



1

BEYOND “THAT’S THE WAY WE’VE ALWAYS DONE IT”

The reason nothing important changes in education is because if one significant change is made, everything would have to change.

—Ted Sizer

IT is amazing how often people embrace doing things the way they have always done them without first carefully examining how or why a process came into use in the first place. We often accept a preexisting mindset because it is the path of least resistance. The mindset about the way educators organize schools is based on decisions made at the time of the horse and buggy,



oil lamps, and factory production lines (Lapidus, 2007; Wagner & Dintersmith, 2015). Continuing to operate with that mindset is a classic case of *that's the way we've always done it* (TTWWADI).

Schools haven't structurally changed that much in a long time. But the world we live in is no longer the stable and predictable place it once was. Disruptive technologies have ignited an engine of change, and that rate of change appears to be accelerating with each passing day. Radical developments hold profound implications for life as we know it. In an envi-

ronment of constant and disruptive change, it is critical that we begin to question the rationale behind the TTWWADI mentality in our schools.

A PREAMBLE ABOUT FIVE MONKEYS

In his research, Gordon R. Stephenson (1967) finds that TTWWADI was evident in our evolutionary cousins—monkeys. Envision that you have an enclosure containing five monkeys. From the top of the enclosure, hang a banana on a string, and place a set of stairs under the banana. Eventually, one of the monkeys will go to the stairs and start to climb toward the bananas. As soon as that monkey touches the bottom stair, you spray all the monkeys in the enclosure with cold water from a fire hose until you drive them away.

After a while, another monkey makes another attempt for the banana with the same results. Again, as soon as that monkey places its foot on the bottom stair, you spray all the monkeys with ice-cold water from the fire hose until it drives them away. Repeat this behavior until when one of the monkeys eventually attempts to climb the stairs to grab a banana, the other monkeys attack and prevent that monkey from climbing the stairs because they don't want to get sprayed with the cold water from the fire hose. Another attempt, another attack. Another attempt, another attack.

In time, the monkeys all become conditioned, and they understand that if they try to climb the stairs to get the banana, the other monkeys will attack them. Once the monkeys are conditioned, you can put away the cold water and the



fire hose. Next, remove one of the original monkeys from the enclosure and replace it with a new one.

Soon, the new monkey will see the banana and try to climb the stairs to get it. To that monkey's shock and horror, all the other monkeys in the enclosure will attack the newest monkey because they do not want anyone to spray them with cold water. After repeated attempts and attacks, the newest monkey also becomes conditioned. The newcomer understands that if it tries to climb the stairs, the others will attack it.



Next, remove another of the original five monkeys and replace it with a new one. The scene will repeat itself. When the newest monkey tries to climb the stairs to get the banana, all the monkeys, including the first newcomer, attack the newest monkey, punishing it with the greatest of enthusiasm! Likewise, this happens when you replace the third original monkey with a new one and then the fourth and fifth.

Every time the newest monkey tries to climb the stairs, the others attack it. Interestingly, the monkeys that are beating the newest monkey have no idea why they are not permitted to climb the stairs to get a banana, nor why they are beating the newest monkey.

After replacing all the original monkeys, none of the remaining monkeys in the enclosure have ever been sprayed with ice-cold water from the fire hose. Nevertheless, no monkey will ever again attempt to approach the stairs to try to get a banana.

At this juncture, the critical question to ask is, “Why not?” The answer is, because as far as all the monkeys in the enclosure are concerned—that’s just the way they’ve always done it. This is the essence of TTWWADI, and our superior human brains do no more to insulate us from this behavior than do the brains of monkeys. (Authors’ note: No monkeys were harmed in the writing of this book!)

WHY WE DO THE THINGS WE DO

Do you have unconscious habits in your teaching practices? Do you ever stop to think about why you use a particular instructional pedagogy? Do you have the same rituals when you attempt to engage students in their learning? Do you have a routine as to how you start or end your class?

It is astonishing how easy it is for us to embrace doing things the way we’ve always done them without stopping to ask, “Why?” Often, this

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happens because it is much easier to continue going in the same direction than it is to reexamine the situation and reevaluate a decision or process. With all the effort required to think through an issue, it is all too easy to slip into a preexisting, fixed mindset. We choose to accept things as they are because it is the path of least resistance. In this section, we examine the true story of how Roman chariots dictated the dimensions of our modern railways and even influenced America's space program. This exploration does not specifically relate to education and instruction, but it does crystallize our collective human tendency to live with established practices because it's easier than changing them.

