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Appreciating Software Engineering as a Character in the Ethics/Moral Paradigm

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ABSTRACT- Gone are the days when "Might is Right", the law of Jungle use to prevail everywhere, though it still exists but to a much lesser degree. This means that the people & nations have understood their duties & right towards others in the current information or precisely the media age. This would not have come to the existence in the absence of the revolutionary nature of the computer evolution (encompassing almost all the disciplines of life) either Relativism or Emotivism paradigm. In my opinion Ethics is" Acknowledgement of others rights (whosoever & whatsoever) is directly or indirectly related to you & discharging your duties and responsibilities to them to the utmost satisfaction of your inner self. " This research based on the lifelong (twenty eight years) teaching the software Engineering as a computer discipline has envisioned the researcher to attribute software Engineering as a character in the light of the various ethical and moral considerations , theory and Practices.

KEYWORDS- Data, Knowledge, Ethics, Emotivism, Character, S. E. Practices

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I. INTRODUCTION

Ethics and morality are the terms in philosophy used interchangeably. Ethics is generally considered as the standard of good and bad right and wrong that are imposed by some outside group, a society or profession while morality is one's own personal sense of right or wrong, it is not imposed but it is the inner self i.e. Ethics (Relativism) and Morals (Emotivism). The Scientists, Philosophers, Researchers whatsoever either the believers or non-believers, believe in on thing what is called "Righteousness" in any field of life in transacting with other human being or handling even the living , generally called Ethics. This Righteousness is the fruit of kind & pious thinking built into the mankind, preached & practiced by those blessed by their creator whether accepting or denying this fact. Now whatever the definition, Knowledge being Power for the human beings bearing with it an ocean of depth had been considered, as an emblem of supremacy over the angles, the best creation and hence blessed with the GOD's Vicegerancy. Figure 1 below depicts how understanding grows up with Data to the wisdom, while Figure 2 encompasses all the ethics principles as have been suggested and practiced by many organizations of the world.

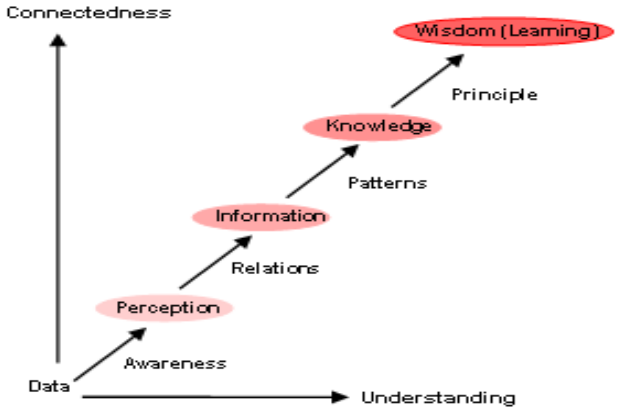

Fig 1: Stepwise progression from Data to the wisdom [14].

