

HELPING STUDENTS ENHANCE THEIR GRIT AND GROWTH MINDSETS

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Abstract: *In this essay we will discuss the notions of Grit (Duckworth, 2013) and Growth Mindset (Dweck, 2006). It is apparent to many people that their ideas make sense, students who are resilient and who work hard tend to do better than students who are not resilient and who give up easily. Both authors tell us that this kind of perseverance seems to be more important than are natural abilities and intelligence. Analysts of brain research (e.g. Caine & Caine, 2011; Sousa, 2011; Johnson, Johnson & Holubec, 2008) now believe that intelligence is not a static commodity. The more we learn, the more we can learn (Sousa, 2011). Those who end up being the best or the smartest are not always those who start out that way (Duckworth, 2013). Johnson and Johnson (2013) tell us that students who work together in positive and promotive ways persevere longer, work harder, and learn more in general than do students who work alone or who compete against their peers. Dweck (2006) believes that students can be taught the skills to persevere, to believe that their efforts and attitudes make a difference. Hattie (2009) has described teacher initiatives that make a difference for students. In this essay we will discuss ways that teachers can and do make a positive difference for their students.*

Keywords: *grit, growth vs. fixed mindsets, cooperative learning*

Introduction

For many years now there have been ongoing debates about the importance and definitions of intelligence. Some people argue that there is a general intelligence made up of different categories that can be defined and measured by an IQ test (Kaufman, 2009). Other people believe that IQ can be viewed more broadly and that there are different ways to be intelligent (Gardner, 2000; Sternberg, 1977; Sternberg, Torff, & Grigorenko, 1998; Goleman, 1995). Brain research now indicates that the brain is not static but rather a dynamic organism that changes over time (Sousa, 2011; Caine

&Caine, 2011). Sousa (2011) tells us that, according to research on the brain, the more we learn the more we are able to learn. This is an important discovery because it points to the notion that we can indeed affect our intelligence in a positive way. This research is also indicating that the brain functions in the context of the environment in which its owner inhabits and that people have the ability to adapt to their surroundings and to in effect change the brain. In other words intelligences can grow. These revelations have led people to study what else helps people to be successful (Duckworth, 2013; Dweck, 2006). Research indicates that there is more to success than just intelligence and/or talent. Duckworth (2013) tells us that success depends on more than just cognitive ability. These abilities, in her view, are at least just as important as intelligence or talent in determining how successful people become. Duckworth (2013) believes there is more to predicting the future of our students than test scores. Those who succeed tend to be those people who have what she calls Grit, the ability to persevere and have passion for their goals. Dweck (2006) has found in her research that people who believe that they can affect their intelligence and talent work harder and persevere through difficult situations better than people who believe that intelligence and talent are set in their genes and cannot be changed much. People who display what she calls a Growth Mindset see obstacles as challenges to be met. Not only do people with high Growth Mindset scores persevere they enjoy the challenge of growing their skills and abilities.

Flynn (2016) has explained how scores on IQ have risen dramatically over the years. If we had not changed the standards on IQ tests the average IQ score today would be about 130 using older standards. In other words what was average has now changed. The fact that we have to re-norm IQ test standards to maintain the bell curve appears to point to the notion that there is more to IQ than some kind of set standard. Intelligence then is obviously affected by things like social progress, better education, the number of people educated, and the living environment of all of us. Flynn relates that today more than 30% of the population now works in cognitively demanding professions as compared to about 3% years ago. In addition he tells us that almost every job and life activities today are more cognitively demanding. In other words, as we have used our brains differently our brains have changed, we have gotten more intelligent. This notion opens up the possibility that we all can more directly increase our intelligences (Gardner, 2000). Both Duckworth (2013) and Dweck (2006) agree with that notion and they believe that we can grow our Grit and our Growth Mindsets. They believe that we all can get more intelligent and become more skilled or talented. Their research efforts indicate that people can and do change, adapt, and improve if they are dedicated to and persevere do so. Those people who end up being the most

talented or the most successful are not necessarily the people who started out being smarter or more talented at the beginning of the process (Dweck, 2006). Usually those people who work the hardest and longest, and who are dedicated to improve, end up being the best and most successful.

