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POSITIVE INTELLIGENCE TRAINING TO DEVELOP SELF-AWARENESS FOR ENHANCING STUDENT LEARNING POTENTIAL DURING HIGHER EDUCATION

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ABSTRACT

Positive intelligence (PI) training can produce a transformative impact on college students. PI, a branch of human psychology, provides a tool to identify significant compulsive habits that can inhibit students' learning potential and ability to understand others. This paper discusses the two training methods adopted for teaching graduate and undergraduate students. It is considered that including such training is fundamentally crucial for developing 21st century STEM workforce with a well-rounded personality. However, PI training may consume a significant class time allocated for covering course contents under the degree-specific curriculums. Starting a new course may increase the credit overload beyond the approved BS and graduate credits. This paper discusses introducing different modules in the existing classes to foster PI training. The PI training method for undergraduate students focuses on self-education via online videos and freely available content and self-assessment tests. Undergraduate students were given a set of questions to guide them about the important PI topics and to pay attention while self-learning the PI elements. The PI assignment starts with the familiarization of the Maslow hierarchy of needs governing the motivation behind human actions. This assignment mainly focuses on understanding the sage mode in which a human tends to utilize their latent and earned skills towards the attainment of goals and living life purposefully. The PI assignment had several questions on self-sabotaging "saboteurs" and judging traits that almost everyone develops as a survival mechanism while facing emotional and physical survival challenges for an extended period. During class discussion saboteurs, students were exposed to the saboteurs staying in each of us stealthily and getting triggered with the hint of even false threat to compromise our learning and performance. Students are asked to take free online self-assessment saboteur test to find the numerical values of their traits and do self-evaluation and plan to counteract the effect of self-sabotaging habits. PI training fulfills ABET student learning outcomes focusing on developing their life-long learning skills. This paper mainly discusses the PI training for graduate students under the mechanical engineering department. PI training is one of the first and essential modules in the mandatory MECH 500 Research Methods and Technical Communication course. Graduate students enrolled in this course are first introduced to the importance of PI and potential impact in developing self-efficacy. After the initial introduction, graduate students are asked to do the following (a) Complete the abovementioned assignment given to the undergraduate student, (b) prepare a presentation on PI by including their insights for class discussion. After the PI training, students were asked to reflect on their competence in PI and the ability to apply it. In the survey and direct feedback, students expressed the value and appreciation for the PI training. Students also expressed the need to provide this training to large masses for developing an emotionally mature society of parents, teachers, and students, producing creative, innovative, and emphatic civilization.

INTRODUCTION

The learning potential of a student is strongly dependent on their mental habits and ego produced by several emotional and physical survival challenges during the childhood phase. Most of the human spend their lives how much negative impacts their own ego or habits developed during the prolong threats for their emotional or physical survival. A student sitting in a class positively nodding for the unclear course content is a good example when such self-sabotaging habits and past survival habits may be overshadowing a student learning potential. Students' learning style is found to be a strong predictor of the level of their emotional intelligence [1-5]. How a student will know why he is procrastinating in doing time sensitive

assignments when he is in the college to spend time on such activities? How a student will know what has changed his childhood curiosity to learn anything their five senses experience to now living in judgmental state and unknowingly depriving themselves from growth opportunities at professional and personnel levels. How does a student will know what the way is to estimate their current self-sabotaging attitudes and regain the child like joyful state and automatic learning mode that all human is born with?

Unfortunately, current education system especially in engineering fields pay no attention on a student's self-limiting psychology and treat this topic as unrelated or not doable. Many instructor, who recognize this topic of improving student emotional intelligence, a mental attitude supporting wise decision making in most difficult time, have expressed concern about the abstract nature of the training and find it very cumbersome to include in the curriculum.

