A Study of Changing Trends in Adoption of Software Project Management Principles in Computer Science Course

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Abstract — **Final year projects are a very important component of learning in professional degree programmes in the university system of education. Proper adoption of Software Project Management principle can result in quality projects, which in turn would infuse confidence in students and make them better employable.**

Non employability of professional graduates and postgraduates has been one of the problems faced by the society in general and computer education system in particular. The researcher feels that SPM principles are often compromised in student projects for many avoidable reasons.

A final year project is capstone in undergraduate and graduate education, and as such, it builds and tests the skills and knowledge acquired during your education and training to become professionals.

The Research intension is to Analyse the Academic Project Reports of Students where Students undertaking academic Software Project using different Technologies for Computer Science Undergraduate and Postgraduate Courses running under the Savitribai Phule Pune University, Pune (earlier known as Pune University) in various colleges using Data Mining Tools like WEKA.

Keywords — **Software Project Management, Computer Science, Data Mining, WEKA.**

I. INTRODUCTION

A huge Primary data can be collected of Students Software Project over the last five year to study the effect of quality of Learning and Employability of Learners.

In the proposed research work, analysis of academic project work of students is to be considered for technology changes likewise changes in the domain of the project and Adoption of Software Project Management Principles in Project over the five years including last three years, present year and next year.

Comparison of Technology used by the student (i.e. prescribed by the University) and technology used now the current software market in the industry likewise comparison can be done Gender wise, Stream wise, and domain wise. So the quality of learning and their Employability can be tested.

This proposed research intends to identify hypothesis study for tendency of students and supervisor about the project work and problems faced by the students and fear of the students about the project.

The purpose of the proposed research is to collect and study the key information of college students that how often their needs arise and which resources students are likely to consult when undertaking projects.

The purpose of the Research is to study the issues in Design and Implementation of students Software Project Management, Problems faced by the students, teachers and Institute/college and to test lack of in Adoption of Software Project Management Principles.

For many students, it provides the first opportunity to plan and carry out academic research, and it is often the most substantial and independent assessment that they will undertake during their degree.

As a discipline, project management developed from several fields of application including civil construction, engineering, and heavy defence activity two forefathers of project management are Henry Gantt, called the father of planning and control technique, who is famous for his use of the Gantt chart as a project management tool (alternatively Harmonogram first proposed by Karol Adamiecki) and Henri Fayol for his creation of the five management functions that form the foundation of the body of knowledge associated with project and program management Both Gantt and Fayol were students of Frederick Winslow Taylor's theories of scientific management. His work is the forerunner to modern project management tools including work breakdown structure (WBS) and resource allocation [10].

II. SURVEY OF LITURATURE

The pedagogical literature on the undergraduate research project and qualitative research with undergraduate tourism management students and the student perspective of undertaking a research project is explored. Motivations for topic choice include personal interest, career aspirations, and perceived ease of access to primary data or the literature. The paper discusses barriers in the research process commonly experienced by students, for example, data collection and access problems. The research highlights implications for the design, implementation and supervision of projects within degree programmes. [1]

The difficulties in undertaking and supervising undergraduate research also have to be put in the context of wider trends in higher education. Common challenges currently being faced in higher Education include those associated with widening access, coping with larger groups of students, the increasing

occurrence of plagiarism and other forms of cheating, and the need to keep up-to-date with technological advances.[2]

The study of College student's graduation project identifies the challenges faced by students in writing the graduation project, with a specific focus on tailored applying research. To some extent this approach contradicts to the tailored applied research concept, where students are given an assignment according to the needs of the external organization. Some of the benefits of choosing tailored applied research include better access to company files and data, closer collaboration with industry representatives that may lead to future employment and closer team work with project supervisors which could affect positively the quality of the research and the final outcome. [11]

Hussey and Hussey (1997) identify four objectives of the undergraduate research project:

· Analytical problem solving skills;

· Active learning through identification of a problem to be explored and completed;

· Skills development for independent research;

· Application of academic knowledge. [3]