Johnson and Johnson (2013) have developed their ideas about cooperative learning and its effects on student achievement, attitudes, dedication, social skills, and emotional strength. Their research indicates that when students work positively in cooperative groups they learn more, remember it longer, gain positive social skills and attitudes, and are stronger emotionally and psychologically. They agree with Vygotsky (1978) that a large part of learning is a social endeavor. They agree with Glasser (2006) and Fitzgerald and Laurian (2013) that relationship building is an important aspect of the educational process. The personal and academic support provided to students in cooperative learning work assists students in meeting their emotional needs and enhances their abilities to grow in their passion for and perseverance in learning (Johnson & Johnson, 2013). The Johnsons believe that students grow by working and struggling together to overcome challenges. In the process students are learning how to develop positive work habits and they are also learning the social skills necessary to work in teams. This process gives students the authority and responsibility they need to control their own learning. Gordon and Preble (2011) refer to this kind of as respectful teaching. Caine and Caine (2011) believe that this tier 3 kind of teaching and learning process should be the goal for all teachers.

In this essay we are proposing that in school we can address the important areas of growth in students and that wherever students are when they begin a year with us we can help them to grow. Since we know that personal qualities of students (Grit, Growth Mindset, self-discipline, dedication to task, etc.) are more predictive of success (than SAT or other standard test scores) in university or college in terms of GPA and graduation (Duckworth, Peterson, Matthews, Kelly, 2007), we argue that schools should also attend in important ways to these non-cognitive skills. We will discuss Grit (Duckworth, 2013), Growth Mindset (Dweck, 2006), and Cooperative Learning (Johnson & Johnson, 2013) principles and how we believe they can help teachers assist our students to reach their true potentials.

Grit

Angela Duckworth (2013) has been working for many years to understand the non-cognitive attributes that people possess that make them successful. Grit can be defined as the amount of passion and perseverance people have as they work toward long-term goals when they face problems or hurdles that impede their progress. In other words, having a high Grit attribute means that a person does not let anything stand in the way of reaching her/his goal (Duckworth, 2013). Duckworth describes how people

who are Gritty believe it is important to continue after a failure, have a drive to continually improve, never believe they have become good enough, are satisfied with being unsatisfied, maintain passion even in difficult times, and know what they want and go after it unceasingly. Gritty people, according to Duckworth, are “paragons of perseverance” who refuse to give up or give in.

Duckworth (2013) has studied Grit in many different situations. She developed a Grit inventory in which half of the questions related to passion and half the questions related to perseverance. At West Point she studied how to predict which students have the best chances of succeeding and making it through the grueling program. West Point used a Whole Candidate Score for its students. This score consisted of items like high school grades, their IQ scores, SAT or ACT standardized test scores, Physical Fitness scores, and a leadership score; all of the typical scores used by many institutions to predict success in their institutions. Duckworth found that that the Whole Candidate score was a poor predictor of student success at West Point and that the Grit scores were a much better predictor of success. She also found that there was almost no relationship between Grit score and the Whole Candidate Score, and she found no relationship between talent scores and Grit scores. Duckworth has also tested these results with businesspeople, high school students, Ivy League students, undergraduate college students (2 year and 4 year degrees), graduate students, the Green Berets, and National Spelling Bee contestants. In every case the best predictor of success was the Grit scores of the people involved in every study.

Duckworth (2013) studied novice teachers and found Grit to be the best predictor of both beginning teacher quality and ability of these young teachers to remain in teaching. This is an incredibly important finding since we know that 40% to 50% of young teachers drop out of teaching within their first five years. Duckworth’s studies indicate that Gritty are more effective and they remain in the profession. This could/should have ramifications for how we train, recruit, induct, and develop our pre-service and in-service teachers.

