January 13, 2015

**Max Boot** posts on the flawed "Yemen" model for dealing with terrorists.
*Back in September, when President Obama was announcing his strategy for coping with ISIS in Iraq and Syria, he eschewed sending U.S. combat troops. Instead, he said, "This counter-terrorism campaign will be waged through a steady, relentless effort to take out ISIL wherever they exist using our air power and our support for partner forces on the ground. This strategy of taking out terrorists who threaten us, while supporting partners on the front lines, is one that we have successfully pursued in Yemen and Somalia for years."*

*This caused many commentators, including me, to do a double take. As I wrote at the time, "The president's analogy to Somalia and Yemen is not an encouraging one. Obama may be one of the few people around who thinks that the U.S. has achieved so much success in those countries that it is a model worth emulating."*

*Now the Charlie Hebdo massacre in Paris brings further evidence of how flawed the Yemen model actually is. Considerable evidence has emerged of links between al-Qaeda in the Arabian Peninsula and the gunmen who murdered 12 people at the Charlie Hebdo offices. Said Kouachi, one of the two brothers involved, was said to have visited Yemen in 2011 for training, and before launching the assault either he or his brother told bystanders, "Tell the media we are Al Qaeda in the Arabian Peninsula." ...*

**Jonathan Tobin** wants to know why the president can't call the Paris market attack anti-Semitism.
*... The president did well to express solidarity with France as our oldest ally as well as condemnation of the actions of the terrorists that he characterized as standing for "hatred and suffering." But the sensible reluctance on the part of Western leaders from casting this conflict as one between all Muslims and the rest of the world is no excuse for his determination to ignore the fact that these crimes are rooted in a form of political Islam that is supported by tens if not hundreds of millions of people around the globe. Pretending that these armed killers are not connected to a worldwide movement, even as information about their connections to such groups continues to trickle out, does nothing to avoid antagonizing those who already hate Western values and culture. It also serves to help unilaterally disarm both Muslims and non-Muslims who understand that we must directly confront the corrupt and evil source of this violence within the spectrum of Islamic belief.*

*Just as wrongheaded was the president's conspicuous omission of a mention of anti-Semitism. ...*

Readers will remember we have included many items about the Air France flight that vanished over the South Atlantic five years ago. Now it appears the Air Asia flight that fell out of the sky might also have been the victim of pilot error. A **Daily Beast** article wonders if modern jets are too automated.

*Too many computers and not enough 'hands-on' flying mean most pilots would have fallen victim to the weather that brought down AirAsia 8501.*

*As searchers close in on what appears to be the main wreckage of AirAsia Flight 8501 the retrieval of the airplane's flight data and cockpit voice recorders should soon follow. The wreckage lies no more than around 100 feet down in the Java Sea. Although there are strong currents and poor visibility, compounded by the high seas generated by stormy weather, divers should be able to locate the rear end of the fuselage where the flight data recorder, the black box, is located.*

*The black box and the cockpit voice recorder will together be able to give a highly detailed second-by-second account of what now seems of primary interest to investigators: how the two pilots responded to a sudden and violent cell of weather within a thunderhead cloud that engulfed them, probably reaching more than 20,000 feet above their cruise height of 34,000 feet.*

*Investigators will focus on whether the sudden emergency was so extreme that no degree of pilot skill would have helped. Or did the pilots, once more, lack not only the experience of meeting such a challenge, but also whether they, and thousands of other pilots around the world, were ever trained to handle this specific combination of challenges?*

*I say "once more" because since the loss of Air France Flight 447 on June 1, 2009, a serious deficiency has been exposed in how pilots are trained—and how their acuity is regularly tested—to handle modern jets with state-of-the-art cockpit automation.*

*Some background is useful here. ...*

*... By the first decade of this century the most frequent cause of serious accidents had been narrowed down to—and still is—"loss of control." This might seem a very loose term, but it has emerged in a very specific environment during the course of airline operations all over the world.*

*Two paths converge: human skills and automation. Cockpits have become "de-manned." Computers are flying a modern commercial airliner for most of the time, and flying it well, with a finesse that human reflexes cannot match. ...*

*... Captain Chesley Sullenberger, who in 2009 made the now legendary emergency landing on the Hudson river in an Airbus A320—identical to that in AirAsia Flight 8501—has said, commenting on the AirAsia event, that very few pilots flying either modern narrow body or wide-body jets today have ever experienced a stall in those jets. (They do get stall training in elementary initial flying lessons, but it is nothing like what they're more likely to experience in today's modern jets.)*

*This is almost certainly true of Captain Irianto, the 53-year-old pilot of the AirAsia A320, and his copilot, 46-year-old Remi Emmanuel Piesel. The fact is that five years after the Air France Flight 447 catastrophe, only now are computerized flight simulators used in training pilots being rewritten to replicate loss of control scenarios. This is why it is virtually meaningless to cite the fact that Captain Irianto had 20,000 hours of experience as a pilot and that 6,100 of those hours were on A320s. Unless he had faced in a simulator what he probably faced in that thunderhead over the Java Sea, he would not have been ready for it. Even then, as the Airbus tests showed, old habits die hard. ...*

**Scientific American** published a good piece on how to raise smart kids. A more correct title might be how to raise accomplished kids.