THE MINDSET OF RAILWAYS

Before we reach back to Roman times, let's start in the middle of the story. In the United States and many other parts of the world, the spacing between the rails on railroad tracks is a set standard—it is exactly 4 feet, 8½ inches (1.4351 meters). Now, some people might say 4 feet, 8½ inches seems to be a rather odd and seemingly arbitrary number. Why is it 4 feet, 8½ inches and not 4 feet, 6 inches or 5 feet, or some other random number? There are many theories, stories, and urban legends about this width, but the story that we like the best (whether it is true or not) is that 4 feet, 8½ inches was the track spacing that engineers in England used to build many of the first railroads, and it turns out that it was English expatriates who built most of the first U.S. railroads (Bianculli, 2001).

The reason England used a rail spacing of 4 feet, 8½ inches is that the same guild that had been building the horse-drawn wagons and handcarts in the prerailroad era in England also built the first English railways. It turns out that 4 feet, 8½ inches is the axle width the English wagon makers used to build the first railroad cars (Bianculli, 2003).

So, a question you might ask is, “Why did the wagon makers use that particular axle width of 4 feet, 8½ inches?” It turns out that they did this because they *had* to. If they used any axle spacing other than 4 feet, 8½ inches, the wagon wheels would almost immediately break on the sides of the established wheel ruts throughout England, which coincidentally also happened to be 4 feet, 8½ inches.



This begs the question, “Where did those old rutted roads in England originate?” It turns out that Imperial Rome made the first long-distance roads in Britain—and most of Western Europe, for that matter—more than two thousand years ago. They built these roads for their Roman military, and the roads have been in steady use ever since (Bianculli, 2003).

In fact, it turns out that Roman war chariots formed the initial ruts in these first roads; and it also turns out that the axle spacing of these chariots was 4 feet, 8½ inches. So, everyone ever since has had to adapt to those ruts to avoid destroying their wheels. Thus, it turns out the United States’ standard railroad track spacing of 4 feet, 8½ inches actually derives (this is a fact!) from the original specifications for an Imperial Roman war chariot from more than two thousand years ago (Bianculli, 2003).

Now some of you might be thinking, *But that’s stupid, that’s ridiculous, that’s absurd*, and you may be right. But here’s the thing—specifications, bureaucracies, institutions, and systems have a natural tendency to solidify in their ways of doing things. Often, they may require people to do things in the same way their predecessors have traditionally done them, despite the fact the world continues to change all around them.

So, in this situation, a question you might find yourself thinking is, *What fool—what horse’s backside—came up with this way of doing things?* In the case of the American railways, you’d actually be a lot closer to the truth than you could have ever imagined. Here’s why—it turns out Imperial Rome designed its war chariots to be just wide enough to accommodate the width of two horses’ backsides (Bianculli, 2003).

Indeed, it was a horse’s backside that originally determined the way we continue to do things more than two millennia later. So, now we finally have the answer to the original question—TTWWADI! That’s the way we’ve always done it!

SPACE TRAVEL AND HORSES’ BACKSIDES

The story doesn’t end with railroad track spacing and horses’ backsides. Although NASA has retired the space shuttle program, when we used to watch space shuttles rocketing off their launch pad, there were two big booster rockets attached to the sides of the main fuel cell. These were solid rocket boosters, which NASA had made at the ATK Thiokol Propulsion factory in Utah (Bianculli, 2003). If you had talked to the engineers who originally designed the solid rocket boosters many years back, they would have told you quite categorically that they wanted to make those solid rocket boosters a bit larger to get more thrust and, therefore, more lift at launch. The problem was that they had to ship



the solid rocket boosters by train, 2,362 miles (3,801 km) from the factory in Utah to the launch site in Florida.

The railroad line from the factory to the launch site ran through various tunnels in the mountains. The tunnels were only slightly wider than the railroad tracks, and, of course, as we already know, those railroad tracks were only as wide as two horses' behinds (Bianculli, 2003).

So, what was obviously a major design feature to what was and continues to be one of the world's most advanced, sophisticated transportation systems—with more than a million moving parts at launch—was actually influenced more than two thousand years ago by the width of two horses' asses.

