

General Education for Science and Engineering Students

Duck-Joo Lee^{*,†}

^{*}KAIST, Department of Aerospace Engineering

ABSTRACT

The principle of materialized world is the same as of human life. The human life is governed by the human mind composed of the copies of the materialized world. The stress is due to the human mind inside. The creativity is prevented by the copies in the human mind. The convergence is not easy due to the individual copy world which is different from each other. By subtraction of the copies inside the human, the creativity and convergence can be fulfilled. Syllabus of the lecture at KAIST is introduced. Students taking the lecture express the non-materialized world of human mind clearly after the subtraction the copies inside. The students who recognize the stress inside specifically can be free from the stress by discarding the copies inside.

Keywords: Engineering Education

I. Introduction

General education for science and engineering students is essential to be an excellent scientist and engineer. However, universities provide limited opportunities of general education to students. They may have difficulties to work with other people in the company after graduation. Students at science and engineering universities like KAIST are in much more limited environment for the general education. We can ask ourselves "What is the role of general education to engineering and science students?". It may improve their ability to express their works to other people, to listen other people's opinions, to evaluate their works in the point of other people's view, to achieve their goals in the society and to set goals of their life. Those improvements lead to the happy life. However, scientist and engineer generally have a lot of stress at the office and at home because of the lack of time for the general education during the school days. My suggestion at this time is to learn communication skills, the depth of their recognition about their work, ingredients necessary for their happy life through so many required technical courses. It can be possible because the principle of materialized world is the same as the behavior of life. The limited general education then can be focused on the

practice how to discard the stress by knowing the principle of the stress.

II. Chinese Book 'University'

I will introduce the phrase from the Chinese classical book[1]. '大學' "University". 格物致知 正心誠意 修身齊家 治國平天下. To be in a peaceful world, family affairs and self problems should be well governed. The first step in the action item is knowing that everything materialized has its own property and the life is the exactly same as the materialized property. The second step is that you should have the righteous mind with sincere attitude. The phrase suggests a very logical way to be in the peaceful world.

1. Materialized world

People should know their professional engineering and science works deeply and they should know that the behavior of life is the same as the materialized world. Therefore, the professional education and the general education cannot be separated if we really understand the life and materialized property. As an example, one of the properties of materialized world is the behavior of aircraft. The fastest way to the designated altitude is not the straight trajectory. The trajectory[2] is shown as in Fig. 1(a). At Mach1, the property of resistance is maximum

Received 30 June, 2014; Revised 30 June, 2014

Accepted 30 July, 2014

† Corresponding Author: adjlee@kaist.edu

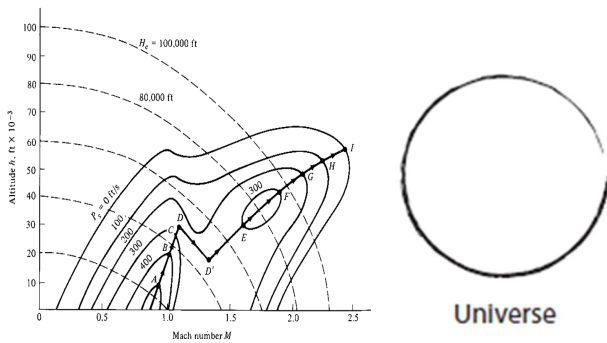


Fig. 1 (a): Trajectory of aircraft[2]. (b): One Universe mind

because of the sudden increase of drag on an aircraft. It takes time and power in climbing after passing the speed zone. If the aircraft goes down, the aircraft passes the Mach1 zone easily by using the potential energy at the altitude. Later, the aircraft climbs to the top without the extra resistance quickly. The total time to the top is the shortest if the aircraft follows the up down trajectory. Life is the exactly same according to old saint advice. If there are difficulties in the life, find the other way for the next opportunity. It is called the wisdom. It seems to be the slowest decision but it is the fastest way at the end. You may find examples in many different fields of engineering and science. It is a good starting for the scientist and engineer to know the life from their professional fields.