*... A brilliant student, Jonathan sailed through grade school. He completed his assignments easily and routinely earned As. Jonathan puzzled over why some of his classmates struggled, and his*

*parents told him he had a special gift. In the seventh grade, however, Jonathan suddenly lost interest in school, refusing to do homework or study for tests. As a consequence, his grades plummeted. His parents tried to boost their son's confidence by assuring him that he was very smart. But their attempts failed to motivate Jonathan (who is a composite drawn from several children). Schoolwork, their son maintained, was boring and pointless.*

*Our society worships talent, and many people assume that possessing superior intelligence or ability—along with confidence in that ability—is a recipe for success. In fact, however, more than 35 years of scientific investigation suggests that an overemphasis on intellect or talent leaves people vulnerable to failure, fearful of challenges and unwilling to remedy their shortcomings.*

*The result plays out in children like Jonathan, who coast through the early grades under the dangerous notion that no-effort academic achievement defines them as smart or gifted. Such children hold an implicit belief that intelligence is innate and fixed, making striving to learn seem far less important than being (or looking) smart. This belief also makes them see challenges, mistakes and even the need to exert effort as threats to their ego rather than as opportunities to improve. And it causes them to lose confidence and motivation when the work is no longer easy for them.*

*Praising children's innate abilities, as Jonathan's parents did, reinforces this mind-set, which can also prevent young athletes or people in the workforce and even marriages from living up to their potential. On the other hand, our studies show that teaching people to have a "growth mind-set," which encourages a focus on "process" (consisting of personal effort and effective strategies) rather than on intelligence or talent, helps make them into high achievers in school and in life. ...*

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## Contentions

## Paris Terror and the Flawed "Yemen Model"

by Max Boot

Back in September, when President Obama was announcing his strategy for coping with ISIS in Iraq and Syria, he eschewed sending U.S. combat troops. Instead, he said, "This counter-terrorism campaign will be waged through a steady, relentless effort to take out ISIL wherever they exist using our air power and our support for partner forces on the ground. This strategy of taking out terrorists who threaten us, while supporting partners on the front lines, is one that we have successfully pursued in Yemen and Somalia for years."

This caused many commentators, including me, to do a double take. As I wrote at the time, "The president's analogy to Somalia and Yemen is not an encouraging one. Obama may be one of the few people around who thinks that the U.S. has achieved so much success in those countries that it is a model worth emulating."

Now the *Charlie Hebdo* massacre in Paris brings further evidence of how flawed the Yemen model actually is. Considerable evidence has emerged of links between al-Qaeda in the Arabian Peninsula and the gunmen who murdered 12 people at the *Charlie Hebdo* offices. Said Kouachi, one of the two brothers involved, was said to have visited Yemen in 2011 for training, and before launching the assault either he or his brother told bystanders, "Tell the media we are Al Qaeda in the Arabian Peninsula."

It is still unknown whether the actual operation was directed from Yemen, but it was at least inspired from there–a word I use advisedly because a recent issue *Inspire*, the AQAP glossy magazine, had listed *Charlie Hebdo*'s now-deceased editor, Stephane Charbonnier, on its hit list of foreigners who supposedly insult Islam. The headline on the article: "A Bullet a Day Keeps the Infidel Away — Defend the Prophet Mohammed." Mercifully, the Kouachi brothers are now said to have been killed by French police but the problems besetting Yemen will not be eliminated so quickly or easily.

AQAP is actually only one of the major problems undermining the "Yemen model." The other major problem is the Houthis, a terrorist group whose members are Zaydis (a Shiite offshoot). They are supported by Iran's Quds Force. They are making major territorial gains as well, coming close to controlling the entire state even if they don't control all of its territory. Yemen, in fact, is coming apart at the seams in the same sort of violence between Shiite and Sunni extremists which has also devastated Syria and Iraq.

And what is the U.S. doing about it? For years U.S. Special Operations Forces and the CIA have maintained a small, below-the-radar presence in Yemen, working to train government security forces and to carry out drone strikes on terrorist suspects such as Anwar al-Awlaki, the AQAP ideologue who was killed by a Hellfire missile in 2011.

Such isolated, pinprick strikes may be necessary in the war on terror but they are hardly sufficient. They have not turned the tide in Yemen, nor will they do so in Iraq and Syria. A much more substantial effort is needed, as some of us have been arguing for some time.

In this Policy Innovation Memorandum released by the Council on Foreign Relations in November, for example, I laid out the steps needed to defeat ISIS which involve, inter alia, relaxing the restrictions on U.S. "boots on the ground" and doing much more to mobilize the Sunni tribes. The overarching need is for the Obama administration to end its flirtation with Iran which only alarms Sunnis throughout the region and drives them into the arms of extremists such as AQAP and ISIS. Sunnis must be offered a political endstate that will mobilize them to fight–and that hasn't happened so far.

Until the Obama administration steps up its game, alas, jihadist groups of both Sunni and Shiite ilk will continue advancing, making further mockery of the "Yemen model" for fighting terrorists.

## Contentions

## Obama Should Have Called Paris Market Attack What It Is: Anti-Semitism

by Jonathan S. Tobin

This week's bloody events in France have shocked the civilized world. But shock and sadness are not a sufficient response from those entrusted with the responsibility to defend us against Islamist terrorism. That's why President Obama's initial statement in response to today's news was so disappointing. The conspicuous absence of any acknowledgement of the motive of the terrorists or their targets made his remarks empty platitudes rather than a meaningful call for solidarity against a common enemy. The continued refusal of the president to identify Islamist ideology as the foe is undermining efforts to combat this dangerous virus. But the fact that he also failed to label the attack at the Parisian kosher market where four hostages were slaughtered was a case of anti-Semitism sent exactly the wrong signal to a world that is looking to the U.S. for leadership in this struggle and getting precious little of it from this president.

The president did well to express solidarity with France as our oldest ally as well as condemnation of the actions of the terrorists that he characterized as standing for “hatred and suffering.” But the sensible reluctance on the part of Western leaders from casting this conflict as one between all Muslims and the rest of the world is no excuse for his determination to ignore the fact that these crimes are rooted in a form of political Islam that is supported by tens if not hundreds of millions of people around the globe. Pretending that these armed killers are not connected to a worldwide movement, even as information about their connections to such groups continues to trickle out, does nothing to avoid antagonizing those who already hate Western values and culture. It also serves to help unilaterally disarm both Muslims and non-Muslims who understand that we must directly confront the corrupt and evil source of this violence within the spectrum of Islamic belief.