TTWWADI AND SCHOOL MINDSETS

In 1894, The Committee of Ten, a working group of primarily postsecondary educators from the eastern United States, recommended the standardization of the American high school curriculum (National Education Association of the United States, 1894). More than a century on, their recommendations continue to be the foundational principles upon which America's public education system rests (Wagner & Dintersmith, 2015).

At the beginning of the 20th century, agricultural-age thinking gave way to industrial-age thinking. Frederick Winslow Taylor's (1910) *The Principles of Scientific Management* became the basis for the modern assembly line. The employers of the time considered the factory model the most advanced form of organizational productivity possible. Not surprisingly, society modeled its schools after the assembly line factories of the early 20th century (Watters, 2015). It saw teachers as workers, the learners as products that schools produced, and schools themselves as the production lines. It designed schools to make learners into automated learning machines who would follow instructions that equipped them to play active roles on the assembly lines of the times—repeatedly doing defined tasks as accurately and rapidly as possible. Schools modeled after factories made sense for the time, but it also set in place conventions that are very hard to change.

SCHOOLS NEEDED TO LOOK JUST LIKE THE FACTORY

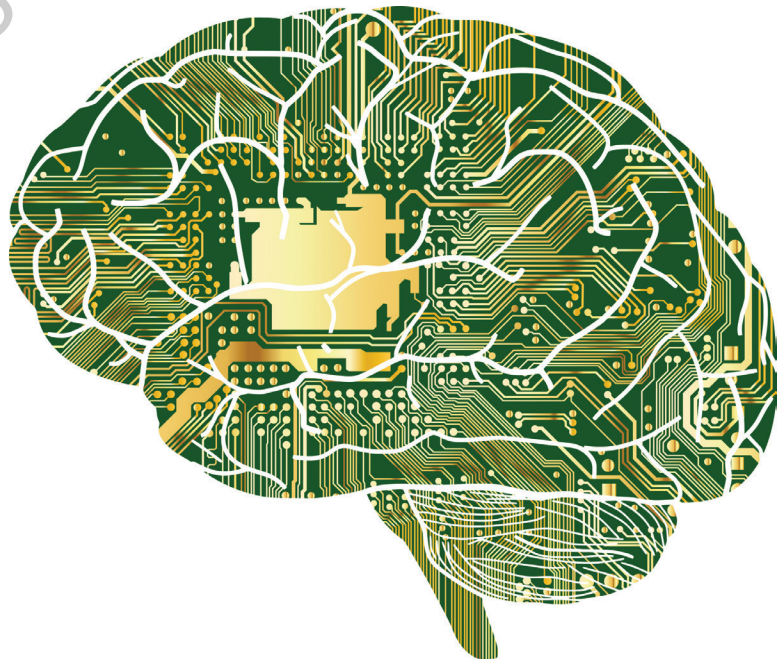
In 2018, we have an educational system intended to produce learners with the same efficiency and consistency with which Henry Ford built Model Ts (Watters, 2015). In the early 20th century, it made perfect sense for factories and schools to strive for standardized procedures, mass production, technical efficiency, and processes that could proceed at a uniform pace. This is no longer the case. World-renowned science fiction writer Arthur C. Clarke once commented that the difference between science fiction and science fact is that science fiction must be believable—because some of the reality that we are about to face is utterly unbelievable (as cited in Larson & Micheels-Cyrus, 1986).

Ray Kurzweil is a brilliant writer, thinker, and inventor with more than 3,500 patents to his name. Kurzweil has also made more correct (and documented) predictions about future developments than anyone else in history. Ray Kurzweil has made at least 147 predictions since the 1990s. Of those predictions, 115 have turned out to be correct; and 12 more have proved to be mostly right (off by a year or two), giving his predictions an astounding 86 percent accuracy rate (as cited in Basulto, n.d.).

Kurzweil says we are rapidly reaching a point in human history where what he calls the *singularity* will be upon us. Kurzweil describes the singularity as the point where man and machine merge (Grossman, 2011; Rejcek, 2017). As technology becomes more powerful, it becomes transparent—we don't think about it, we just use it like we use a pen or a fork. This transparency makes it increasingly difficult to distinguish between where human beings end and the technology begins.

