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Fostering Self-Efficacy in the Classroom

Introduction

Society places significant emphasis on raising a student's self-esteem in the classroom. Teachers and parents are constantly praising students for their work within and outside of the classroom. Participation trophies and ribbons are handed out at most elementary-aged functions, with every child obtaining that feeling of accomplishment in everything that they do. A student should feel accomplished in their work and outcomes, but for their results and improvements, not for the reward that comes with it. Modern society has become so fixated on raising children's self-esteem that students now do not know how to fail. If students are continually praised every time they hand in work or complete a task, then the first time that they are not praised, they do not know how to handle it. Failure becomes an overbearing feeling that ends up deterring students from success rather than fostering it. Failure is needed in a student's learning experience as they need to learn how to be resilient and overcome challenges in life. A student cannot learn from their mistakes if they are never told they made a mistake. For a student to become truly successful, they need to know how to fail and how to learn from their failures. Teachers need to shift their focus and examine their educational pedagogies and the workings of psychology to see where they can work together to create a more prosperous classroom. Instead of constantly focusing on a student's self-esteem which is confidence in one's self and their abilities, educators need to start focusing on establishing self-efficacy in the classroom. Self-efficacy is a person's belief in their ability to succeed. Students with strong self-efficacies understand that failure is

okay and a part of the learning process. Focusing on the development of self-efficacy helps students learn to work towards success regardless of the outcome. Boosting a student's self-esteem will grant them immediate satisfaction, however, the student will not learn from their mistakes. Allowing a student, the opportunity to safely fail and learn that they can overcome mistakes and challenges grants them confidence in their abilities that lasts. Short-term student success comes from raising a student's self-esteem, long-term success comes from fostering self-efficacy.

Motivation in the Classroom

Motivation is the driving factor in everything that people do, and it plays a significant role in fostering self-efficacy in a student. Motivation drives students' educational experiences. To help understand what drives student motivation, one can investigate Edward Deci's self-determination theory. Self-determination theory is a theory of human development and focuses on people's inherent motivational propensities in both their ability to learn and develop (Ryan & Deci, 2020). This theory proclaims that one needs competence, connection, and autonomy to achieve psychological growth. According to Deci, people are driven by a desire for growth and fulfillment (Ryan & Deci, 2020). Autonomy, one of the driving factors of psychological growth, is the feeling that one is in control of their behaviors and goals and that change will result from their actions. Teachers can implement the ideas and principles of self-determination, especially the feeling of autonomy in the classroom to help foster motivation to succeed within their students.

Teachers who desire to foster autonomously motivated students emphasize intrinsic motivation, the willingness to succeed for the benefit of one's self, in their classrooms.

Autonomous motivation is engaging in behaviors that align with one's personal goals. Those who are autonomously motivated have strong self-regulation and can regulate their behaviors. (Ryan & Deci, 2020). Understanding one's self and what education works best for them is an essential starting point for autonomous motivation. Having clear goals helps keep one in the mindset of focusing on the task at hand.

Goals and desires help to establish the outcomes in which the student can achieve by providing the push that many students need. The more one learns and steps out of their comfort zone, the more "internalized the motivation, the more it becomes part of a learner's identity. For example, Skinner, Saxton, Currie, and Shusterman (2017) showed that basic need satisfaction was associated not only with higher engagement and performance in STEM courses but also greater identification of oneself as a scientist" (Ryan & Deci, 2020). Students who want to do well solely to benefit themselves and gain more knowledge are students who succeed in school. They are the students who see themselves as scientists, writers, businessmen, architects, they see themselves succeeding in achieving their goals and have high rates of self-efficacy. They have a desire to succeed and do well in their coursework, taking steps to prepare themselves for learning.