Just as wrongheaded was the president’s conspicuous omission of a mention of anti-Semitism.

As the president well knows, his own State Department has already labeled the increase in incidents of Jew hatred as being part of a “rising tide of anti-Semitism” throughout Europe. This trend can be traced in part to the crude Jew hatred that has become a routine element of the culture of the Muslim and Arab worlds and which has been brought to Europe by immigrants from the Middle East. Though some of this antagonism is a function of the conflict between Israel and the Palestinians — a point on which European intellectual elites have made common cause with Islamists — the distinction between traditional anti-Semitism and the new variety that is tied to hostility to the Jewish state is essentially meaningless.

Not mentioning anti-Semitism when Islamist killers specifically seek out Jews to slaughter — as if anyone could possibly believe a terrorist assault on a kosher market in Paris could be mere happenstance — is more than insensitive. It is a sign that this administration does not take the many attacks on French and European Jews seriously. It is also a message to the Muslim world that the United States does not take the issue of anti-Semitic violence seriously. To his credit, French President Francois Hollande did specifically condemn the attack as an act of anti-Semitism, a statement President Obama should have echoed.

In essence, while the president rightly wishes to embrace France, the Jews there are essentially on their own as far as the U.S. is concerned.

This administration has conducted a vigorous campaign of drone attacks on terrorist targets, his eagerness to withdraw from Iraq and Afghanistan created a void that gave rise to ISIS even as its al-Qaeda rivals were far from destroyed as the president claimed in his re-election campaign. But his appetite for outreach and engagement has also undermined the ability of the U.S. to rally allies against Islamist radicals. His avoidance of anti-Semitism in his comments today sent the same message. More such mistakes can only encourage the very elements that the United States must defeat if it is to protect our freedom and those of other peoples.

**Daily Beast**

## Flight 8501 Poses Question: Are Modern Jets Too Automated to Fly?

by Clive Irving

Too many computers and not enough ‘hands-on’ flying mean most pilots would have fallen victim to the weather that brought down AirAsia 8501.

As searchers close in on what appears to be the main wreckage of AirAsia Flight 8501 the retrieval of the airplane's flight data and cockpit voice recorders should soon follow. The wreckage lies no more than around 100 feet down in the Java Sea. Although there are strong currents and poor visibility, compounded by the high seas generated by stormy weather, divers should be able to locate the rear end of the fuselage where the flight data recorder, the black box, is located.

The black box and the cockpit voice recorder will together be able to give a highly detailed second-by-second account of what now seems of primary interest to investigators: how the two pilots responded to a sudden and violent cell of weather within a thunderhead cloud that engulfed them, probably reaching more than 20,000 feet above their cruise height of 34,000 feet.

Investigators will focus on whether the sudden emergency was so extreme that no degree of pilot skill would have helped. Or did the pilots, once more, lack not only the experience of meeting such a challenge, but also whether they, and thousands of other pilots around the world, were ever trained to handle this specific combination of challenges?

I say "once more" because since the loss of Air France Flight 447 on June 1, 2009, a serious deficiency has been exposed in how pilots are trained—and how their acuity is regularly tested—to handle modern jets with state-of-the-art cockpit automation.

Some background is useful here.

One of the most impressive achievements of the 20th century was that an international system of air travel could achieve the extraordinary levels of safety that it did, and that this system was able to consistently meet these levels across all continents and cultures. This was achieved only by a relentless program of technical advances.

Great resources were devoted to the science of air crash investigation. Each accident, whether negligible in its impact or catastrophic, was interrogated for its causes, lessons were learned, and corrective measures developed and applied.

In the jet age, which arrived in the late 1950s, three separate technologies were being pressed to deliver more reliability: jet engines, airplane structures, and navigation. The jet engine instantly brought two advances over propellers: it doubled the speed and it was far more reliable. New refinements in aluminum made structures both stronger and lighter. And increasingly smart navigation aids in the cockpit brought far greater precision and efficiency to route planning.

Paradoxically, by the 1980s, when much more extensive automation was introduced to cockpits, mechanical failures became far less frequent than human failures. In particular, crashes caused by what is euphemistically called controlled flight into terrain, CFIT—in other words, hitting a mountain, for example—persisted as other causes were eliminated. Once technology was applied to this problem in the form of a proximity warning system, such as squawking a loud alarm to pilots, this cause, too, was largely eliminated.

There were also crashes not due to either mechanical or human error but to a lack of warning of dangerous conditions. For example, wind shear, an invisible but potentially lethal form of highly-localized turbulence that could destabilize airplanes on approach to an airport, has also been virtually eliminated as a cause with the introduction of wind shear sensors on the ground that enable air traffic controllers to warn pilots and re-direct them.

By the first decade of this century the most frequent cause of serious accidents had been narrowed down to—and still is—“loss of control.” This might seem a very loose term, but it has emerged in a very specific environment during the course of airline operations all over the world.

Two paths converge: human skills and automation. Cockpits have become “de-manned.” Computers are flying a modern commercial airliner for most of the time, and flying it well, with a finesse that human reflexes cannot match.

It’s also important to realize that the present and future generations of airliners cannot be flown any other way. Their whole performance—their aerodynamic efficiency, their greatly improved fuel consumption, their in-flight stability, their handling characteristics on takeoff and landing—have been baked into them only because so many of the functions directed from the cockpit are performed by computers.

Inevitably, the old visceral “hands-on” flying skills, no longer much employed by pilots, have atrophied like an unused limb. But this physical involvement, or lack of it, is only part of the problem. In the classic skillset of piloting, mental acuity, and its coordination with hand and foot movements, is equally vital.