It becomes utmost important for the educator and learner to be cognizant about the evolution and application of factors that govern the mental state of a human. In a large number of studies, it has been found that the success of a professional is strongly dependent on their skills to manage themselves and associated responsibilities in a demanding environment and challenging situations involving other people [6]. It is important to note that present day Human Resource training keep a strong focus on emotional intelligence and almost every employer desire to have an employee with positive attitude. However, neither in parenting nor in college attention is given to keeping track of evolving nature as we transition from childhood to adulthood. A human, unless enlightened by life events, kept living with entity they assume in the process of developing survival tactics in and out of homes. However, when entering professional life and careers they everyone is expected to be a wise person with positive attitudes. Unfortunately, the process of making an adult who is joyful, emphatic, curious, innovator, and problem solver (JECIN) is a extremely random and dependent on chances. How nice it will be if as advance society we develop effective methods of making JECIN adults.

For parents and teacher interest in knowing the process of making JECIN adults may be extremely valuable. They like it or not present-day employers make sure their human resource (HR) department or hiring units seek JECIN employee so that a business can perform at its highest level while employees are enjoying their work and camaraderie.

This paper is an effort to infuse state of the art yet practical training for students, and for educators and parents as most of us are also full of limiting habits, about self-diagnostic of negative mental habits and egos. Recently, a much more useful concept was initiated as a positive attitude development tool and popularly termed as positive intelligence (PI) [7]. PI is founded on the age-old doctrine that JECIN people can use the worst situation in life to thrive. However, most important gift of PI is that it empowers common people with a self-diagnostic tool to quantitatively "estimate" hidden saboteurs that cannot be spotted or identified. By taking a freely available self-assessment saboteur test one may start evaluating their limiting habits and work on those aspects to achieve all round successes.

This paper describes our efforts to develop class assignments to bring PI education to engineering students. We have developed different types of assignments for high school students, undergraduate students, graduate students. This paper focus on describing the elements of the class assignments to educate students about PI [7].

While in sage mode a person focusses on thriving from the problems around them. However, in saboteur mode, one mainly focusses on survival and miss the opportunity to make good use of their talents and training by finding opportunities in challenging situations and setbacks. If a person is forced to face survival problems for a long duration, then as a coping mechanism, they start acquiring several saboteurs in their personalities. There is one head saboteur known as a judge. The primary role of the judge is to distinguish any potential harmful scenario. However, if one becomes a habitual judge to get some sense of security, they start judging everyone and everything, eventually leading to difficulty in mixing up or working with others. According to the PI, along with the judge, nine other saboteurs arise when we adopt a certain type of coping mechanism (assert, earn, avoid) to face an emotional or physical survival challenge (independence, acceptance, and security). An in-depth discussion is presented under results and discussion about the saboteurs. We hypothesize that exposing college students to PI can be extremely important to unleash their learning potential and also to provide them strong foundation for their growth in a chosen career. This paper discusses the method of exposing college students to the knowledge of PI [7].

METHODOLOGY AND DISCUSSION

The PI training is offered to students enrolled in MECH 500 Research Methods and Technical Communication. The key objectives of this course is to prepare graduate students in

(a) attitude for doing high impact research[8], (b) effective writing skills, (c) design of experiment approach to solve multivariable problems [9, 10] , (d) manuscript preparation, and (e) oral presentations, (f) Collaborations etc. , (g) self-motivated skill building., and (h) ethics. Luckily, most of the elements of MECH 500 course is complementary to the PI education.

Step-1 In the beginning of the course a class discussion is conducted about the transformative discoveries and scientists. This discussion is geared toward bringing attention on the motivation of the scientists and inventor that propel them to create circumstances or embrace the opportunities to do innovative work. We also conduct a discussion of different mental attitudes necessary to be able to enjoy your career or seek the job that suits to one's skills and strong natural inclinations.