To build self-determination, one needs to take control of their life and one's education. An educator can start letting students take control of their education at the early elementary level by allowing them to partake in classroom decision making and granting them the ability to express their opinions. Allowing students to take control of their actions not only builds confidence in their abilities, but it deters students from feeling that they are constantly being told what to do. Constantly talking at students and dictating each step a student must take does not only hinder the student's ability to think on their own but deters their academic motivation they

feel as if they are not in control. Those with high levels of self-determination take responsibility for their behaviors. They receive praise and credit for their success but understand that they need to take the blame when they make mistakes. People with self-determination also base their actions and behaviors on their future goals. They engage in activities and projects that will help them achieve their goals (Cherry, 2021). Opening options for students to take control of their actions allows the student to explore their own emotions and reflect on what will lead them to success. Fostering a mindset that one's locus of control dictates their outcomes in life helps students achieve intrinsic motivation and what to learn for their benefit.

Intrinsic motivation is a mindset that is developed over time; therefore, it can be difficult for students to find motivation within themselves to exhibit good behavior and complete their schoolwork. External incentives, however, peak student interest especially at the younger grade levels. Extrinsic motivation is a common form of motivation that teachers implement in the classroom as it is highly successful in getting students to follow directions. Extrinsic motivation is rewards-driven behavior with student motivation driven by praise and incentives. While praise and rewards easily work to motivate students, over implementation can cause students to expect these incentives every time they do work. Overuse will cause student self-esteem to become reliant on these affirmations as one looks for constant praise and assurance to ensure that they are doing a task right. A classroom needs diversity of thought as well as a diversity of motivation. Every student has different needs and motivation tactics; therefore, a combination of extrinsic and intrinsic motivation needs to work together to motivate students. Solely relying on extrinsic motivation to gain positive student engagement can lower self-determination by undermining the autonomy that the student was fostered within themselves. Solely engaging in a behavior because

it will bring external rewards causes feelings of a lack of control in their behaviors, diminishing self-efficacy and intrinsic motivation.

How Motivation is Implemented in the Classroom

Teachers utilize motivation techniques every day to get their students to exhibit ideal behavior as well as complete an assignment. Extrinsic motivation is the most seen form of motivation, especially in elementary classrooms. Teachers use incentive charts, prize bins, and pizza parties to entice students to follow rules. Extrinsic motivation is also fostered through constant praise and affirmations. Telling students, they are doing a good job regardless of the quality of work they turn in gets students accustomed to receiving praise for their work, and they rely on this praise to feel accomplished. It can also hinder the student's quality of work as they can develop the feeling of no motivation to turn in a higher standard of work when everything they hand in receives the same praise.

Intrinsic motivation is fostering a love for learning within the classroom. Getting students motivated to learn through a love for learning sets students up for ample success. Students who are intrinsically motivated are passionate and desire to explore. They research topics that interest them solely because of their love for learning. Students who are intrinsically motivated might research new vocabulary words because they love to read or read a book about volcanoes because they are fascinated by Earth Science. They complete tasks and show good behavior because of their love for learning, not because someone is giving them a piece of candy for it.

According to George Bear, Jessica Slaughter, Lindsey Mantza, and Elizabeth Farley-Ripple's 2017 study of 10,344 5th to 12th students, greater use of praise and rewards is associated with higher extrinsic motivation. This means that students who are constantly praised and rewarded tend to be motivated solely by other rewards that come with the completion of

work. Their study also found that ample praise in the classroom, however, does not lower intrinsic motivation. Once a student has the drive to work towards their own goals and accomplishments, external rewards are simply incentives. They are no longer the driving motivator for them to succeed as personal satisfaction is enough (Bear et al, 2017). Fostering intrinsic motivation sets students up for a love of learning, and this love of learning helps students gain confidence in their ability to learn. “Intrinsic motivation influences school achievement through the change of the behavior engaged in school. When students are highly intrinsically motivated, they are more willing to solve the relevant task, love the subject, and thus choose to do the school work; the increase of the school behavior and engagement promotes the final outcomes” (Liu & Hou, 2018). Students who have high self-efficacies have strong senses of intrinsic motivation as they are more likely to complete a task willingly if they have confidence in their abilities to do so. Implementing more techniques that foster intrinsic motivation, like educating students in topics that pique their interest help to not only foster an inclusive classroom environment, but helps students gain the confidence in the material and confidence that they can overcome what lies ahead of them. Increased use of extrinsic motivation in the classroom boosts a student’s self-esteem, but it does not foster the self-efficacy a student needs to succeed. Creating opportunities for students to capitalize on intrinsic motivation, however, fosters self-efficacy and increased love for learning.