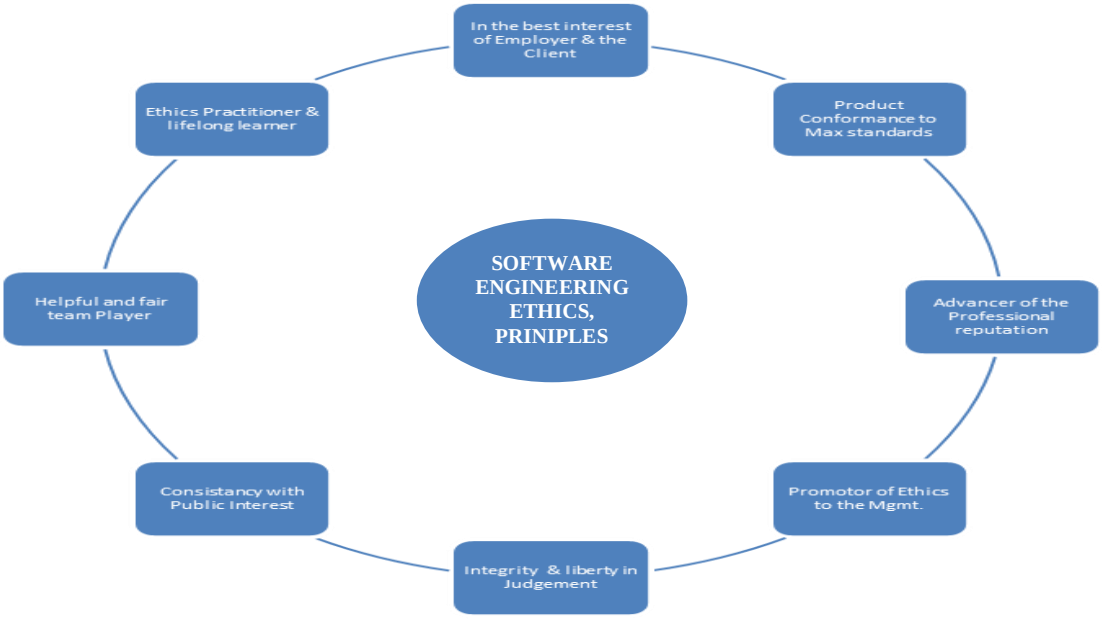

Fig 2: Ethics Principles of Software Engineering in a nutshell [2] [6][11]

II. METHODOLOGY

There are three types of research design i.e. qualitative, quantitative and mixed method [13].The mixed method has been taken into consideration to encompass each aspect. The student population comprising the number 4260, those were taught Software Engineering during the teaching of thirty years starting 1985 period (Even when it was in its infancy as part of the Academics particularly in the developing countries) to the year 2014, for decadal consideration and up to 2019 for the half decade inclusion.

III. RESULTS & DISCUSSION

Time is money: a saying that holds well in the current time situation because the Economic activity [17] produces monetary Data, likewise ethical activity produces firmness of habits and fair practices. The results of the undertaken research whereby in the thirty five years considered period (each year of two regular semester/ terms while one summer semester /term in it) has been divided into three equals decadal periods i.e.

Decade 1: years 1985-1994
Decade 2: years 1995-2004
Decade 3: years 2005-2014,

And in order to consider the trend of students to take the course on software engineering this span has further been divided in to the half decade (five years) like

From 1985-1989, 1990-1994, 1995-1999, 2000-2004, 2005-2009, 2010-2014, 2015-2019 respectively.

The class strength averages ranging from 15-20 and 20-25 minimum and 20-25 and 32-40 students Maximum in the developed and the developing countries respectively has been identified as shown in Table 1 underneath, while the pie chart in the form of Fig.3 shows the percentages as well.

Table 1: The class strength in Developed & Developing countries

Country	Grade's Students-Minimum	Under Grade's Students-Minimum	Grade's Students-Maximum	Under Grade's Students-Maximum
Developing	20	32	25	40
Developed	15	20	20	25

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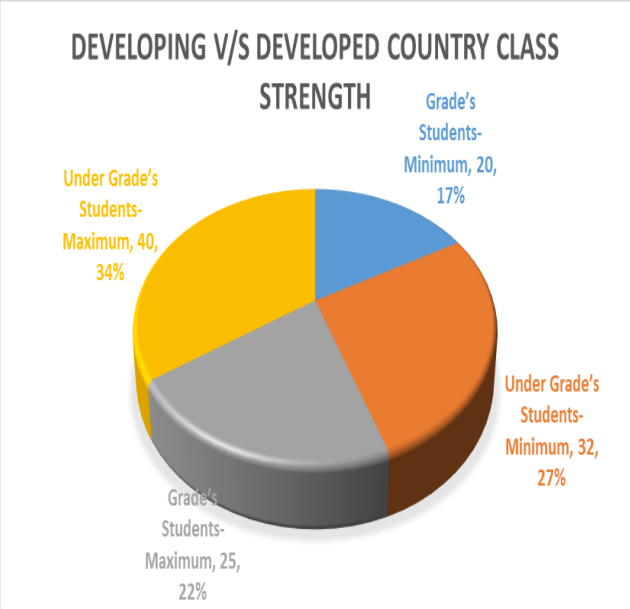