Success in schools and in many other areas of life depends on more than talent and intelligence. Having talent and intelligence is obviously important but just as important (or maybe even more important) is a person’s ability to stick with a job up it has been completed. Duckworth (2013) tells us that Darwin believed that there was little difference in raw intellect among people, but he believed there were huge differences in the amount of zeal and hard work exhibited by people. She also described how William James believed that most people live “far within” their talent and intellectual limits. These ideas mean that in most cases the perceived differences in talent and intellect seen by most people are not significant because the true potential of people is much higher than most peoples’ visible talents and intellect.

Although Grit is affected by genes, it is also affected by experience, thus, most of us can raise our intellect and talent if we can learn to apply ourselves in different and probably more intense ways; in other words become Grittier. The good news, according to Duckworth (2013) is that we can grow in our Grit.

Duckworth (2013) has created a formula for achievement:

Talent x Effort = Skill $\xrightarrow{\quad}$ Skill x Effort = Achievement

In her formula you can see that effort appears twice; once in each part of the equation. Talent only appears in the equation once. In order to reach potential effort has to be visible. Whatever level of talent one has it can be developed and then once developed it can be used to achieve. We all know people who have a great deal of natural talent who never do anything with it. There are also very talented and productive people in the world who did not start out being very talented. Consistency of effort over the long run is what makes achievement happen: effort in developing talent and then effort in using the developed talent to do something worthwhile are what prove to be the differences in the most successful people and everyone else..

Duckworth (2013) gives of some ideas for organizing our work to help students grow their Grit:

1. Create a great and abiding interest
2. Create an appetite for practice, constantly challenging oneself
3. Create a sense of purpose in what you do
4. Maintain hope; a confidence in your ability to keep going

Duckworth tells us that most very successful people love what they are doing. Most people, about 87% according to Duckworth, say they are not engaged in their work. They do not find it interesting and many do not find it to be important work. When people are interested in their work they become more engaged, they do better work, and they enjoy their work more. They are also more helpful to their peers. Students in university or college whose interests and majors match earn higher grades and are much less likely to drop out of school. People are also more interested in their work if they believe what they are doing is helpful to society. People who love what they are doing are also happier about their quality of life (Duckworth, 2015).

There is only one way to create great and long-lasting talent – through consistent and focused practice. Will Smith (2013) tells us that his success has little to do with innate talent it is his “sick” work ethic that has allowed him to gain fortune and fame. The famous potter Warren Mac Kenzie (in Duckworth, 2013) has said that the first 10,000 pots he made were difficult; then they became a little easier. John Irving, the prolific author, has said that what he does best is rewriting because he feels as if his wiring takes so much work to make it worth reading (in Duckworth, 2013).

People who stay with their efforts have a purpose for their efforts. They tend to have enduring goals on which they remain focused over a long period of time (Duckworth, 2013). In addition to our goals being important to our selves, there is power in believing that what one does has purpose in the well being of other people (Duckworth, 2013). Duckworth tells us that the more unified, aligned, and coordinated our efforts in relation to our important goals the more likely we are to stick with them. Sousa (2011) has stated that for the brain to learn we need one of two things (and if we have both it is better): sense and meaning. Meaningfulness is a very important and powerful aspect of what we do and who we are (Fitzgerald and Laurian, 2013). Since information tends to go through the limbic system of the brain first emotions play a huge role in our learning (Sousa, 2011). Meaningfulness is a huge part of what makes us work hard to reach our goals.

Duckworth (2013) explains that people with the highest Grit scores have an unwavering belief in their abilities to face problems and overcome them. No being able to solve a problem right away is not a valid reason, in their eyes to give up. Rather, Gritty people believe that they will learn more and become stronger people by overcoming their challenges with steady and passionate effort. There is, in their eyes, almost never a reason to give up.

It seems to us that as we face challenges and learn new things, as we develop more skills, and as we begin to create our passions we become Grittier. In those classrooms in which students are asked to solve problems on a regular basis, work in concert with their peers, learn from their failures, and who are encouraged to develop and then follow their passions, students learn how to develop their Grit. In classrooms in which students are told to be individualistic or competitive and who are forced to comply with the wills of their teachers Grit has to be developed somewhere other than in school. We believe that the evidence is clear so educators should create environments in which students are asked to think critically, work cooperatively, and search for their interests so that they are more likely to find their passions.