Self-Efficacy’s Role in Test Scores

Confidence plays an ample role in success. If one has confidence in their abilities, they can stay calm and help their brain process the information at hand. Research has discovered that one’s self-efficacy plays a role in aiding one’s success when taking a test. When studying for

tests, “strategies that help compensate for deficits in one's metacognitive and cognitive aspects, memorization, or affective states in the learning process will encourage better performance and enhance one's self-efficacy” (Chou, 2019). In a published 2016 study released by the Taylor & Francis Group, they concluded that “self-efficacy in test preparation can be strengthened by the process of test preparation, the use of strategy, and self-regulation of resource management, rather than purely by test-taking practices” (Chou, 2019). Building up a student’s confidence in their ability rather than solely building their test-taking strategies leads to increased success within students. A student needs a combination of both skills to be the most effective student that they can be. This study observed 636 Taiwanese senior high school students in their preparation for their University Entrance Exam English listening test and the results found that the student who had the highest test scores had the most confidence in their abilities to understand basic concepts, their ability to complete assignments effectively, and their ability to master the listening skills needed for the test. They had the confidence that they could not only pass the test, but score well, and this self-efficacy aided their ability to score their high marks. While a different demographic than elementary students, the aid that confidence in one’s ability provides in stressful test taking situations remains the same. Confidence gives students a chance to relax and fully read and understand the questions before them, leading to ample testing success.

Self-efficacy does not only lead to academic success in older students but students at the elementary level as well. “Using a sample of children in 4th and 5th grades, Wigfield and Guthrie (1997) found positive effects of self-efficacy on the amount and breadth of reading, precursors of reading achievement. Wilson and Training (2007) investigated the role of self-efficacy in academic achievement for children in the 1st grade (N = 198) and found that students with higher self-efficacy for reading, writing, and spelling, had higher levels of academic

achievement” (Lee & Jonson-Reid, 2016). Regardless of a student’s grade level, confidence in one’s abilities helps students achieve academic success. Achievement influences test-taking motivation and this relationship between motivation and achievements amplify a student’s final academic achievement. This reciprocal relationship enhances the final academic achievement in the long-term, as self-efficacy helps to motivate students to succeed in their coursework. Building on the foundation of confidence in one’s abilities allows students to transfer this confidence to any academic area that they desire.

Stress and Problem Solving

When one thinks of stress, they usually think of it as a sickness or a negative impact on one’s life, having adverse effects on one’s health. One constantly sees news reports on the damaging effects of stress on the body with weight gain, heart issues, hair loss, the list goes on. That is not always the case, however, as not all stress is bad especially within the classroom. Stress can help a student gain the confidence that they can overcome a problem even in a stressful situation. It is an important basis in learning and development. “Stress has been linked to enhanced motivation, support-seeking behavior, and working harder. Stress has been found to improve mental function, boost memory, and speed up brain processing. It has also been found that a stressor after learning "emotionally laden content" can enhance memory” (Rudland et al, 2020). Implementing positive forms of stress into the classroom setting aids students in building their confidence to overcome difficult tasks. Stress helps students become resilient and confident in their academic abilities. Self-efficacy and confidence that one can overcome the stress at hand help students receive high marks in their educational experience but helps them learn about grit and working through even the toughest problems (Usher et al, 2019). Initial stressors damage

one's self-esteem as the student feels that they are not capable of the task at hand, however, perseverance through difficult situations formulates grit within a student and this grit helps to foster self-efficacy within the student.