Fig 3: Percentage class strength

Now as mentioned earlier that both the decadal and half decadal periods since 1985 have been considered. These both (decadal and half decadal) periods include varying number of total number of students graduation the increasing trend but the number of female student were lesser than the male as the awareness of the subject and its orientation towards the female population was not so obvious till the start of the next decade that attracted the female students more than the male students considering the chances of more job suitability/ chances for the female graduates in the field of Software Engineering as is evident from the Table2 (Decade wise students distribution Software Engineering class) and the Fig 4 below :

Table 2: Decadewise students distribution Software Engineering class

Duration	Total Students	Male	Female
Decade 1: Years 1985-1994	730	390	340
Decade 2: Years 1995-2004	1120	505	615
Decade 3: Years 2005-2014.	1575	770	805

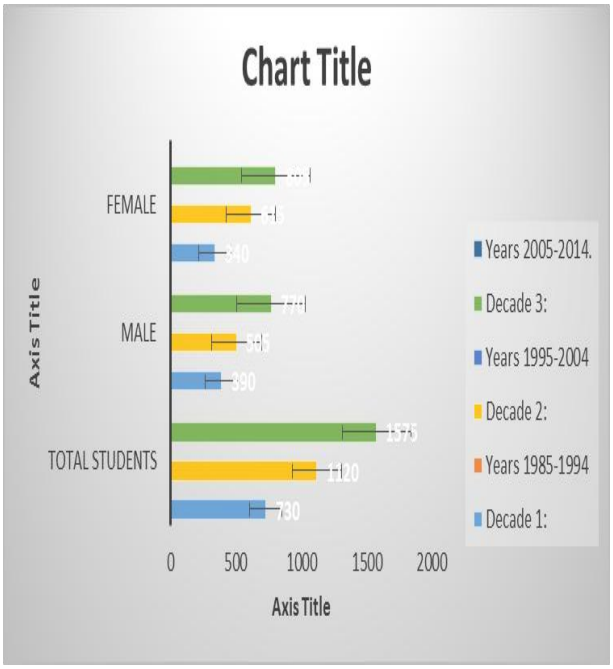

Fig 4: Gender-wise Student Strength (Decadal)

A look at the Table 3 that encompasses 35 years in the half decadal consideration reveal that the trend followed the same pattern as described above for the decadal theme of the period that is Female student were more attracted towards the pursuit of their career as a software engineer This trend of adoption of the subject by the female student got an edge over the male with the start of the year 1995 that is third half decade as shown in the Fig 5 below.

. Table 3:-Gender-wise students strength (Half Decade)

Duration (Half Decade)	Total Students	Male	Female
1985-1989	330	185	145
1990-1994	400	205	195
1995-1999	540	205	335
2000-2004	580	300	280
2005-2009	725	360	365
2010-2014	850	410	440
2015-2019	835	415	420