Growth Mindset

Dweck (2006) has developed the concept of Growth Mindset. In her research Dweck has found students of all ages who are excited about facing challenges in school. These students see hurdles in their learning as challenges that they appreciate and look forward to solving. These students see not knowing something as exciting because they believe they are on their way to more learning. Their mentality is that they do not know it yet, but through effort and practice they will learn new concepts and gain new skills. Other students see these same challenges as indications of limitations on

their intellect and talents. Dweck labels these kinds of thinking as being a Growth Mindset or a Fixed Mindset. People in a fixed Mindset do not search out challenges, rather they try to avoid most challenges and try very hard to remain in the comfort zone.

Intelligence

For years people have been debating about the meaning of intelligence. In Dweck's (2006) terms there is the Growth Mindset and the Fixed Mindset camp. People who maintain a Growth Mindset perspective believe that things like IQ, personality, and talent are set genetically. We can develop those things we have been given but we cannot change them much. For example, we are either talented artists or we are not. In this Growth Mindset view if we are not talented artists we will never change that. We can work hard and get better but we will never become talented unless we have the genetic tendency to do so. In this perspective the same is true about intelligence and personality. We are basically what and who we are and that does not change much. People with a Growth Mindset believe the opposite to be true. These people, like Dweck, believe that intelligence, talent, and personality can be developed and changed. Growth Mindset people believe that with strategic hard work we can achieve much more than other people believe.

Multiple Kinds of Intelligences

People like Caine & Caine (2011), Caine, R. N., Caine, G., McClintic, C. & Klimek, K.J. (2011), Gardner (2000), Goleman (1995), and Sousa (2011) argue for looking at intelligence in multiple ways instead of one general intelligence. Gardner (2000) describes 8 or 9 intelligences (language, mathematical and logical, musical, visual and spatial, interpersonal, intrapersonal, kinesthetic, naturalistic, and existential) that he believes all people possess in different degrees. Goleman (1995) writes about Emotional Intelligence. Caine & Caine (2011) and Sousa (2011) discuss the impact of different aspects of the brain on learning and memory. All learning engages the physiology. Caine and Caine (2011) have developed what they call the 12 Brain/mind Principles from their review of research on the brain. They argue that these principles indicate that we should apply varied approaches to teaching and learning that are student-centered and based on the uniqueness of each student. Their 12 principles include: 1. All learning engages the physiology. 2. The brain/mind is social. 3. The search for meaning is innate. 4. The search for meaning occurs through patterning. 5. Emotions are critical to patterning. 6. The brain/mind processes parts and wholes simultaneously. 7. Learning involves both focused attention and

peripheral perception. 8. Learning is both conscious and unconscious. 9. There are at least two approaches to memory. 10. Learning is developmental. 11. Complex learning is enhanced by challenge and inhibited by threat associated with helplessness and/or fatigue. 12. Each brain is uniquely organized. The Caines argue that students need to be challenged appropriately, supported continuously, engaged in complex activities, and given as much control of and responsibility for their own learning as possible. Students process information and their learning differently and they should learn, according to the Caines, in accordance with their interests and/or passions.

Sternberg (1977), who developed the Triarchic Theory of Intelligence, believes that one's talent and intelligence is not set but rather are parts of humans that can be developed over time. Dweck (2006) tells us that the most talented people in the world often did not start out being the most talented. She relates how Michael Jordan (one of the greatest basketball players in the history of the game) did not make his varsity basketball team on his first tryout. He became one of the best players in history because he did quit after that first failure. Instead he used that as a learning experience and he dedicated himself to becoming the best player in the world. He spent hours upon hours of dedicated practice to hone his skills to become great. We all have heard similar stories about actors, writers, singers, and friends and neighbors. People all over the world have made themselves into what they wanted to become by great dedication to their goals.