Step-2: Understanding Maslow chart of hierarchy of needs:

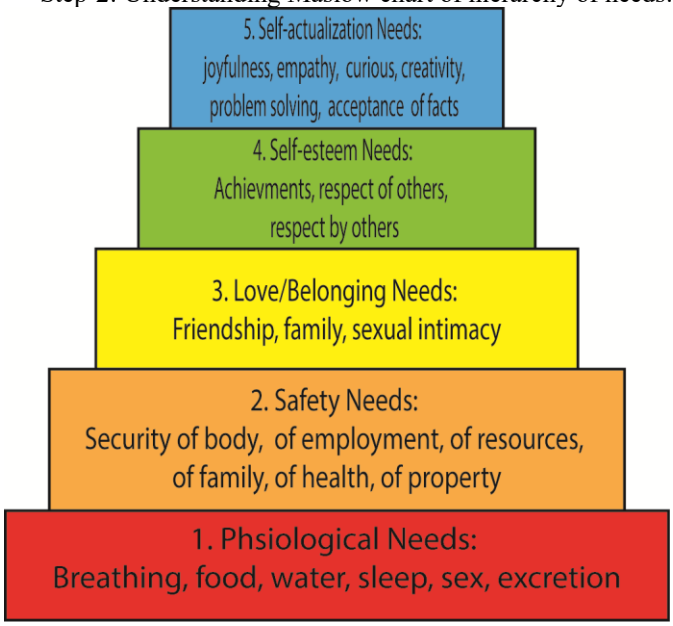

Fig. 1: Maslow pyramid of hierarchy of need.

Students are asked to prepare a comprehensive presentation on the various elements of the PI. To prepare foundation in the field educate themselves with positive intelligence (PI) by going through freely available online videos. To appreciate the origin of the PI students, understand the Masolw pyramid of hierarchy of needs (Fig.1). The understanding of Maslow pyramid is believed to encompass the wide range of motivations human have behind their every day actions.

Typically, children below five-year ages generally are less concerns about the 1-4 levels of the pyramid and hence their already quite close to be JECIN human that is desired by most of the employers and needed to advance human civilization. However, in the process of growing up a child must start facing the safety needs (level 2), and family/friends/society acceptance to meet emotional needs (level 3). Commonly, a child is forced to learn or start realizing the need to be an achiever to get conditional love and acceptance from family and friends. Being achiever, and successful also ensure safety and physiological needs. Unfortunately, most of the human spend most of their lives under 1-4 levels of motivations. If living under 1-4 level needs is solely due to survival needs and happening for long time then as a natural process human start developing invisible defense shields a.k.a ego and also known as saboteurs.

Students are assigned to familiarize with Maslow chart of hierarchy and find two examples for each level. They expected to describe two people they have met or came to know about whose motivation represent the different level of the Maslow chart. It is noteworthy the basic text of the PI did not delve into similar discussion.

Step-3: Learning about different type of saboteurs: Students are asked to self-educate about the sage mode (thiving mode) that correspond to the fifth level of Maslow chart and the saboteur modes. For this self-education students are referred to the following two resources
https://www.youtube.com/watch?v=ta5IkSsc8qk
Step-2 Learn about definitions of positive intelligence terms (e.g. sage, saboteurs) from the website
https://www.positiveintelligence.com/

Step-4: Self-assessment to gain quantitative estimate of their own saboteur and positive quotients (PQ). Students are asked to try the saboteur assessments and evaluate the validity of results. Authors of this papers have also done these assessments and evaluated the validity of the test results.

Students are asked to make a presentation on Step 1-4. Students are given 30 minutes to discuss their depth of knowledge.

So far 11 students participated in this assignment under MECH 500. Ubiquitously, 11 students who participated in this exercise expressed the understanding of saboteurs quite accurately. From their presentations and accompanied discussion saboteurs were defined as.

