopular idea (Sternberg & Lubart, 1995). Most people fail to be creative not because they cannot be, but rather because they are afraid to be. Creativity involves three kinds of 'defiance' (Sternberg, in press):

- **Defying the crowd:** Creative people are willing to stand up to the resistance that creativity almost inevitably sparks in others (the crowd). Often people, including scientists, value creativity except when it threatens them personally – they prefer ideas that do not require them to challenge their fundamental ways of thinking;
- **Defying oneself:** Creative people are willing to stand up to their own prior ideas and conceptions and to move on as they change, the world changes, and their potential contribution to the world changes. Often people are willing to stand up to others but not to themselves, with the result that their 'new' ideas are minor re-workings of their old ideas – 'old wine in new bottles'; and
- **Defying the Zeitgeist:** Creative people are willing to stand up to the often preconscious presuppositions under which they and the crowd have operated. An example has been significance testing: For a long time, the use of significance testing has been simply part of the Zeitgeist, whereas now Bayesian researchers more and more are challenging it. Often people do not want to challenge the presuppositions with which they have become comfortable and that define their personal and professional lives. Creative people do so.

The creative attitude

Individuals who are creative adopt a creative attitude (Sternberg, 2005). They engage in redefining problems; asking themselves the best, worst, and most likely outcomes

of their idea; ‘selling’ their ideas; taking sensible risks; recognising the costs of expertise; being resilient in the face of opposition; believing in themselves; not taking themselves or their ideas too seriously.

Assignments that develop creative thinking (Sternberg & Williams, 2001) encourage students to:

- **Create** (e.g. an empirical investigation in psychology);
- **Invent** (e.g. a piece of lab equipment for psychological research);
- **Discover** (e.g. why people behave a certain way);
- **Imagine** (e.g. whether a given psychological discovery would apply cross-culturally);
- **Suppose** (e.g. that the background conditions of a psychological study were different);
- Creative contributions can be of several different kinds (Sternberg, 1999), such as;
- **Forward incrementations** – move the field forward small steps in the direction it already is going – threaten almost no one and so tend to be valued in the short term;
- **Advance forward incrementations** – move the field forward large steps in the direction it already is going (e.g. S. Sternberg, 1966) – may threaten the existing order;
- **Redirections** – move the field in a new direction; threaten the existing order;
- **Reinitiations** – suggest a new way to restart the field (e.g. Chomsky, 1957; Tversky & Kahneman, 1973); threaten the existing order; and
- **Syntheses** – suggest a way to bring different fields together (e.g. Simon, 1997); threaten the existing order.

Forward incrementations generally do not incite a great deal of opposition, because they occur within existing paradigms. The other kinds of creativity, which are less common, are more likely to incite opposition because they disrupt existing paradigms (Kuhn, 2012).

Our empirical research on creativity revealed a number of findings (Sternberg & Lubart, 1995). First, creativity is largely domain-specific. Second, creative people are insightful – they see things in ways others fail even to consider. Second, creativity is correlated with IQ, but only weakly, and high IQ in some instances can interfere with creativity. Third, people can be taught to think more creatively. Fourth, creative people are willing to take sensible risks. Finally, the measurement of creativity is only as good as the people doing the scoring. If noncreative people score creative products, they often cannot see the creativity in the products (Lubart & Sternberg, 1995; Sternberg & Davidson, 1982, 1983; see also Davidson & Sternberg, 2003).

Analytical thinking

Analytical thinking involves three aspects (Sternberg, 1984, 1985a, b, 1997). *Metacomponents* are higher order executive processes that plan what to do, monitor it while it is being done, and evaluate it after it is done. The main metacomponents are:

- Recognising the existence of a problem (e.g. that intelligence tests may favor students from some cultural backgrounds over students from other cultural backgrounds);
- Defining the nature of the problem (e.g. that the students who are disfavoured may actually be quite intelligent in their natural environmental contexts, even if not in the context of traditional intelligent tests);
- Constructing a mental representation of the problem (e.g. learning what kinds of tasks are representative of adaptive and hence intelligent performance in various cultural settings);
- Formulating a strategy to solve the problem (e.g. planning to devise tests relevant to various cultural milieus);
- Monitoring problem solving while it is in process (e.g. empirically determining whether the tests that have been created indeed are relevant to the various milieus); and

- Evaluating problem solving after it is completed (e.g. determining whether the new tests have construct validity in the environments for which they are intended) (see Sternberg, 2004; see also Niu & Sternberg, 2002 for related ideas regarding creativity).