Challenges

One of the biggest issues with a Fixed Mindset is that people tend to shy away from challenges that they see as too difficult to overcome (Dweck, 2006). People with a Growth Mindset feel like they have to prove how intelligent or talented they are compared to other people because they believe talent and intelligence are fixed assets. Failure in their minds is an indication of less talent or intelligence than they want to have, so they try to avoid failure (Dweck, 2006). People with Growth Mindsets do not assess themselves accurately because they try to hide their deficits rather than try to improve them. Instead of embracing new challenges that they may not be good at in the beginning of the process, Growth Mindset people try to do activities that they know they will do well. When people avoid new and challenging activities they miss opportunities to grow and improve. In the long run it means that people who started out being the most talented end up not being as talented as people who believed that they could improve and who worked to improve.

Dweck (2006) believes that people with a Growth Mindset not only seek out challenges, but they thrive on these challenges. They want to be

challenged because the process becomes exciting. The challenge itself appears to be motivating to Growth Mindset people. In sports the competition is exciting, as exciting as the outcome. Mia Hamm, one of the greatest female soccer players in the world discusses how she loved to “play up” in her entire career. That is, she tried to play with and against people whom she thought were better than she was. On the other hand people with a Growth Mindset want to remain in their comfort zone. They want to compete in activities in which they are pretty sure that they will win (Dweck, 2006).

Finding your Mindset

Dweck (2006) gives us four questions to ponder in relation to our thinking about our intellect and four questions to think about our talents. She tells us that our intelligence mindset comes into play in situations that involve mental ability and our personality mindset comes into play in situations that require our personal qualities to resolve issues. Her questions are as follows:

Intelligence Questions

1. Your intelligence is something very basic about you that you can't change very much.
2. You can learn new things, but you can't really change how intelligent you are.
3. No matter how much intelligence you have, you can always change it quite a bit.
4. You can always substantially change how intelligent you are.

Personality Questions

1. You are a certain kind of person, and there is not much that can be done to really change that.
2. No matter what kind of person you are, you can always change substantially.
3. You can do things differently, but the important parts of who you are can't really be changed.
4. You can always change basic things about the kind of person you are.

(Dweck, p. 12-13)

The good news according to Dweck is that once you understand your mindset, then you can change it in those areas of your life that you really want to make changes. We all can learn new ways to live our lives. We all can take more control over many parts of our lives if we choose to do so (Fitzgerald & Laurian, 2013). Dweck (2006) believes that if we do choose to change what we do and how we think then we can and will change our lives for the better. This relates to everyone in all parts of our lives, not just for students in our schools.

Setting the Environment

If we are going to assist our students in developing Grit and a Growth Mindset then it seems like we should be somewhat strategic in our efforts. We believe that this is a two-stage process. The first stage is to set up an environment in school and in class that will encourage and support students in their efforts to grow their Grit and Growth Mindset. That may sound like just common sense but our experiences in schools tell us that it is not as common as it should be. The second stage of this process is to help our students find their interests and to develop their passions. Many students tell us that they have no idea what they are passionate about in their lives. When we ask these students to tell us what they have done in school to develop a passion, they usually either give us a blank stare or they give us an example of what they have done in a co-curricular activity (e.g. band, chorus, drama, sports, Future Teachers of America, 4H, etc.). Third, we have to give our students opportunities to develop their skills (e.g. rehearsal, practice, feedback, chances to fail, chances to try again, support, guidance, etc.).