The Challenge-Hindrance framework is based on the mindset that not all stress is bad. This framework differentiates between two types of stress and how it affects individuals. According to this framework stressors that negatively affect one's performance are hindrance stressors while stresses that can positively affect one's performance are deemed challenge stressors. Challenge stressors help individuals gain confidence in their abilities and rise to the occasion at hand while hindrance stressors can produce feelings of failure and withdrawal. No two individuals are alike therefore, everyone reacts to stressors differently. "One student may see a heavy workload as a challenge and therefore rise to the occasion, while another may doubt [their] ability to cope, appraise the stressor as a hindrance, and perform poorly as a result" (Travis et al, 2020). Both students experienced the same stressors, however, based on their abilities and their usual workload, this obstacle presented itself differently to the students. If a stressor is judged to be able to overcome, then the situation can be viewed as a learning opportunity and supplement one's self-efficacy. If the stressor is considered overwhelming and uncontrollable, however, it presents itself as a hindrance that can damage one's chances of a successful outcome. "The more confident we are of our capacity to overcome obstacles and dangers, the more likely we are to be challenged rather than threatened and vice versa, a sense of inadequacy promotes threat" (Travis et al). Teachers can implement this understanding of stressors into their classroom by presenting students with challenging stressors to help them grow their confidence in their abilities. "Once a stressor is deemed goal-relevant and controllable, subsequent performance may best be understood through goal-setting and the high-

performance cycle. In response to challenging stress, improved performance results from increased persistence, effort, directed attentional focus, and planning” (Travis et al, 2020). Building upon these challenge stressors helps educators build their student’s confidence. By constantly presenting these challenges, it forces students to gradually step out of their comfort zones and expand their knowledge bases. With constantly keeping students in their zone of comfort, they do not truly learn, challenges are when the growth happens.

The mindset of a student plays a role in their ability to handle the stress they’re faced with. A student’s mindset can “influence how any physiological response is perceived. With a positive mindset towards stress, the perception of an increase in heart rate may be welcomed as beneficial instead of being viewed as detrimental” (Rudland et al, 2020). Teachers can aid in fostering this mindset by presenting frequent opportunities for students to learn to cope with the stressors presented in front of them and complete the tasks at hand. Challenging students with tasks that are slightly out of their comfort zone and having the students try new activities and techniques are some ways teachers can implement this positive stress into the classroom. Frequent interaction with challenge stresses helps students build their self-efficacy and gain the confidence that they can overcome the challenges they are faced with, leading to increased chances of academic success.

Fostering Self-Efficacy

How does an educator foster self-efficacy in the classroom? By setting the students up to fail. Students need the opportunity to fail, make mistakes, and persevere until they find a solution. STEM (Science, Technology, Engineering, and Math) courses force students to undergo constant trial and error until they reach a solution that works. At the early elementary level, students

usually do not get a lot of exposure to science and engineering, as Language Arts and math take precedent in the classroom during a student's first few years of schooling. Students need STEM-focused courses at that young age, to gain exposure to the challenges STEM coursework presents and learn how to become resilient in the classroom at this young age. If students do not learn that failure is okay and a part of the learning process at the elementary level, then they will be shocked, and possibly deterred when they reach more advanced coursework. Students who learn the importance of stepping out of the comfort zone and are not afraid to fail in their first years of schooling, have the sense of self-efficacy that will aid them throughout their educational journey. Mistakes and failures should be an active part of a student's curriculum at this age so that the student can become accustomed to picking themselves up after a failure.

The engineering process provides a safe opportunity for students to learn about the process of trial and error. The design process utilized in engineering can be applied to a multitude of different fields from fashion designing to inventing. Getting students to understand the design process at a young age sets up ample critical thinking skills as well as a foundation for further careers. "Previous research has shown undergraduate engineering students with little exposure to engineering design have had difficulties in understanding and conducting engineering design processes, leading to unsatisfactory academic performance and high dropout rate in engineering programs (Fantz et al. 2011). Therefore, engineering design should be introduced to students as early as elementary school levels rather than waiting until undergraduate stages" (Zhou et al, 2017). Implementing the fundamentals of engineering at a young age aids students in their ability to critically think and understand that things do not go as planned. The engineering design process encourages trial and error as things usually do not work out the first time around.