Performance components actually solve the problems. And knowledge-acquisition components learn how to solve the problems in the first place (Sternberg, 1985). Other people's theories have similar problem-solving processes (see, e.g. Davidson & Sternberg, 2003). Assignments that develop analytical thinking (Sternberg & Grigorenko, 2007) encourage students to

- **Analyse** (e.g. the data from a psychological experiment);
- **Evaluate** (e.g. the validity of a psychological test);
- **Compare and contrast** (e.g. two different psychological theories);
- **Critique** (e.g. the methods of a psychology experiment); and
- **Judge** (e.g. the soundness of a psychological conclusion).

We also have done some research into analytical thinking. The analytical thinking involved in scientific research is different from that required by academic achievement tests. In a recent set of studies, Karin Sternberg and I created five tests of analytical and related thinking in psychological science. We found that the tests correlated with each other (at Cornell) but only weakly or even negatively with achievement test (SAT) scores for reading and math. There were five tests: Generating hypotheses, Generating experiments, Drawing conclusions, Critiquing experiments, and Evaluating reviews. We found that the tests correlated weakly and in some cases negatively with the reading and math sections of an achievement test (SAT), at least among Cornell students (Sternberg & Sternberg, 2017).

Practical thinking

Practical thinking involves the application of what one learns to real-life contexts that matter in one's life. Practical intelligence is based in large part upon tacit knowledge (Sternberg et al., 2000), that is, knowledge that is important for adaptive purposes that typically isn't taught and often is not even verbalised. Practical intelligence involves three inter-related skills: Managing oneself, Managing others, and Managing tasks. Assignments that develop practical thinking encourage students to

- **Apply** (e.g. a theory of love to one's romantic relationship);
- **Use** (e.g. probability concepts to plan one's life);
- **Put into practice** (e.g. social-psychological techniques to defuse a potential conflict);
- **Implement** (e.g. an intervention program for combating drug abuse); and
- **Persuade** (e.g. someone of the validity of your experimental data).

We also have some research findings regarding practical intelligence (Sternberg et al., 2000). First, practical intelligence is only weakly correlated with IQ. Second, measuring practical intelligence increases prediction of job performance over and above measuring IQ. Practical intelligence is largely based on tacit knowledge. Third, what matters for the development of practical intelligence is not amount of experience, but what one has learned from that experience. Fourth, practical intelligence is distinct from personality. Fifth, practical intelligence can be taught. Sixth, students learn more in an introductory-psychology course if, at least some of the time, the instruction matches their pattern of analytical, creative, and practical abilities (Sternberg et al., 1999). Matching to styles of thinking also can improve achievement (Sternberg & Grigorenko, 2001).

Combining creative, analytical, and practical thinking

Some of our research findings have involved a blend of creative, analytical, and practical skills. For example, teaching for creative, analytical, and practical skills can improve achievement in elementary-school students (Sternberg et al., 1998). Teaching for creative, analytical, and practical thinking is effective only if one controls the teacher training (Sternberg et al., 2014). Assessing creative, analytical, and practical skills can double prediction of first-year university GPA over an achievement test (SAT) alone and can substantially reduce ethnic-group differences in test scores (Sternberg et al., 2006; see also Sternberg, 1993).

Wisdom-based skills

Finally, we turn to wisdom. According to the balance theory of wisdom (Sternberg, 2003a, b), wise thinking involves:

- Using one's knowledge and skills to help achieve a common good;
- By balancing intrapersonal, interpersonal, and extrapersonal interests;
- Over the long- as well as the short-term;
- In order to adapt to, shape, and select environments; and
- Through the infusion of positive ethical values.

Assignments that develop wise thinking encourage students to consider the common good, by balancing their own with others' and larger interests, over the long- as well as the short-terms, through the infusion of ethical values. For example, a teacher might ask how research on group differences in intelligence affects society or what the positive and negative effects of psychometric testing are.

In life, then, one uses creative thinking to generate novel, surprising, and compelling ideas. One uses analytical thinking to evaluate the quality of these ideas. One uses practical thinking to implement one's ideas and to persuade other people of their value. And one uses wise thinking to try to ensure that one's ideas will help attain a common good.

In the Kaleidoscope (Sternberg, 2010) and Panorama Projects, we found that we could improve prediction of academic and extracurricular performance in the university; substantially reduce ethnic-group differences relative to a typical academic achievement test (SAT/ACT); create an assessment that students enjoy taking; make a difference in who is actually admitted to university; make a statement about the kind of university one is promoting. The projects showed that outcomes in university admissions could be improved in terms of increasing academic achievement and admitting students with the ability to succeed who might not test well.

Ethical thinking

Ethical thinking seems to be easy, but it actually is difficult because unless one completes eight separate steps, one is likely not to act ethically (Sternberg, 2012, 2015).