Among Kurzweil's more notable predictions for the near future is his belief that by 2030 we are going to send nanorobots into our brains (via capillaries) that will create full-immersion virtual reality experiences from within the nervous system that will connect the neocortex to the cloud (as cited in Basulto, n.d.). The implications of this are difficult to overstate. In the same way that we can already wirelessly expand the capabilities of our smartphones by a factor of ten thousand by connecting them to the cloud, we will also be able to enhance our brains by connecting them to the cloud.

Let's digest that for a moment. The year 2030 is not far away. Kurzweil is talking about directly plugging our brains into the internet and being able to upgrade our intelligence and memory capacity by orders of magnitude. He's talking about brain-to-brain communications. No more email, tweeting, texting, phone calls, and so on—send your thoughts directly to someone simply by thinking about him or her. Imagine having instant access to the total of human knowledge at the tip of your neurons. You could immediately calculate complex mathematics equations, intuitively and flawlessly navigate the streets of any city, fly a fighter jet the first time, effortlessly speak and translate any language, or scale up the computational power of your brain on demand, making it ten or one hundred or one thousand times more powerful. Do you have to perform neurosurgery? Download the



brain surgeon's software. In fact, you probably won't have to download it—you'll probably stream the needed expertise from the cloud to your brain.

We will be able to remember everything that ever happened to us because we'll store all our memories in the cloud, and we will be able to search a lifetime of memories instantly for useful information. When our memories become scannable, we will also be able to contextualize them by linking them with our calendars, important GPS coordinates, breaking news, weather, health data, stock market results, or anything else we might desire at that particular moment in time.

If Kurzweil is right, which he has been 86 percent of the time, what does all this mean for education when we can access any knowledge and integrate it into our daily thoughts? What does the future hold for education in disruptive times?

Sadly, very little in modern curricula reflects the astounding scientific discoveries we've seen since 1990, let alone what Kurzweil is predicting. Nor do today's instructional practices reflect much of the latest research on brain function and how it influences learning.

Why do we struggle with change while the world outside of education is changing at an accelerated rate? To make education relevant, we need to change and improve virtually every aspect related to how we teach, how we test, and how we assess and evaluate. Where do we begin?

CHANGE IS HARD—YOU GO FIRST!

We often forget how hard it is to change. Let's start by considering one bad habit you would like to break or behavior you'd like to change. Try something simple like stopping smoking, putting the toilet seat down, not saying "ya know" all the time, spending a little less money, or adopting a healthier diet. The big question is, how hard is it to break a small, bad habit? The answer is, it's *really* hard to change even small ones. Sometimes it's so hard that even small changes seem impossible, because change does *not* happen with one step or one decision. James Prochaska, a renowned psychologist, proposes that people hold great fear at the challenge of change (Ballard, 2016). He suggests that behavioral change is rarely a discrete or single event; however, we tend to view it in such a way. Often, behavioral change occurs gradually and over time.

When we ask educators and policymakers to change how they think about education, we are not asking them to change a small behavior like what we put into our bodies or how we spend our money. We are asking them to change some of the most fundamental, internalized, taken-for-granted parts of themselves and their belief systems. Changing an entire belief system makes the challenge of adopting a new exercise routine look like child's play.

A significant impediment to change is that the people who hire educators, the parents who attend parent-teacher conferences, and the politicians who write the laws don't want there to be any fundamental change from the way things were because that was not their experience growing up. It makes them feel uncomfortable. TTWWADI!

The definition of insanity is doing the same thing you have always done but expecting or wanting or needing completely different results (Einstein & Calaprice, 2013). If we continue to do what we have always done, we will continue to get what we have always gotten. This means failing ourselves and, in turn, failing our nations by failing our children. This is far too much failure!

To that end, we offer ten ways you can overcome TTWWADI mindsets in your schools.