In STEM-focused classes, students will fail and get frustrated, but this is what they need to learn. Students build their self-efficacy from these failures. The concepts learned from STEM classes can be implemented in a plethora of other educational fields. In a 2017 study focusing on the Influence of Toy Design Activities on Middle School Students Understanding of the Engineering Design Processes, the researchers discovered that the “students who had engineering-related hobbies and participated in formal engineering curriculum experiences in secondary schools reported significantly higher levels of self-efficacy than those who did not have such experiences” (Zhou et al, 2017). Creating something with one’s hand and coming up with effective creative solutions is an energetic moment that students feel proud of. Engineering is not easy, therefore when students complete the task, they feel accomplished. They gain confidence in their abilities to solve problems and perseverance through difficult times. “Previous research has identified that with increased exposure to engineering design activities, students’ understanding of engineering design processes grows in various aspects to allow for more effective design practices” (Zhou et al, 2017). STEM coursework has a multitude of uses, therefore, it creates the opportunity for the knowledge learned in one aspect to be transferred to another. The more exposure that a student has with STEM practices, the more that they develop within that field, and other areas of study as well. STEM fosters a student’s creativity and self-efficacy that can be applied in all of one’s academic areas ranging from English to forensics. Once the students have the confidence that they can effectively complete the coursework, the possibilities are endless on how they can apply that knowledge to other aspects of their lives.

STEM education also creates an academic foundation that all students can work from by fostering self-efficacy within the students. In a 2018 study published by the Journal for the Education of the Gifted, they studied students from a rural economically disadvantaged

community. Before the study, these studies did not have coursework in STEM fields. The researchers' results discovered that the “students and teachers expressed satisfaction with program participation and that they thought more creatively and critically about their work. Results also showed that students’ perceptions of the mathematics and science activities were significantly different” (Ihrig et al, 2018). These students could not previously explore STEM concepts, but once they did, the results quickly uncovered that the knowledge they learned from the STEM coursework benefited the coursework in other academic fields. STEM-based programs force students of all ages to think critically and challenge themselves to develop different solutions. Students do not have the opportunity to simply look up and answer or ask their friend for the solution, it forces the student to ponder on the solutions and try one until it works. This model can be frustrating for students who are not accustomed to this framework, however, once they find their solution, students feel immense confidence and pride in themselves. STEM coursework provides the students the opportunity to expand their knowledge and create things that they want. It allows for a sense of academic dependency which is essential in a society when information is so readily available. STEM course might impact immediate self-esteem as the student has initial feelings of self-doubt, however, through perseverance and seeing their work come to life and be successful, students foster self-efficacy within themselves that can be applied to every academic area in their lives.

Conclusion

With little academic studies conducted focusing on self-efficacy’s roles and STEM education at the elementary level, one can utilize the research done with older demographics and adapt it to fit the needs elementary students. Fostering self-efficacy should start at the elementary

level as solely raising a student's self-esteem does not benefit the student in the long run. Helping a student establish a strong self-efficacy, however, provides the foundation they need to create life-long academic success. Modern technology allows for information to be available at a moment's notice. Students are living in a world where they do not have to work as hard to receive information. They are also constantly be told that they are a winner regardless of what they do and what they hand in. This does not foster academic success in students. When everything is readily available and they are going to receive praise and celebrate regardless of what they do, there is nothing to motivate students to foster an academic drive within themselves. When students reach high school and college and these academic supports and praise are diminished, students do not know what to do and how to handle these situations because they were never taught. Students need exposure to success and failure at the elementary level. With all things comes moderation, therefore, teachers need to implement a balance between fostering extrinsic and intrinsic motivation to get their students excited and willing to learn. Students need to be academically challenged and pushed out of their comfort zone as the self-efficacy a student gains aids them in all aspects of their lives. They need the challenge that STEM coursework provides as it allows for a sense of critical thinking and problem-solving skills unlike the challenges seen in other academic areas. Fostering a STEM identity within students helps to foster lifelong learners by establishing strong self-efficacies. A student's self-efficacy steps them up for academic success, therefore establishing this sense of confidence at the elementary level is a critical factor in ensuring that the student is prepared for success.

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