Saboteurs are your invisible auto-response or split personalities that sabotage your work and relations. Our saboteurs have very limiting beliefs and assumptions about how to deal with life's challenges in personal and professional life. These saboteurs are named as the Judge, Controller, Stickler, Avoider, Hyper-achiever, Pleaser, Victim, Restless, Hyper-vigilant, and Hyper-rational. These saboteurs are a source of all your anxieties. These saboteurs related anxieties produce unhappiness and negative feelings. Saboteurs frequently take control of brain and you listen to what they say about someone and something (not what your wise sage will say). One can learn to identify saboteur voices to avoid any loss of opportunities, and by activating a different voice in your brain known as sage voice. By acquiring sage mode, one performs far better while producing positive feelings like curiosity, empathy, creativity, and peace, with a laser focus on action.

Table 1: Origination of saboteurs due to a specific long-term reaction style to three categories of survival questions.

		Motivation		
		Independence	**Acceptance**	**Security**
Reaction	**Assert**	Controller	Hyper-Achiever	Restless
	Earn	Stickler	Pleaser	Hyper-vigilant
	Avoid	Avoider	Victim	Hyper-Rational

Students were also asked to discuss the cause-effect table (Table-1) that produce saboteurs.

In the first offering of MECH 500 course during Fall 2018 the PI training was only limited to the self-education and presentation assignment. In the fall 2019, we added a second component to further this discussion. Students were asked to learn Taguchi Design of Experiment by conducting thought experiments on Positive Intelligence related topics. For though experiments they were asked to collaborate with whole class so that all the classmates help in each other projects.

In fall 2019, we formed three groups to do the following three projects.

Project 1: Effect of changing lifestyle on saboteur level: Participating students conducted a brain storming session to identify what are the four critical factors. Students restricted to four major factors only to make their study manageable and insightful.

Project-2: The Study of The Variance of Saboteurs using Taguchi Design of experiment.

Under the project 2 students investigated the effect several factors decided based on the input from whole class.

RESULTS AND DISCUSSION:

Students' presentations are graded as per rubric that tested students (1) Content of the presentation, (2) Depth of understanding and ability to answer the conceptual questions, (3) quality of performance. It was amazing to see most of the students highly appreciated covering PI concepts under this course. Three co-authors on this paper are the graduate students who attended this course and started applying PI in their lives.

Under the project, -2 students delve into various aspects of making PI assessment accurate trustworthy. This research project aims to study the variance of saboteurs influenced by external conditions. According to the Positive intelligence assessment results, saboteurs differ from one person to another because saboteurs have been formed in our early childhood and were shaped as we grow up. These saboteurs, however, can change when taking the assessment multiple times on different occasions. The rationale of this study to show that, indeed, self-saboteur can be affected. The study is also done to understand how these external conditions can be managed to design the right way to do self-evaluation. For this study, the aim was to determine if the prevalence of an individual's saboteurs varied based upon adjustable variables. The variables that we selected to change were diet, the time. Then students conducted nine tests based on L9 Taguchi Design of experiments.

After designing, students worked in team to manage the 9 experiments. After collecting data, they utilized Taguchi analysis to study the effect of a factor on variations. Taguchi's analysis provided clear insights into the role of individual levels of different factors. This analysis also delivered the percentage influence of individual elements (Table 1). Students learned that listening to various types of music while taking a test created the most considerable variation.

Table 2: ANOVA analysis of factors affecting variation in PI self-assessments.

S.No.	Factor	Percent Influence
1	Hunger	15.72
2	Time of day	25.26
3	Day of week	23.86
4	Type of Music	35.14

Hence, MECH 500 fostered the PI education by teaching several essential skills such as design of experiment, error analysis, and ethics in maintaining and generating data.

CONCLUSION

This paper described the approach adopted for teaching positive intelligence to graduate students attending the MECH 500 Research Method and Technical Communication course. This course fostered PI education in two ways (a) by asking students to prepare and present a comprehensive presentation on core concepts of PI. (b) Doing research project on PI related topics to learn the design of the experiment, data analysis (e.g., ANOVA), ethics in data generation, and finally, making a poster presentation on this the research project. The selection of PI-based research topics are well justified as students currently take this course from different departments. In the future, it is expected that non-engineering students may also attend this course.

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