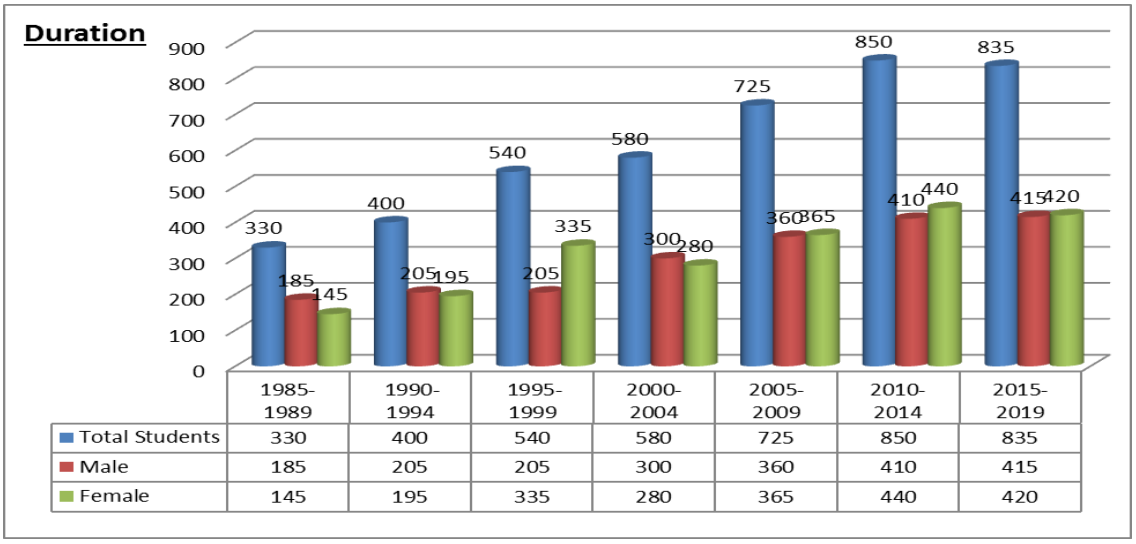

Fig 5: Decadal Male Female (Gender wise) total student

The class as a part of the evaluation had to undergo a presentation. This presentation used to be the grouped one at the undergraduate and the individual at the graduate /postgraduate level. The weightage being twenty percent and the topics encompassed the current issues or sometimes the extended versions of the course topics. The delivery, for the group varying from 30-45 minutes for the undergraduate and 20-25 minutes for the individual graduate student. The distribution of 20% evaluation covered broad range (Fig 6) of Academic, Personnel, organizational and presentation skills. Each group member, evaluated his/her intra and extra group members.

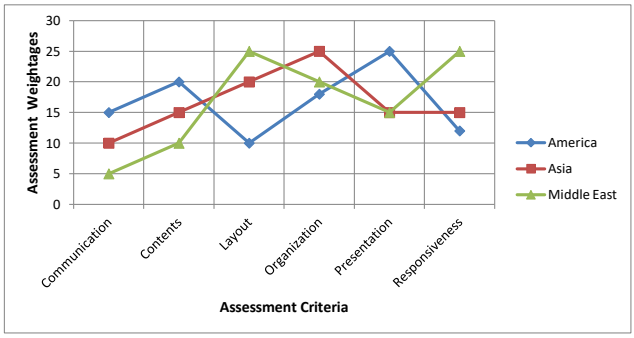

Fig 6: Evaluation criteria covering the developed and the developing countries/

Time is money in the current scenario of professionalism, but this time if not associated with ethics would lead to the lust and greed. The ubiquitous computing and the unbounded technological advancement [14] in its multifarious hybridized nature [16] paved a way to the social media affecting all the professional fields[7] and hence have evolved the concept of Big data/ Data science [4] [12], with the crawlers for their specific and absolute role in the storage and retrieval of the Big data[15] and so is its associated ethics domain within the last decade with its adherence to certain bounds by channelizing the way to protect the human rights [5] in the research disciplines [1] for the no risk or biases to the public for their health data contribution [9]. Based upon these evaluations and thirty five years data, certain factors have been identified as underneath.