In terms of setting a positive and supportive environment we know from research that bullying and other negative interactions occur in school on too much of a regular basis (Gordon & Preble, 2011). Gordon and Preble also tell us that in many schools many adults interact with each other and their students in negative ways. The climate of the classroom and the school has to be supportive and cooperative (Fitzgerald and Laurian, 2012; Johnson & Johnson, 2013). As one of our colleagues likes to say, “Common sense is not very common.” A good deal of the negative atmosphere in schools is caused by political educational policies (Zhao, 2012). Teachers are telling us, on a regular basis, iterations of, “I would love to do the things you are talking about because it would be better for my students. But, I am afraid that I will lose my job if I do.” In spite of the large amount and growing evidence to the contrary policies continue to focus on standardized tests results to assess schools, principals, and teachers (Zhao, 2012). In a word, that has to change. We have to, as Sir Ken Robinson (2010) has said, disentrall ourselves from the idea that standardized tests are what really measure the most important skills and talents of our students. Study after study tell us that things like Grit – passion and perseverance (Duckworth, 2013), Growth Mindset – believing that I can change how much I know and how much talent I have (Dweck, 2006), critical thinking – the ability to problem solve (Zhao, 2012), the ability to work with peers – Cooperative Learning (Johnson & Johnson, 2013), and the ability to create and maintain supportive relationships in the classroom (Johnson & Fitzgerald, 2013) are what really matter. We have to disentrall ourselves from the idea that intelligence and talent are set in us at birth.

Step One

Step one is to create an environment that Caine and Caine (2011) call Relaxed Alertness. Relaxed Alertness basically means that the teacher sets a classroom environment in which the students feel safe physically and emotionally. It is also an environment in which every student is challenged appropriately, what Mia Hamm called playing up. In this environment students are challenged and supported, and the challenges are developed to be appropriate for every student. Students have to work hard to achieve, and if they do work hard, the teachers sets up the process so that students will succeed in the end.

Such a classroom is based on the respectful attitudes behind the Caring Habits (Fitzgerald & Laurian, 2013). These habits which we learned from William Glasser (2006) are as follows: listening, supporting, encouraging, respecting, trusting, accepting, and negotiating differences. None of these Caring Habits should be a surprise to any of us. We have all been taught that as educators these are the kinds of ways we should interact with our students and our colleagues. In real life though things occur and we forget about the caring habits and use Deadly Habits instead (Fitzgerald and Laurian, 2013). These habits are fairly easy to follow when things are going well for us. It is easy to be supportive when people are following the rules, studying hard, and being enthusiastic in class. It is a different story when students are not working hard, are being disrespectful, hate school, and hate our subject. How do we get students in these kinds of circumstances to be motivated, cooperative, and successful? We believe that we help students to understand that they are intelligent, that they are worthwhile, and they are important to the future of our society. In other words, even when students are acting disrespectfully or are uncooperative, we treat them with respect and care and with an open heart to help them to understand that they are important to us, and that we want them to succeed.

We start by modeling the respect that we want to see in our students. An important part of that respect is to teach in ways that every student can learn. One of the most disrespectful things a teacher can do is to create a lesson in which we know a number of students will fail to learn. Respectful teaching includes teacher actions like: presenting material in multiple ways, having students work with the curriculum in multiple ways, assisting students in identifying their passions, helping students to work with their passions, and giving the students the kind of feedback that they need to move forward in the process. Respectful teaching is a vital aspect of differentiated instruction (Tomlinson, 2014). We respect our students when we treat them well, even in difficult times. When we have to help students learn different behaviors we should still exhibit the seven caring habits with them. Students should also understand the concept that respect is something we give freely.

All human beings deserve to be respected. We also respect our students when we ensure they are in an emotionally and physically safe environment. The feeling should be that in our classroom we treat each other well all of the time. When there are conflicts we deal with them in positive and productive ways.

Some people believe that we should avoid conflicts at all costs. We believe that any time you have more than one person interacting in close quarters on a regular basis then conflicts are inevitable. Of course if we are respecting each other and supporting each other on a regular basis there will be many fewer conflicts. When a conflict does occur if we deal with it positively then two things happen: 1. The people in the conflict will grow socially and emotionally; 2. People who handle conflicts in positive ways gain conflict resolution skills (Johnson & Johnson, 2013). The Johnsons recommend that we begin to resolve conflicts using a win-win mentality. That is, we try to see if we can develop a solution in which both parties are happy with the results. If people involved cannot find a win-win solution, then both sides can compromise to get the best result possible. One which both people agree is a good solution, if not a perfect one. The mentality of trying to understand each other and working together cooperatively helps people to maintain and even grow their relationships (Johnson & Johnson, 1995). In classroom conflicts there are always two goals – resolve the issue and maintain the relationships. If we remember both goals then we help to develop a cooperative climate in the classroom, one in which students feel emotionally and physically safe and students feel supported by the teacher and their peers.