In “loss of control” situations, the phrase “situational awareness” often comes up, and, if anything, it seriously understates the challenge involved. One specific kind of emergency is at the heart of this, such as when an airplane suffers a loss of stability at night. There’s no visible horizon and the computers may be feeding totally misleading and critical information to the pilots. At such a moment, the pilot has no resources other than his own instincts and experience.

So, what happens if nothing in his training has replicated such a dire condition? What happens is Air France Flight 447. Faced with the sudden shutdown of their Airbus A330’s automated flight management system and left to fly the airplane manually the pilots lost their “situational awareness” and misread the physical behavior of the airplane when there was very little margin for error. In the space of just four-and-a-half minutes, from when the computers shut down (because of a flawed speed gauge) the airplane was lost and with it all 228 people on board.

French investigators found the Air France’s pilot training program had not prepared the crew of the Airbus for the situation they found themselves in over the south Atlantic. Had they been properly trained, they could and should have flown themselves safely out of the emergency. Specifically, the pilots got themselves into a high altitude stall, where the wings lose the capacity to provide lift. They should have pointed the nose of the Airbus down and applied more power. Instead, they pointed the nose upward and as it careened about the sky, the airplane’s aerodynamic stability and balance “bled away.”

By 2011, Airbus was working on a program to replicate these conditions in a flight simulator for use in pilot training. How urgently was this needed? At a conference of aviation safety experts in Istanbul that year, Claude Lelaie, a special advisor to the CEO of Airbus, warned that the current simulator training for stalls did not replicate the actual experience very well.

He admitted that even when Airbus took four experienced training pilots and sent them up on actual test flights to watch their responses to a real stall at cruise altitude “there was some initial reluctance from one pilot, the most experienced, to positively reduce AOA [the wing’s angle of attack, the angle at which it is designed to meet the air] by moving the stick forward before increasing thrust. … When out of the stall, we discovered a tendency of the aircraft to pitch up due to thrust increase, which led to a secondary stall warning.”

And let's be absolutely clear: this was not just a pilot, not just an extremely experienced pilot, but a pilot who trained other pilots—and his instinctive response had been wrong.

After some animated debate at the conference, Lelaie declared, with some frustration, "*If you push on the stick, you will fly.*"

Captain Chesley Sullenberger, who in 2009 made the now legendary emergency landing on the Hudson river in an Airbus A320—identical to that in AirAsia Flight 8501—has said, commenting on the AirAsia event, that very few pilots flying either modern narrow body or wide-body jets today have ever experienced a stall in those jets. (They do get stall training in elementary initial flying lessons, but it is nothing like what they're more likely to experience in today's modern jets.)

This is almost certainly true of Captain Irianto, the 53-year-old pilot of the AirAsia A320, and his copilot, 46-year-old Remi Emmanuel Piesel. The fact is that five years after the Air France Flight 447 catastrophe, only now are computerized flight simulators used in training pilots being rewritten to replicate loss of control scenarios. This is why it is virtually meaningless to cite the fact that Captain Irianto had 20,000 hours of experience as a pilot and that 6,100 of those hours were on A320s. Unless he had faced in a simulator what he probably faced in that thunderhead over the Java Sea, he would not have been ready for it. Even then, as the Airbus tests showed, old habits die hard.

We don't yet know if the captain was actually flying the AirAsia jet when the crew requested a change of altitude clearance from the air traffic controllers. Captains don't normally fly the airplane at cruise. The "pilot flying" was more probably the far less experienced copilot. Whatever happened overtook them both within a minute or so of that altitude change request, and they were never heard from again.

**Scientific American**

## The Secret to Raising Smart Kids

***HINT: Don't tell your kids that they are. More than three decades of research shows that a focus on "process"—not on intelligence or ability—is key to success in school and in life.***

by Carol S. Dweck

### In Brief

**Growing Pains**

- Many people assume that superior intelligence or ability is a key to success. But more than three decades of research shows that an overemphasis on intellect or talent—and the implication that such traits are innate and fixed—leaves people vulnerable to failure, fearful of challenges and unmotivated to learn.
- Teaching people to have a "growth mind-set," which encourages a focus on "process" rather than on intelligence or talent, produces high achievers in school and in life.
- Parents and teachers can engender a growth mind-set in children by praising them for their persistence or strategies (rather than for their intelligence), by telling success stories that

emphasize hard work and love of learning, and by teaching them about the brain as a learning machine.

A brilliant student, Jonathan sailed through grade school. He completed his assignments easily and routinely earned As. Jonathan puzzled over why some of his classmates struggled, and his parents told him he had a special gift. In the seventh grade, however, Jonathan suddenly lost interest in school, refusing to do homework or study for tests. As a consequence, his grades plummeted. His parents tried to boost their son's confidence by assuring him that he was very smart. But their attempts failed to motivate Jonathan (who is a composite drawn from several children). Schoolwork, their son maintained, was boring and pointless.

Our society worships talent, and many people assume that possessing superior intelligence or ability—along with confidence in that ability—is a recipe for success. In fact, however, more than 35 years of scientific investigation suggests that an overemphasis on intellect or talent leaves people vulnerable to failure, fearful of challenges and unwilling to remedy their shortcomings.

The result plays out in children like Jonathan, who coast through the early grades under the dangerous notion that no-effort academic achievement defines them as smart or gifted. Such children hold an implicit belief that intelligence is innate and fixed, making striving to learn seem far less important than being (or looking) smart. This belief also makes them see challenges, mistakes and even the need to exert effort as threats to their ego rather than as opportunities to improve. And it causes them to lose confidence and motivation when the work is no longer easy for them.

Praising children's innate abilities, as Jonathan's parents did, reinforces this mind-set, which can also prevent young athletes or people in the workforce and even marriages from living up to their potential. On the other hand, our studies show that teaching people to have a “growth mind-set,” which encourages a focus on “process” (consisting of personal effort and effective strategies) rather than on intelligence or talent, helps make them into high achievers in school and in life.