2. Righteous Mind

The next step can be a bottle neck to go to the further steps. To have the righteous mind(正心) is not clear. It is because there is no definition of the mind in general. But if we know that the mind is composed of people's experience, it becomes more specific. Also if we know that some experiences are remained inside whenever their emotions are excited, it is called the human mind inside. One of the biggest problems is that we judge everything based upon the mind inside. More serious problem is that there are many minds inside. And everyone has different minds even if they have the same experience. Therefore, the conflicts between people are due to the different minds. The righteous mind in Chinese 正 is composed of 一 and 止, which means it ends(止) as one(一). In other word, to be the righteous

mind means to have one mind. It can be thought as an original mind before the many minds inside the human mind. It can be said as an Universe mind as shown in Fig. 1 (b). But inside human mind, it is composed of a lot of pieces of experience in the outside world. Most of them remained or stored inside is the same as of the world outside visually. The stored is not the real one. It seems to be real but it is a visual world. In other word, it is the visual copy of the real world. The mind remained is a copy of the materialized world. It is much more clearer about the mind especially for engineering and science people because they know the properties of the materialized world very well .

The copy of the world is different from that of the others because they recognize the same world with their own experienced perception, which is different. Those differences are the cause of conflicts of cultures in a global point of view as well as the conflicts of opinions in individual point of view. The conflict is the vital cause of war between the countries in the global world or between people in a company and in the family. Even a small conflict inside can be a cause of enormous results. Therefore, the peaceful world cannot be expected forever because of the different copy world inside each other.

III. Copy world

1. Problems

Materialized world itself is very natural, but differently recognized copy world of the materialized one is the problem. Stress, communication, happiness, peace, creativity and convergence are all directly related to the individual copy world inside.

Marvin Minsky said, 'We normally assume that consciousness is knowing what happens in our minds right at the present time. But the consciousness does not concern the present, but the past'[3]. The past is related to the information of copy. Freud characterized repression as both a cause and a result of anxiety[4]. The cause of anxiety is due to the repressed copy world. The repression can reduce the anxiety but it is not the fundamental solution to remove the anxiety. Gestalt Psychology[5] deals about

the elements and the total. In the reference, it is defined the principle of totality as; The conscious experience must be considered globally(by taking into account all the physical and mental aspects of the individual simultaneously) because the nature of the mind demands that each component be considered as part of a system of dynamic relationships. It can be interpreted that the copy world inside is composed of many elements and the response of human depends on the current condition and the elements inside the human mind.

Professor Yoro Takecy[6] in Tokyo University, Medical school wrote a million seller book 'wall of idiot', which describes the different recognition of the same situation by the students and the human. 'The self illusion' by Bruce Hood[7] is the same line that the brain recognizes the world with the accumulated perception of memory, which can cause an unexpected action. The action is due to the copy world. Edward Young's(1681-1765) phrase is selected by the committee of Nobel Museum: 'Born originals, how come it to pass that we dies copies?'. This indicates that we are copying every moment during the whole life, accumulating inside and making the copy world, the imaginary world, and the false world.

With rapid changes in today's modern society, stress levels in school students are increasing due to school performance pressures and competitions, peer relationship, and family issues. These factors are linked to anxiety, depression, suicidal ideations and attempts, and other mental health problems[7-12]

As the preamble of UNESCO states: since wars begin in the minds of men it is in the minds of men that the defenses of peace must be constructed[13]. It is talked about the copy world inside the human mind.

Most of problem in psychology are related to the copy world of the materialized world. Now we need the solution for the problem of the copy world.

2. Principles

Human mind is composed of copies of real world[14] The eyes of human being take photos of real world. The photos are memorized visually. The mind is attached to the photos. In other words, whenever human mind is activated during the sensing the world, the photos are

taken automatically without human's will. The human body is the high sensitive camera. Actually the camera was invented by mimicking human eyes. Those accumulated photos in human mind are the stress. Those govern human behaviors. Those make people's solid thoughts. Those are different from each other even people are in the same situation. Those make the wall inside of human being. Those are the cause of individual's conflict. People think those photos themselves. Therefore, it is called 'The self illusion' by Bruce Hood. Those are the copies in Edward young's question.