Step Two

Step two in setting the environment, in addition to creating a climate of Relaxed Alertness (Caine & Caine, 2011), is to develop pedagogical techniques that are student-centered. If the goal is to have the students learn as much as possible then the students should be actively engaged in the process (Caine & Caine, 2011). Brooks and Brooks (1993) make the case for a constructivist approach to teaching in which the student is at the center of the action. In line with the ideas of Vygotsky (1978), Bruner (1966), and Piaget (1957), they discuss how to help students create their learning through active student engagement. What becomes most important in a constructivist classroom is student progress in terms of personal development. Other important ingredients (e.g. curriculum, teacher decisions, standardized testing, etc.) become vehicles to assist in the student and the teacher in their educational work. Brooks and Brooks (1993, 1999) advise teachers to think about the following:

1. Find out about student values and thinking – student point of view.

2. Once we know what students value and think, then challenge their suppositions. In terms of Piaget, cause some disequilibrium that causes students to learn to move to equilibrium.

3. Help students to attach meaning and relevance to their learning.

4. Have students work with big ideas.

5. Employ formative assessment strategies within the context of classroom learning.

Caine and Caine (2011) also advise us to give as much control and responsibility as possible over to the students. As we move from teacher or curriculum centered learning to student centered learning the goal is to encourage students to take over responsibility for their own learning. This process changes the role of the teacher from a distributor of knowledge to a facilitator of learning (Caine & Caine, 2011; Hattie, 2009). Direct teaching is still an important part of this process (Hattie, 2009) but it is developed in relation to the direct needs of the students. Curriculum is still important but it becomes a vehicle to develop knowledge and the skills necessary for future success (e.g. Grit and Growth Mindset skills, critical thinking, communication skills, creativity, and collaboration skills). Wagner (2008) has developed what he calls educational survival skills for the future:

1. critical thinking and problem solving
2. collaboration across networks and leading by influence
3. agility and adaptability
4. initiative and entrepreneurship
5. effective oral and written communication
6. accessing and analyzing information
7. curiosity and imagination.

These Grit and Growth Mindset kinds of skills cannot be learned and practiced in isolation or by sitting still listening to someone else lecture to them. These kinds of skills are learned by actively engaging in real life like kinds of problem solving, work with their peers collaboratively on important projects, and struggling to develop new ideas and skills (Framework for 21st Century Learning, 2011). Students have to be allowed to experiment and fail, develop new ideas, and experiment again. Failure, of course, has to be seen as an integral piece of the learning process (not something to avoid). Techniques like Project Based Learning (PBL, 2016) become more utilized in this kind of process. It can be messy and seem somewhat chaotic but that is how real growth in the important Grit and Growth Mindset skills happens. The more real life these kinds of activities can be the better. In this process the normal curriculums become vehicles for the students to learn the transdisciplinary curriculum they need for their future success. Every class has to teach critical thinking, problem solving, communication skills,

cooperative skills, creativity, and all of the other skills listed above. If we are serious about the future success of our students then this has to become a priority in every classroom.

Conclusion

Grit and Growth mindset skills are at least as important as are curriculum skills. If we are serious about the future success of our students no matter where they go after they leave our skills, we will work hard to help them achieve the knowledge and skills of Grit and Growth Mindset. Our students live in a real world where they will face problems and have to make important life decisions. The stronger they are in what they know and in how they see themselves the more likely it will be that they will persevere with hope and passion in their lives. As the world continues to struggle with the issues of today and the issues that will develop in the future, it will be important for us to make sure our students have the where-with-all to thrive in their lives. We may have to change how we think, how we teach, and what we teach our students. Maybe we educators need to learn as much about Grit and Growth mindset for ourselves as do our students in their lives.

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