**The Opportunity of Defeat**

I first began to investigate the underpinnings of human motivation—and how people persevere after setbacks—as a psychology graduate student at Yale University in the 1960s. Animal experiments by psychologists Martin Seligman, Steven Maier and Richard Solomon, all then at the University of Pennsylvania, had shown that after repeated failures, most animals conclude that a situation is hopeless and beyond their control. After such an experience, the researchers found, an animal often remains passive even when it can effect change—a state they called learned helplessness.

People can learn to be helpless, too, but not everyone reacts to setbacks this way. I wondered: Why do some students give up when they encounter difficulty, whereas others who are no more skilled continue to strive and learn? One answer, I soon discovered, lay in people's beliefs about *why* they had failed.

In particular, attributing poor performance to a lack of ability depresses motivation more than does the belief that lack of effort is to blame. In 1972, when I taught a group of elementary and middle school children who displayed helpless behavior in school that a lack of effort (rather than lack of ability) led to their mistakes on math problems, the kids learned to keep trying when the problems got tough. They also solved many more problems even in the face of difficulty. Another group of helpless children who were simply rewarded for their success on easier problems did not improve their ability to solve hard math problems. These experiments were an early indication that a focus on effort can help resolve helplessness and engender success.

Subsequent studies revealed that the most persistent students do not ruminate about their own failure much at all but instead think of mistakes as problems to be solved. At the University of Illinois in the 1970s I, along with my then graduate student Carol Diener, asked 60 fifth graders to think out loud while they solved very difficult pattern-recognition problems. Some students reacted defensively to mistakes, denigrating their skills with comments such as “I never did have a good rememory,” and their problem-solving strategies deteriorated.

Others, meanwhile, focused on fixing errors and honing their skills. One advised himself: “I should slow down and try to figure this out.” Two schoolchildren were particularly inspiring. One, in the wake of difficulty, pulled up his chair, rubbed his hands together, smacked his lips and said, “I love a challenge!” The other, also confronting the hard problems, looked up at the experimenter and approvingly declared, “I was *hoping* this would be informative!” Predictably, the students with this attitude outperformed their cohorts in these studies.

**Two Views of Intelligence**

Several years later I developed a broader theory of what separates the two general classes of learners—helpless versus mastery-oriented. I realized that these different types of students not only explain their failures differently, but they also hold different “theories” of intelligence. The helpless ones believe that intelligence is a fixed trait: you have only a certain amount, and that's that. I call this a “fixed mind-set.” Mistakes crack their self-confidence because they attribute errors to a lack of ability, which they feel powerless to change. They avoid challenges because challenges make mistakes more likely and looking smart less so. Like Jonathan, such children shun effort in the belief that having to work hard means they are dumb.

The mastery-oriented children, on the other hand, think intelligence is malleable and can be developed through education and hard work. They want to learn above all else. After all, if you believe that you can expand your intellectual skills, you want to do just that. Because slipups stem from a lack of effort or acquirable skills, not fixed ability, they can be remedied by perseverance. Challenges are energizing rather than intimidating; they offer opportunities to learn. Students with such a growth mind-set, we predicted, were destined for greater academic success and were quite likely to outperform their counterparts.

We validated these expectations in a study published in early 2007. Psychologists Lisa Blackwell, then at Columbia University, and Kali H. Trzesniewski, then at Stanford University, and I monitored 373 students for two years during the transition to junior high school, when the work gets more difficult and the grading more stringent, to determine how their mind-sets might affect their math grades. At the beginning of seventh grade, we assessed the students' mind-sets by asking them to agree or disagree with statements such as “Your intelligence is something very basic about you that you can't really change.” We then assessed their beliefs about other aspects of learning and looked to see what happened to their grades.

As we had predicted, the students with a growth mind-set felt that learning was a more important goal in school than getting good grades. In addition, they held hard work in high regard, believing that the more you labored at something, the better you would become at it. They understood that even geniuses have to work hard for their great accomplishments. Confronted by a setback such as a disappointing test grade, students with a growth mind-set said they would study harder or try a different strategy for mastering the material.

The students who held a fixed mind-set, however, were concerned about looking smart with less regard for learning. They had negative views of effort, believing that having to work hard at something was a sign of low ability. They thought that a person with talent or intelligence did not need to work hard to do well. Attributing a bad grade to their own lack of ability, those with a fixed

mind-set said that they would study *less* in the future, try never to take that subject again and consider cheating on future tests.

Such divergent outlooks had a dramatic impact on performance. At the start of junior high, the math achievement test scores of the students with a growth mind-set were comparable to those of students who displayed a fixed mind-set. But as the work became more difficult, the students with a growth mind-set showed greater persistence. As a result, their math grades overtook those of the other students by the end of the first semester—and the gap between the two groups continued to widen during the two years we followed them.

Along with psychologist Heidi Grant Halvorson, now at Columbia, I found a similar relation between mind-set and achievement in a 2003 study of 128 Columbia freshman premed students who were enrolled in a challenging general chemistry course. Although all the students cared about grades, the ones who earned the best grades were those who placed a high premium on learning rather than on showing that they were smart in chemistry. The focus on learning strategies, effort and persistence paid off for these students.

**Confronting Deficiencies**

A belief in fixed intelligence also makes people less willing to admit to errors or to confront and remedy their deficiencies in school, at work and in their social relationships. In a study published in 1999 of 168 freshmen entering the University of Hong Kong, where all instruction and coursework are in English, three Hong Kong colleagues and I found that students with a growth mind-set who scored poorly on their English proficiency exam were far more inclined to take a remedial English course than were low-scoring students with a fixed mind-set. The students with a stagnant view of intelligence were presumably unwilling to admit to their deficit and thus passed up the opportunity to correct it.