The reason why we don't recognize the copy world inside and why we think the copy world as the real world is the copy world in the human mind is overlapped exactly to the real world in the universe. If we stretch the human world from the universe, it becomes clear which is the universe and which is the human mind. The human mind is false one, which cause the problems.

3. Subtraction of the copy world

The general education should be focused on the removing the individual copy world inside, which prevents communication, creative thinking, convergence collaboration, and peaceful world. After the many suicides at KAIST, students demanded the fundamental education of human nature. The syllabus taught at KAIST is in Table 1. The responses of the students taking the course are unexpected.

Students defined the mind as a mass because the mass attract the other mass due to the gravity. The mass becomes heavier and heavier. The mind is the same because if you desire some and even you fulfill the purpose they want more and more. It is the endless. Some students define the mind as the relativity. The light is distorted because of the mass. The personal view is distorted because of the mind. The mind is also act as the mass. Some students define the mind as the useless resistance in the electrical circuit because it consumes energy. Another students define the mind as the hysteresis property as the structure made of cement because the structure cannot be recovered as the original, which is the same as the mind never recovering the original.

Table 1 Syllabus

Classification		Selective
Course Code		MAE 492
Course Name	Korean	항공우주공학특강 (지금이 내 인생의 Turning-Point)
	English	Special Lectures (Now is the Turning-Point in My Life)
Name		Lee, Duck-Joo
Lecture:Exp.:Credit		3 : 0 : 3
Mutually Recognized Course(BS/MS) : (O)		Term : (Autumn)
Descriptions of Courses	The aim of this course is to relieve the stress, which have been accumulated from the childhood up to now and to live a happy life. What you have experienced are the causes of the stress. By subtraction of the negative mind, you will have the positive mind and you can concentrate on the present life. During the course, students learn and practice the method how to recall your previous life and how to subtract the false mind. Examples from nature and air vehicles etc. are used to show the direction how to live too.	
Main textbook		
Reference		

Weekly lecture schedules

Week	Topics	Remarks
1(9/05)	Course Overview / Introduction	
2	Inertia Law of Mass, Trajectory of Airplane	
3	Principle of Habit ,Health and Mind, Brain	
4	Space and Human ,Scientific Mind	
5	Recalling My Previous Life, My Fixed Idea	
6	Wall of Idiot, Main Stream of Philosopher	
7	Method of Subtraction	
8	Subtracting My Negative Mind	
9	Subtracting My Future Anxiety	
10	Airplane Wing Loading, Stress and Strain	
11	Subtracting My Stress	
12	Power of Ten, Gravity	
13	Changing My Mind and Body	
14	Summary	

After the subtraction of their mind, they realized that they live as ego centric life. Therefore it is not surprising that they have conflicts between the family and friends.

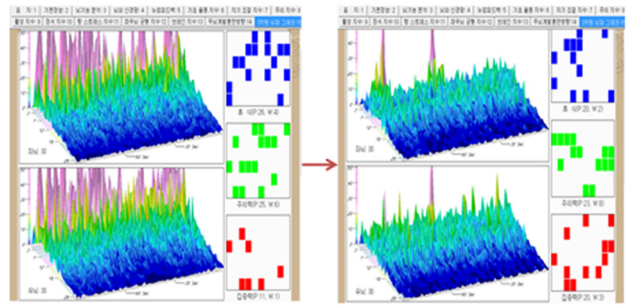


Fig. 2 Brain waves before and after the subtraction[17]

“I really knew that I have lived self-center life. It is for granted that there are many problems because I have met people in the self-centered point of view I tried to think slowly in the other people’s point of view. It is fortunate that there is a method to throw away the mind”

“Memory of applause is the source of my stress, pressure of living according to parents’ expectation”

“Good record of high school days but no good life in the university. But never try to change because of attachment to the past ”

“Those memories always affecting my action, in fact that the past good memories still affect me”

“Much comfortable after throwing away the memories of uncomfortable hatred people” .