Steps to Facilitate Embracing Change in Your School

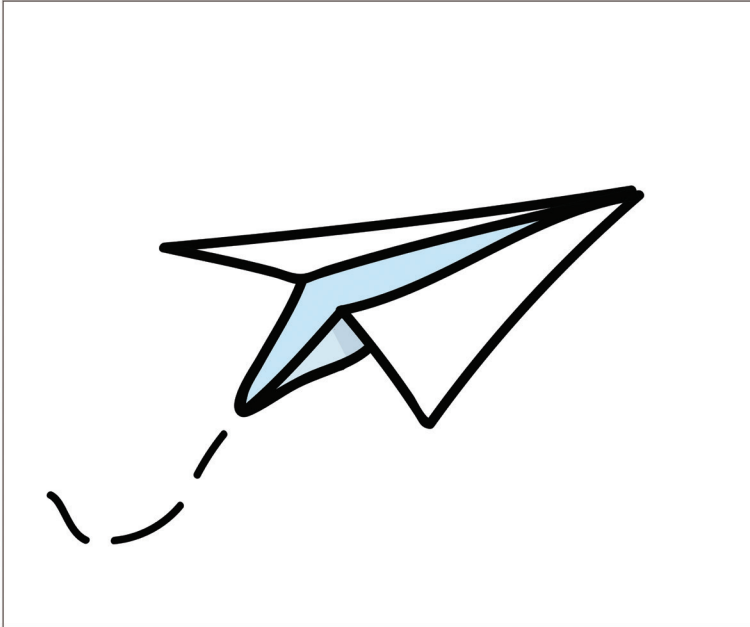
1. Develop a shared school vision for teaching, learning, and assessment.
2. Align resources (personnel, funding, staff development, learning materials, and infrastructure) with your shared school vision for teaching, learning, and assessment.
3. Design learning opportunities that provide authentic experiences that are connected to real-world problems.
4. Reevaluate assumptions about what relevant curriculum is for learners.
5. Challenge teachers to become coaches and facilitators who promote new learning models.
6. Reimagine learning spaces to align with modern teaching, learning, and assessment practices.
7. Cultivate parental buy-in by encouraging them to participate as experts and to provide feedback on student projects and activities.
8. Develop a future-focused school learning community on students' future careers and life beyond schools.
9. Build teams of learners who collaborate on projects that create real-world products and solutions.
10. Make your schools places that embrace change and encourage continual reexamination, reinvention, and innovation that reflect ongoing disruption in society.

WAYS TO DEMONSTRATE TTWWADI

In considering how easy it is to fall into the trap of TTWWADI, we have curated a series of activities and anecdotes that demonstrate how infectious it can be and how important it is not to fall into it. These activities range from complex, multi-step processes to quick-and-dirty metaphors, but each should crystallize in your mind the ease of TTWWADI thinking and how it inhibits us from better preparing students for their futures.

THE PAPER AIRPLANE AIRPORT

One workshop activity we have used for years demonstrates the power of TTWWADI. Start by identifying an airport on a projection screen or use a box or trash basket. Ask the participants to design a paper airplane that they will



attempt to fly and land at the airport. When everyone has made an airplane, have them simultaneously launch their creations trying to land as close to the airport as possible. Typically, very few paper airplanes successfully land close to the airport.

Based on these results, ask the participants to rethink and improve their designs to make another paper airplane that will enhance performance and accuracy. While they are making this second plane, pick up the first-round planes and put them on a table to display. When participants are finished, once again, have them

all fly their planes together at the same time. Often, the second round of flights is even worse than the first because many participants modify their existing paper airplane by adding more features to an existing design rather than designing new planes.

Collect the second planes and put them on another nearby table.

Now it's time to talk. We look at the first planes—every plane is different (paper, size, folds, and so on), yet it is likely that their creators based them all on the same paradigm of how to build paper airplanes. The problem is, most of these planes don't fly well, but that's just the way we do it. Teachers, like paper airplane designers, are required to do more and more these days, but like plane designs, schools do not change. We just add more features to them.

Then, we go to the second table to look at the newly improved planes. Many of them look interchangeable with the first attempts, just with more features added on. Frequently, they fly worse. TTWWADI!

The critical moment happens when we talk about the flawed mindset we use to design our planes and schools. Then we take a plane, crumple it into a ball, and throw it. This crumpled ball is inevitably a plane that flies farther and is more accurate than the complex planes the participants constructed.

This crumpled ball is inevitably a plane that flies farther and is more accurate than the complex planes the participants constructed.

The point is, sometimes as educators, unlearning is more important than doing more to or for learners. We need to keep things simple and concentrate on what counts—how learners learn, not how we teach or administrate. With this thought process in mind, here is a list of five strategies you can embrace to place learners at the forefront of their own learning.