A fixed mind-set can similarly hamper communication and progress in the workplace by leading managers and employees to discourage or ignore constructive criticism and advice. Research by psychologists Peter Heslin, now at the University of New South Wales in Australia, Don VandeWalle of Southern Methodist University and Gary Latham of the University of Toronto shows that managers who have a fixed mind-set are less likely to seek or welcome feedback from their employees than are managers with a growth mind-set. Presumably, managers with a growth mind-set see themselves as works-in-progress and understand that they need feedback to improve, whereas bosses with a fixed mind-set are more likely to see criticism as reflecting their underlying level of competence. Assuming that other people are not capable of changing either, executives with a fixed mind-set are also less likely to mentor their underlings. But after Heslin, VandeWalle and Latham gave managers a tutorial on the value and principles of the growth mind-set, supervisors became more willing to coach their employees and gave more useful advice.

Mind-set can affect the quality and longevity of personal relationships as well, through people's willingness—or unwillingness—to deal with difficulties. Those with a fixed mind-set are less likely than those with a growth mind-set to broach problems in their relationships and to try to solve them, according to a 2006 study I conducted with psychologist Lara Kammrath, now at Wake Forest University. After all, if you think that human personality traits are more or less fixed, relationship repair seems largely futile. Individuals who believe people can change and grow, however, are more confident that confronting concerns in their relationships will lead to resolutions.

**Proper Praise**

How do we transmit a growth mind-set to our children? One way is by telling stories about achievements that result from hard work. For instance, talking about mathematical geniuses who were more or less born that way puts students in a fixed mind-set, but descriptions of great

mathematicians who fell in love with math and developed amazing skills engenders a growth mind-set, our studies have shown. People also communicate mind-sets through praise. Although many, if not most, parents believe that they should build up children by telling them how brilliant and talented they are, our research suggests that this is misguided.

In studies involving several hundred fifth graders published in 1998, for example, psychologist Claudia M. Mueller, now at Stanford, and I gave children questions from a nonverbal IQ test. After the first 10 problems, on which most children did fairly well, we praised them. We praised some of them for their intelligence: “Wow … that's a really good score. You must be smart at this.” We commended others for their process: “Wow … that's a really good score. You must have worked really hard.”

We found that intelligence praise encouraged a fixed mind-set more often than did pats on the back for effort. Those congratulated for their intelligence, for example, shied away from a challenging assignment—they wanted an easy one instead—far more often than the kids applauded for their process. (Most of those lauded for their hard work wanted the difficult problem set from which they would learn.) When we gave everyone hard problems anyway, those praised for being smart became discouraged, doubting their ability. And their scores, even on an easier problem set we gave them afterward, declined as compared with their previous results on equivalent problems. In contrast, students praised for their hard work did not lose confidence when faced with the harder questions, and their performance improved markedly on the easier problems that followed.

**Making Up Your Mind-set**

In addition to encouraging a growth mind-set through praise for effort, parents and teachers can help children by providing explicit instruction regarding the mind as a learning machine. Blackwell, Trzesniewski and I designed an eight-session workshop for 91 students whose math grades were declining in their first year of junior high. Forty-eight of the students received instruction in study skills only, whereas the others attended a combination of study skills sessions and classes in which they learned about the growth mind-set and how to apply it to schoolwork.

In the growth mind-set classes, students read and discussed an article entitled “You Can Grow Your Brain.” They were taught that the brain is like a muscle that gets stronger with use and that learning prompts neurons in the brain to grow new connections. From such instruction, many students began to see themselves as agents of their own brain development. Students who had been disruptive or bored sat still and took note. One particularly unruly boy looked up during the discussion and said, “You mean I don't have to be dumb?”

As the semester progressed, the math grades of the kids who learned only study skills continued to decline, whereas those of the students given the growth-mind-set training stopped falling and began to bounce back to their former levels. Despite being unaware that there were two types of instruction, teachers reported noticing significant motivational changes in 27 percent of the children in the growth mind-set workshop as compared with only 9 percent of students in the control group. One teacher wrote: “Your workshop has already had an effect. L [our unruly male student], who never puts in any extra effort and often doesn't turn in homework on time, actually stayed up late to finish an assignment early so I could review it and give him a chance to revise it. He earned a B+. (He had been getting Cs and lower.)”

Other researchers have replicated our results. Psychologists Catherine Good, now at Baruch College, Joshua Aronson of New York University and Michael Inzlicht, now at the University of Toronto, reported in 2003 that a growth mind-set workshop raised the math and English achievement test scores of seventh graders. In a 2002 study Aronson, Good (then a graduate

student at the University of Texas at Austin) and their colleagues found that college students began to enjoy their schoolwork more, value it more highly and get better grades as a result of training that fostered a growth mind-set.

We have now encapsulated such instruction in an interactive computer program called Brainology. Its five modules teach students about the brain—what it does and how to make it work better. In a virtual brain lab, users can click on brain regions to determine their functions or on nerve endings to see how connections form or strengthen when people learn. Users can also advise virtual students with problems as a way of practicing how to handle schoolwork difficulties; additionally, users keep an online journal of their study practices.

New York City seventh graders who tested Brainology told us that the program had changed their view of learning and how to promote it. One wrote: “My favorite thing from Brainology is the neurons part where when u [sic] learn something there are connections and they keep growing. I always picture them when I'm in school.” A teacher said of the students who used the program: “They offer to practice, study, take notes, or pay attention to ensure that connections will be made.”

Teaching children such information is not just a ploy to get them to study. People may well differ in intelligence, talent and ability. And yet research is converging on the conclusion that great accomplishment, and even what we call genius, is typically the result of years of passion and dedication and not something that flows naturally from a gift. Mozart, Edison, Curie, Darwin and Cézanne were not simply born with talent; they cultivated it through tremendous and sustained effort. Similarly, hard work and discipline contribute more to school achievement than IQ does.