“Pursuing perfection and working accurately observing my self “

“Full of loneliness, pain, no meaning of life”

“Many series of thinking, erase the image, feel expanded capacity of mind, different order of change

“Throwing away is not the option ,it is required. After throwing away the water, it is filled with the others”

“Much better to concentrate on current, naturally much room of life”

“Freedom from the hatred”

“Fundamental change in the life”

The Special Lectures was offered also as the sub title of Pursuing the Original of Human and Recovering the Original of Human. Mind-subtraction methodology in Maum meditation is based on the theory of copy world. Stress of teachers can be effectively reduced by subtraction of the mind[15]. Maum meditation programs are shown to be effective in reduction of negative emotions and can lead to

maturity in youth through self-development also[16]. The brain waves are measured before and after the subtraction as shown in Fig. 2

IV. Conclusion

Most of the education in the school is the addition of knowledge. During the life, people are copying the real materialized world. The copy world inside the human mind is the cause of stress, the prevention of creativity, convergence, happiness and peace. It is time to subtract the copy world. The principle of human life can be learned from the major science and engineering curriculum in the university because the behavior of human life is the exactly same as the one of the materialized world .The general education

can be focused to the subtraction of the copy world for the reduction of the stress, improvement of the happiness, communication and convergence.

References

1. Chinese classical book "University 大學"
2. Anderson, "Introduction of Flight", McGraw-Hill Book Company
3. Marvin Minsky, "The society of Mind", Simon and Schuster (1985)
4. S Freud , " *The Ego and the Id* XIX (2nd ed.)", Hogarth Press,(1923)
5. Wiclopedia
6. Yoro Takecy, "Walof Idiot",
7. Bruce Hood, "The Self Illusion"
8. D. G. Byrne and J. Mazanov, "Adolescent stress and future smoking behaviour: a prospective investigation", *Journal of Psychosomatic Research*, 54(4),pp. 313-321.(2003)
9. J. H. Bae and H. K. Chang, "The effect of MBSR-K program on emotional response of College Students", *The Korean Journal of Health Psychology*, 11(4),pp. 673-688.(2006)
10. V. A. Barnes, L. B. Bauza and F. A. Treiber, "Impact of stress reduction on negative school behavior in adolescents",. *Health and Quality of Life Outcomes*, 1(10). (2003)
11. J.S. Park and T.Y. Jung J. S, "The relationship between life stress and happiness in middle and old adulthood", *Stress Research*,19(1), pp31-38,(2011)
12. Y. W. Choi and S.J. Yi , "The effect of emotional perception difference on mental health in college students",. *Korean Psychological Association*, 9(4), pp. 887-901,(2004)
13. Charles Mercieca, "Peace as a break between wars and preparation for new wars", *International conference on human completion* ",pp. 57-60,(2014)
14. M Woo. "World beyond World", CHAM publishing company (2005)
15. I.S.Lee, "The effects of Maum meditation on stress, depression, and quality of life for teachers", *Journal of Human Completion*, 2, pp. 49-7, (2010)
16. M. H.Kim, Y.G. Yoo ,E.J. Lee and M.K. Son, "The effect of Maum meditation program on the aggression and autonomy of the children and the juveniles",. *Journal of Emotional & Behavioral Disorders*, 29(1), pp. 145-171, (2013)
17. Duck-Joo Lee, Yeon-gyeong Yu ,Ji-Suk Lee and In-Soo Lee, "The effects of Maum Meditation program on the brain function of University students", *Journal of Human Completion*, Vol 5,pp. 5-32. (2013)



Duck-Joo Lee

Professor, Department of Aerospace Engineering, KAIST
 Received BS(1977) in Aerospace Engineering from Seoul National University MS(1980) and Ph.D. (1985) in Aerospace Engineering from Stanford University. His work experiences are Professor(1998-), Associate Professor and Assistant Professor(1988-1997), Department of Aerospace Engineering, KAIST. He was a NRC Fellow at NASA ARC,(1985-1987) and a visiting scientist at Boeing Seattle(2007). His current research focuses on Aero-acoustics of Rocket Jets , Computational Aero-Acoustics(CAA) and Accidents of Rotary Aircraft.
 Phone: 042-350-3716
 Fax: 042-350-3710
 E-mail: djlee@kaist.edu