These 8 steps are

- Recognise that there is a situation to which to respond;
- View the situation as having an ethical dimension;
- Understand the situation as major enough to be worth your attention;
- See yourself as having some degree of personal responsibility;
- Decide what ethical principle applies;
- Implement the ethical principle in the particular situation;
- Foresee the possible adverse implications of acting ethically; and
- Act.

An example would be believing you have seen a fellow student cheat on an in-class test. Each of the steps could be applied to this situation. What is difficult is that even if you see the act as unethical, you realise that there is a potentially severe cost to you in reporting the cheating. Even if you decide you should report the cheating, you may decide ultimately not to act. Much unethical behaviour exists because people are afraid to say or do anything to counter it.

Scoring rubrics

We use scoring rubrics, usually on a 1 (low) to 5 (high) scale, to score assessments for the various skills (Sternberg & Grigorenko, 2007). For creative, we look at how novel, surprising, and compelling a response is (see also Plucker & Makel, 2010). For analytical, we look at how analytical, reflective, organised, logical, and balanced the response is. For practical, we assess to what extent does the answer reflect constraints of time, space, and human resources; to what extent can the solution be implemented in an efficacious way; and how persuasive the response is. For wisdom, we evaluate to what extent does the reasoning in the answer reflect thinking about how to achieve a common good, by balancing intrapersonal, interpersonal, and extrapersonal interests, over the long and short terms, through the infusion of positive ethical values, in order to adapt to, shape, and select environments.

Applying ACCEL in the classroom

How do I apply ACCEL in my psychology and human-development classrooms? One course I teach is Ethical Challenges in the Behavioural and Brain Sciences. This is a joint undergraduate-graduate course. I use Sternberg & Fiske (2015), a book with the same title as the course. We read one unit of case studies every session and then discuss the cases. Cases deal with challenges such as plagiarism, falsification of data, deciding on co-authorship, and improper behaviour of faculty toward students (and vice versa). We review the cases, what the professors did and why they said they did it, and then discuss various options by which we think the case might have been handled, as well as the advantages and disadvantages of each. Students are evaluated on the number of options they generate and how well they evaluate arguments for and against each of the options.

A second course I teach is The Nature of Human Intelligence. This is a joint undergraduate-graduate course. I use Mackintosh (2011), *IQ and Human Intelligence*, as a text. All classes are discussions with very little

lecture. Students take two tests, write a paper, and do an oral presentation to the class. Students do frequent group presentations to the class on 'hot' issues. We consider issues such as: How one can test for intelligence across cultures; what the impact of standardised tests has been on our own society; how and why the eugenics movement once had the prominence it did in the United States; how theories of intelligence might be improved; what sex differences there are on average in intelligence and what their implications are for society, if any.

A third course I teach is Lifespan Development. This is an undergraduate course. Students study lifespan development from conception until death; as the course is only one semester, it is very intensive. I have used Berk (2014), *Development through the Lifespan*, as a text. Students are evaluated for their understanding of and thinking with key concepts. Some of the issues we consider are the ethics of assisted suicide, when life begins and ends, dealing with children who have various kinds of non-normative behaviour, such as ADHD, reasons for increases in diagnosis of certain kinds of behaviour, such as autism and ADHD, the use of various parenting styles across cultures

One might ask how ACCEL works in large lecture courses. In such courses, one needs clarity on the syllabus as to the goals of the course, occasional active-learning questions from the lecturer, small-group breakout sessions with discussions of important issues, and brief reflection assignments that invite students to think creatively, analytically, practically, wisely, and ethically. These assessments, in addition to measuring required knowledge, challenge students to think creatively analytically, practically, wisely, and ethically.

Conclusion

In this article, I have suggested that, the Flynn effect notwithstanding, people today often operate on a relatively low intellectual level. I have suggested that the three dominant models of higher education – the knowl-

edge-storehouse model, the job-preparation model, and the student-as-scholar model, each have strengths but on the whole are not adequate to the job of educating today's university students, in psychology or in anything else. I have proposed a new model, ACCEL, which I have described in some detail and have illustrated as it is applied to the teaching of psychology.

ACCEL has, I believe, several advantages. A first is the creation of active concerned citizens. A second is the creation of ethical leaders. Third is a focus on the ethics of professional life – when people fail in their jobs, it is at least as likely that it is because of an ethical lapse as because they lack knowledge or skills. A fourth is a focus on wisdom – the need we have for members of society to use knowledge for the common good, not just for their own benefit or for the benefit of their friends and family. Fifth is the development of skills that will serve students throughout their lives.

There are, however, roadblocks to ACCEL, such as entrenchment, teaching training, how teachers are comfortable teaching, lesser ease of assessment, and lack of textbooks based on ACCEL. So ACCEL is hard to put into practice, at least in many scholastic contexts. We all have to decide whether implementing ACCEL is worth it. I hope that at least some teachers of psychology will believe it is.

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