Such lessons apply to almost every human endeavor. For instance, many young athletes value talent more than hard work and have consequently become unteachable. Similarly, many people accomplish little in their jobs without constant praise and encouragement to maintain their motivation. If we foster a growth mind-set in our homes and schools, however, we will give our children the tools to succeed in their pursuits and to become productive workers and citizens.
—*Carol S. Dweck*

**A for Effort**

According to a survey we conducted in the mid-1990s, 85 percent of parents believed that praising children's ability or intelligence when they perform well is important for making them feel smart. But our work shows that praising a child's intelligence makes a child fragile and defensive. So, too, does generic praise that suggests a stable trait, such as “You are a good artist.” Praise can be very valuable, however, if it is carefully worded. Praise for the specific process a child used to accomplish something fosters motivation and confidence by focusing children on the actions that lead to success. Such process praise may involve commending effort, strategies, focus, persistence in the face of difficulty, and willingness to take on challenges. The following are examples of such communications:

**You did a good job drawing. I like the detail you added to the people's faces.**

**You really studied for your social studies test. You read the material over several times, outlined it and tested yourself on it. It really worked!**

**I like the way you tried a lot of different strategies on that math problem until you finally got it.**

**That was a hard English assignment, but you stuck with it until you got it done. You stayed at your desk and kept your concentration. That's great!**

**I like that you took on that challenging project for your science class. It will take a lot of work—doing the research, designing the apparatus, making the parts and building it. You are going to learn a lot of great things.**

Parents and teachers can also teach children to enjoy the process of learning by expressing positive views of challenges, effort and mistakes. Here are some examples:

**Boy, this is hard—this is fun.**

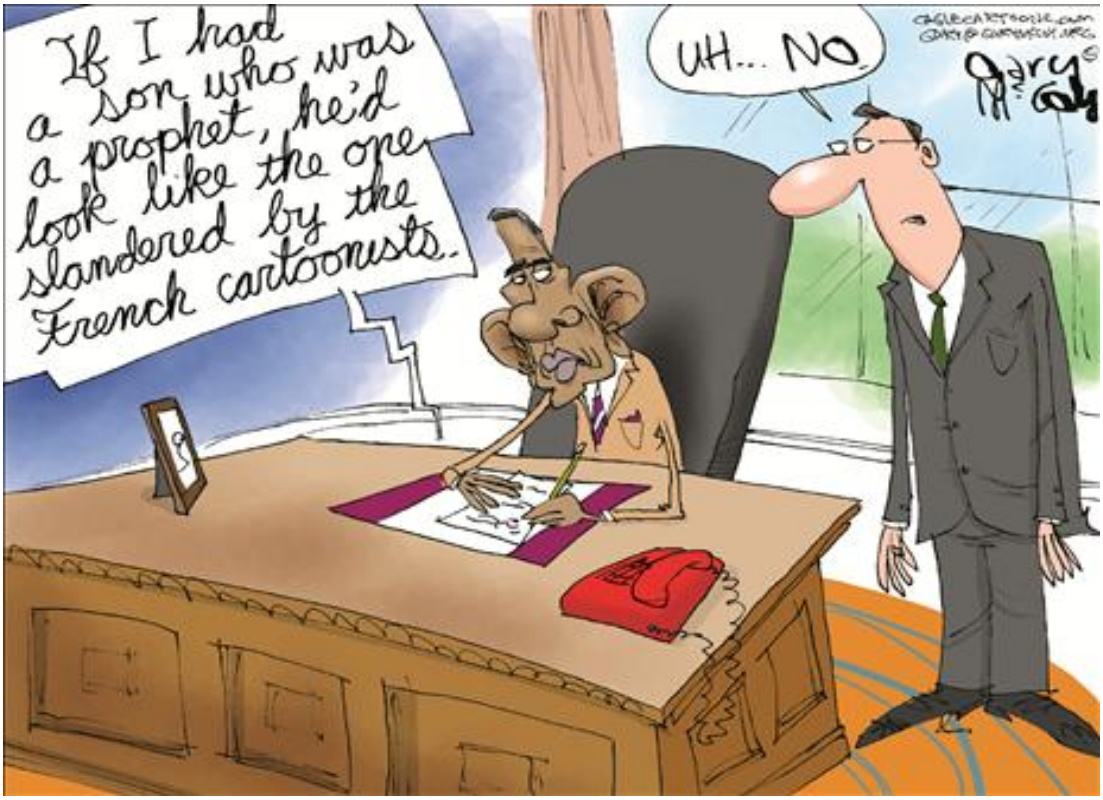
**Oh, sorry, that was too easy—no fun. Let's do something more challenging that you can learn from.**