The aims of the undergraduate project thus encompass both intellectual and skills development. Distinguishing projects from higher level degrees, Clewes (1996:27) [4] notes that first degree research requires 'independent enquiry and exercise of judgement although analytical rigour is not always demanded'. The undergraduate project holds special value for both the teacher and the student. [05]

For many students, it provides the first opportunity to plan and carry out academic research, and it is often the most substantial and independent assessment that they will undertake during their degree. It intended to stimulate interest in the issues already identified, and to inform the engineering education community of the developments. [1]

The book "Developing and enhancing undergraduate final-year projects and dissertations" which is the result of a National Teaching Fellowship Scheme (NTFS) project undertaken by Mick Healey, Laura Lannin, Arran Stibbe and James Derounian from 2010 to 2012, explores how to engage students in the production of knowledge. Here Final-year projects and dissertation and through its case study approach, with over 70 exemplars drawn from across the world, that will be of exceptional value to the readers. [6]

The Experimental Observations and their Critical Analysis of M.C.A. Students Projects adopted at Allana Institute of Management, Pune over last three years and approaches used during Project work. The biggest advantage of such an approach is that students learn by doing and results is a better understanding of the subject, and are likely to remember processes and concepts for a longer period. Freedom to choose domain of their interest and do-it-yourself approach helps in building confidence in them and they start believing that these methods can be used universally and research can be relevant to any field of specialization. [7]

III. OBJECTIVES OF THE STUDY

i. To analyse the changing trends in adoption of Software Project Management Principles in Project Based Learning components of Computer Science Course.

ii. To study the effect of Quality of Learning and Employability of Learners over the five Year with respect to Software Project Management for UG and PG Programs of Computer Science.

iii. To study the Alumni works in industry and their job profile, designations and study of projects during their UG and PG level can be mapped or linked with respect to employability of Learner.

iv. To understand the role of Project Guide about the Nature of Project, requirement of degree, standard expected choice of project topic and acquisition of the requisite technical skills.

v. To examine the Student's Project work Gender wise/degree wise/domain wise/ technology wise and Project Domain, Technology changes over the last five years.

vi. To know the project evaluation process used by the Projects Guide and how the Grade system used by the examiners.

vii. To compare the present technology used in the market and students using technology for their projects over the last five years.

viii. To find the effect of admission to MCA course over M.Sc. (C.S.) course.

IV. METHODOLOGY AND TOOLS

The syllabuses of University is about developing skills to learn new technology, grasping the concepts and issues behind its use and the use of computers. The syllabus is also about developing skills to learn new technology, grasping the concepts and issues behind its use and the use of computers. [1]

In the work both quantitative and qualitative research methods will be used to address the research questions and objectives. **In the first stage** of the work data from different colleges/Institutes and secondary data from researches will be used to build the whole picture of of Changing Trends in Adoption of Software Project Management Principles in Computer Science Course, Based on the data collected, analysis will be made, in order to shed a light for several research questions.

In the first stage For Analysis purpose a Data Mining Tool WEKA will be used.

WEKA (Waikato Environment for Knowledge Analysis) is a popular suite of machine learning software written in Java, developed at the University of Waikato, New Zealand. It is free software licensed under the GNU General Public License.

Using WEKA tool we can find Frequency Distribution of Collected Data, finding best rule for Association mining using Apriori Algorithm and Decision tree using **J48** Algorithm.

The second stage will be carrying out questionnaires in selected colleges under Savitribai Phule Pune University (Earlier known as Pune University) among students and project guides.

The Third stage is to design and developed the web based application for maintaining the records of student and guide for the same research work and can be used in future.

CONCLUSION

The main contribution of this proposed research would to analyse the Students Software Project Reports for studying changing Trends in Software Project Management principles over the past five years by studying the quality of Software Project Reports of Computer Science Students of the Savitribai Phule Pune University and a Study can achieve Its effect on Quality of Learning and Employability of Learners and varies factors.

And the designed and developed web based application would be useful for Students data collection in present and further future research work.

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