IV. GENERAL REASONS FOR DECLINE

1. Students get no guidance from their parents. In higher education it is not possible except in extremely few cases.
2. Some persons, to whom all avenues of life are closed, join the teaching profession.
3. The retention of English as a compulsory subject with higher standard and non-statistical method of its assessment.
4. Some inherent defects in the examination system and the wrong method of conducting it.
5. Teacher-student relationship involving partiality of teachers to certain category of students indirectly leading to indiscipline and failures.
6. Lack of management.
7. Personality problems of students which lead to and become complicated with distractions of city-life, , indiscipline and general ill health among students. This is a factor to which least attention has been paid, but which one of the most important ones
8. Viral media.
9. Teacher often tries to avoid moral issues in relation to their teaching but moral issues are inescapable. Even the organization of the classroom involves a code of morality that generally implies a respect for the right of

others and sometimes the assumption of the basic dignity of each individual.

V. CAUSES AFFECTING PERFORMANCE OF TEACHERS

1. Service conditions of teachers.
2. Constant change of teachers or transfers and other grounds.
3. Inefficient administration in the halls/ hostels of residence.
4. Non-seriousness of some teachers about their duties: they do not pay due attention to the academic problems of the students, have no interest in teaching, and are commercial in their attitude.
5. Lack of encouragement to the serious and wrong encouragement to some that know the art of thriving on non-academic maneuverings.
6. Strong feelings among the teachers that they have no social status and undue importance given by the Government and the public to certain other services in the national life: one of the most important, responsible for the apathy of the teachers.

VI. CAUSES AFFECTING PERFORMANCE OF TAUGHT

1. General indiscipline among students because students get no training from the teachers in discipline.
2. Participation of some teachers in politics, particularly in league with students.
3. Defective teaching methods of certain teachers: one of the most important. They do not prepare there Lecturers well cannot explain things to the satisfaction of students, do not encourage discussion by Students, cannot make their lectures interesting, waste time by their unpunctuality and irregularity at lectures. All this gives impression to the students that their teachers are neither properly qualified nor experienced.
4. Most of the students admitted are not the proper material for higher education and are sent to the colleges and Universities against their wishes. Their academic background is very weak.
5. Most of the students are not serious about their studies: are lazy and do not read books, not
6. even the text books, depend more on luck than hard-work for success in examination.
7. They waste too much time and fritter away their energy by active participation in non-academic activities inside and outside their colleges and Universities.
8. Promotion by favor which creates a problem for some students at later stages.

VII. ETHICAL SCIENTIF EDUCATIONAL OBJECTIVES

- Good Citizenship
- Adoptability With People
- General Awareness
- Expression And Writing Skills
- Islamic Ideas And Ideals
- Use Of Information
- Respect For Individual
- Specialized Skills
- Economic Management
- Desire For Dynamic Learning
- Use Of Leisure Time
- Health & Safety
- Confidence In Work And Self-Worth
- Good Character And Self-Respect
- General Education

VIII. CONCLUSION

This article views the Software engineering in the ethica paradigm to attribute this field as a “character” if inculcated properly into the taught by the teachers and not the resource persons. The software engineer has to deal with all the documentation both client & the developer side so he has to work as straight forward as the computer is. This can be elucidated as if he has been taught the software engineering in its ethical & aesthetic sense and he has as a character a Ethical concepts and their use in teaching as resources , have been recommend in this research are therefore, are sought to be used by the government, academia, industry, and public at levels in general and with a small tinge at the grass root level to start with . There is an opportunity for the researchers, having experience in using the ethical Principles as the instrument for measurement and challenges for mentoring the future researchers in order for the realization of the potential, for higher role and impact of ethics.

IX. RECOMMENDATIONS

There is a famous proverb in almost all the languages and cultures of the world, those who believe in morality and ethics that “That if a mason place the first brick in the wall to be tilted then the whole wall will be erected tilted “and hence applies to the Human[3], [8], [10]. In the currently prevailing environment where all the efforts are inter linked, so we save Time, Money, Resources and Effort for

any discipline or organization in particular and the human being in general. If adopted wisely at the middle to intermediate academic level would pave a way to the evolution of "The dawn of the heaven on the earth".

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