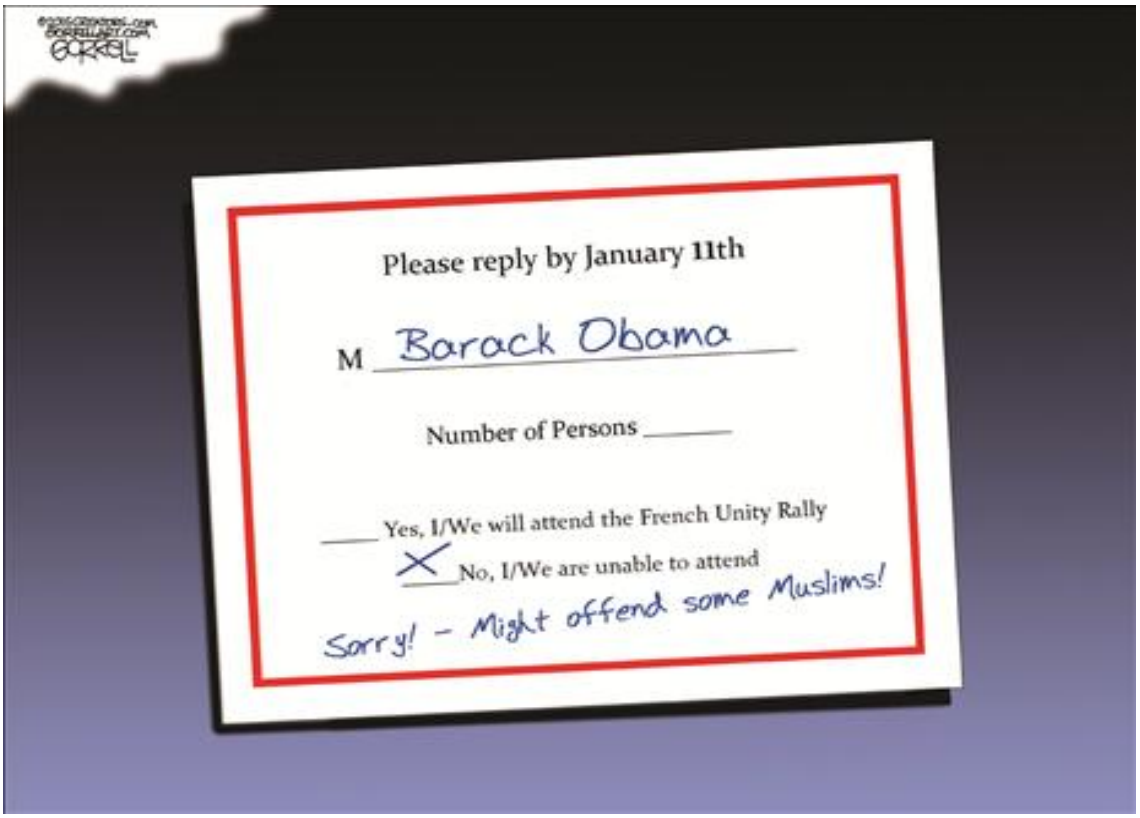
**Let's all talk about what we struggled with today and learned from. I'll go first.**

**Mistakes are so interesting. Here's a wonderful mistake.**

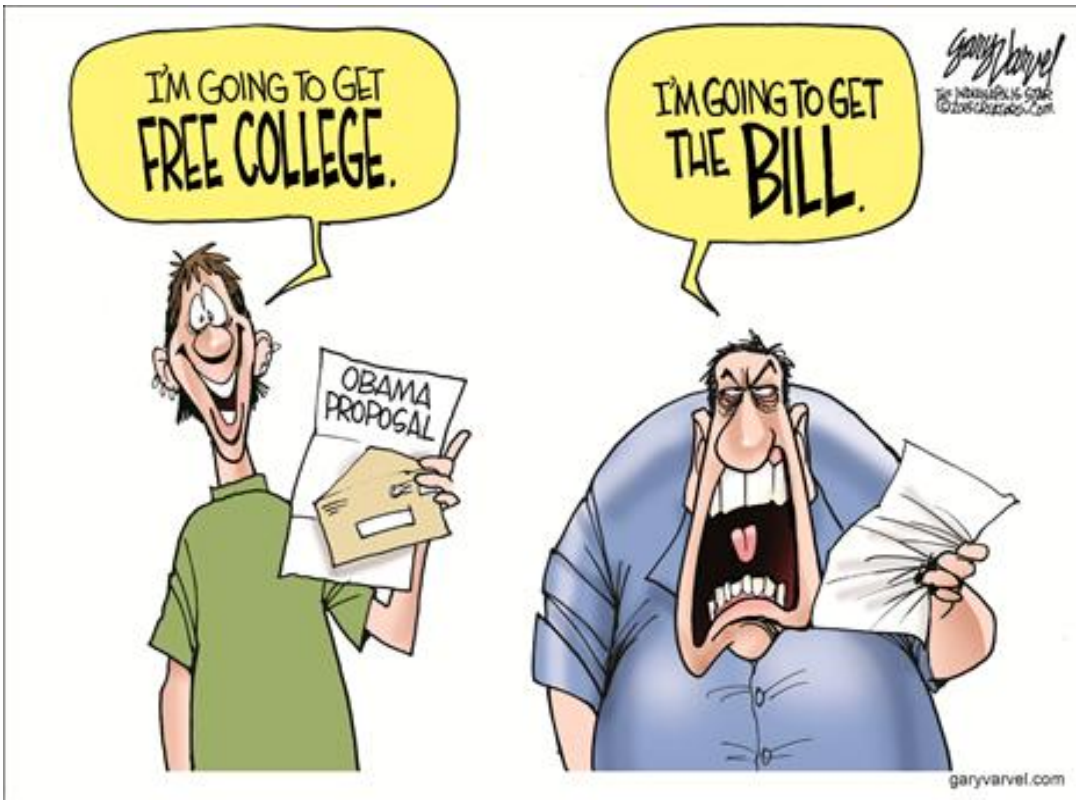
**Let's see what we can learn from it.**
*—C.S.D.*

*CAROL S. DWECK is Lewis and Virginia Eaton Professor of Psychology at Stanford University. She has held professorships at Columbia University, the University of Illinois and Harvard University and is a member of the American Academy of Arts and Sciences and the National Academy of Sciences. Her most recent book is Mindset, published by Random House in 2006.*


If I had a son who was a prophet, he'd look like the one slandered by the French cartoonists.
UH... NO.


BORRELLI
Please reply by January 11th
M Barack Obama
Number of Persons
Yes, I/We will attend the French Unity Rally
No, I/We are unable to attend
Sorry! - Might offend some Muslims!


Hi! I'm from the Government and I want to give you something for free!!!
COMMUNITY COLLEGE DEAL!
TAXPAYERS


I'M GOING TO GET FREE COLLEGE.
OBAMA PROPOSAL
I'M GOING TO GET THE BILL.
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