Strategies for Placing Learners at the Forefront of Their Own Learning

- 1. Progressive withdrawal:** Gradually shift the burden of responsibility for learning from you to the learner where it belongs—the hardest working people in classrooms should always be students and not teachers.
- 2. Velcro learning:** If you have only one side of a piece of Velcro, nothing sticks—you need to have the other side to attach to. In the same way, students quickly forget content taught in isolation, but teaching process and context at the same time provides the other side of the piece of Velcro. In our experience, when teachers take this simple step, students are more likely to remember content.
- 3. Useful failure:** This is the process of letting learners fail in a safe space and assisting them to reframe their mistakes as valuable learning experiences. After all, Thomas Edison once said in reference to developing the first light bulb, “I have not failed. I’ve just found 10,000 ways that won’t work” (Hendry, 2013).
- 4. Future-tense thinking:** Push learners from a present-day mindset to a future mindset (James, 1997).
- 5. Challenge belief systems:** Often referred to as epistemology, learners must have their outlook of the world challenged to broaden their understanding of other people’s beliefs, perspectives, opinions, and values. By confronting a learner’s views of the world, educators help them to develop a diverse, global understanding.

THE RUBBER BAND ACTIVITY

At the end of our workshops, we often take a heavy rubber band and stretch it out and hold it in place. After a short period, when our arms get tired, we release the pressure on the rubber band, and it snaps right back to where it was before. The question is, Why does it snap back to its original form? The answer is, because a rubber band has a paradigm, a comfort zone, a place where it has been for an extended period that it likes to be. In other words, it has a TTWWADI.

So how do you get a rubber band to stretch and stay stretched? There are several things you can do. You can wrap it around something; you can heat it, you can freeze it, and you can rub it with a solvent to change the chemical composition of the rubber. The interesting thing is that even after all that effort, when you release the pressure, the rubber band still tries to go back to where it was in the beginning. So, what has that got to do with education?



Stock/robertyrns

We all intellectually understand the world has changed and is changing. We nod and acknowledge that things are different. But, as the old saying goes, when the going gets tough, the tough get traditional. Without even being aware of what we are doing, we unconsciously revert to our old habits and beliefs (Ballard, 2016).

The rubber band effect occurs when our minds recoil from the discomfort of new ideas that are outside our experiences. We unconsciously and instinctively revert to the status quo. We go back to doing things the way we have always done them. When dealing with change, unconsciously reverting back to the way things have been done is a predictable phase that all people go through. You will experience this unconscious reverting today, tomorrow, or sometime in the future when you suddenly comprehend the true implications of new ideas like those in this book.

TTWWADI Digital Collection

Extend your knowledge of **common TTWWADI educational practices** by visiting <http://bit.ly/BHFEC1>. If you are interested in adding a resource to this collection of curated articles, contact us on Twitter (@ijukes or @RyanLSchaaf).

Chapter Summary

In this chapter, you read about TTWWADI and how it influences both society and education. As you reflect on this chapter, make sure you internalize the following key points.

- TTWWADI stands for *that's the way we've always done it*. It is a mindset that involves doing something the way it has always been done without examining how the original decision was made.
- Many schools accept a TTWWADI mindset of what schools look like because schools haven't structurally changed that much in a long time. Many educators embrace these entrenched ideals without question.
- Often, with a TTWWADI mindset, once someone makes a decision on a course of action, it is easier to continue doing the same thing over and over again rather than reexamining the situation and reevaluating the decision.
- Digital generations face a profoundly different world once they leave school. The current education model does not cater to the challenges this world presents.
- Schools and educators must now contemplate what world they are preparing their learners for. Schools should be preparing learners for the digital age, the biotechnology age, and the nanotechnology age. We need to help them prepare not for today's world but for the world of tomorrow.

Questions to Consider

- What is TTWWADI? How does a TTWWADI mindset affect schools and the decisions and processes that occur in them on a daily basis?
- Is there a school- or district-based practice or belief where you work that you feel illustrates a TTWWADI mindset? How would you go about trying to effect change in this instance?
- How do the paper airplane and rubber band scenarios illustrate TTWWADI? In what ways are these scenarios powerful analogies for some educational practices?
- How could a TTWWADI mindset in education prove problematic for the future?
- Why does education continue to struggle to deal with the challenge of change?

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