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Promoting 21st Century Workplace Preparedness of Engineering Students: Teachers' and Students' Perceptions

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The conspicuous transition in the employment sector has entailed employers to expect employees with pragmatic, autonomous, and dynamic skill sets. However, the engineers in India have been under-trained with the requisite skill set to exhibit constructive outcomes in the present competitive world. This paper expounds on the predominance of Life and Career skills in capacity building of engineering students with adequate skills to sustain the transforming 21st-century workplace demands. On this account, the paper examines the perceptions of students and teachers on integrating Life and Career skills in the English syllabus of Engineering curriculum for the workplace preparedness of the students. An online survey was conducted between July and August 2019 to obtain the perceptions of 1048 students of engineering and 34 teachers of English from the Engineering Institutes affiliated with Pondicherry University. The findings have exhibited the assertion on the efficacy of Life and Career skills in empowering engineering students with flexibility, self-direction, cross-cultural, productivity, etc., skills. The results imply the desideratum of these skills set in the engineering curriculum for Industry-ready students to meet the demands of the 21st-century workplace.

KEYWORDS: Life and Career Skills, Engineering Curriculum, English Syllabus, 21st Century Workplace

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Introduction

The graduates of the current digital era are in exigency to foster their skills and knowledge according to the paradigm shift in the global economy by setting their goals independently, adapting to the changing environment, and instilling their learned knowledge in appropriate situations to solve unforeseen problems. In addition, Covill et al. (2020) said that "Organisations and employees face large periods of uncertainty driven by fast-moving changes in customer demand" (p. 1). Such adverse metamorphosis of the employment sector and working environment has demanded the workforce to be capable of handling unanticipated complex situations. Therefore, the responsibility of preparing the students (future employees) in parallel with the transforming workplace demands, lies with the higher educational institutions in line with the statement, "Academic institutions have to continuously monitor the future skill requirements and make suitable changes to content and pedagogy so that the graduating students have the right capabilities for the job-in-demand" Reddy (2017). 21^{st} Century workplace requires the students of engineering to work collaboratively adapting to various situations, meeting goals with shared responsibilities, and taking leadership and managerial roles in the organization. Congruently, to sustain and succeed in the career after education, the students of engineering are entailed to acquire the requisite skills set during their course of study and be adaptable to the situational demands of the industries. According to the India Skills report by Wheebox (2018) and National Skills Development Corporation (2007) survey reports, that the skills gap between the students' skill set and the workplace demands of the engineering sectors affects the employability of the students. The Indian Government and policymakers are taking initiatives to identify skills demands and provide suggestions to overcome skills deficits among the students. According to the survey report, "80% of Indian engineers are not fit for the job". It emphasizes the lacunae in the workplace preparedness of the students of engineering and accentuates that they are expected to be equipped with the requisite skills set along with their subject knowledge. To overcome these lacunae and to prepare the students for the 21^{st} Century, the Partnership for 21^{st} Century Learning (P21) framework, Battle for Kids (2009) has amalgamated the perspectives of teachers, education experts and business leaders in defining and illustrating the skills necessary for achieving success in work and life. The framework has categorized the 21^{st} Century skills into Learning and Innovation Skills, Information, Media and ICT literacy, and Life and Career skills. In many countries like Austria, Finland, Costa Rica, Holland, and Nigeria, 21st-century education has integrated the skills of the P21 framework into their school curriculum. Microsoft Partners in Learning and Pearson Foundation (2013) have propounded that the P21 framework must be implemented in classroom teaching to develop the students' skill set.

These evince the significance of the P21 framework for productive outcomes in students' (future employees) lives and work in the 21^{st} Century. Further, Battle for Kids (2009) has proposed, "the ability to navigate the complex life and work environment in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills" (p.3). After the intense observation of the workplace prerequisites and 21^{st} Century skills set of the P21 framework, the present paper recommends the integration of Life and Career Skills: Flexibility and adaptability, Initiative and self-direction, Social and cross-cultural, Productivity and Accountability, and Leadership and Responsibility, in the engineering curriculum for preparing the students to overcome the challenges of the 21^{st} Century workplace and to succeed in their profession. To impart these skills, the paper investigates the perceptions of the students of engineering and the teachers of English from engineering institutes on the usefulness of Life and Career skills as a part of the engineering curriculum in promoting the students' workplace skills. Further, the paper examines the pivotal role of Life and Career skills in the engineering curriculum to succour the students during their recruitment process.

Review of the Literature

In India, most of the students are encountering obstacles in employment exclusively in the engineering sectors. The reports on the skills gap have stated that it is essential for students of engineering to acquire the skill set required for the 21st-century workplace. Bano and Vasantha (2019) have reviewed the strategies to bridge the employability skills gap in higher education. After the investigation of statements, the paper recommends the P21 framework for bridging the skills gap prevailing in the engineering sector, which has been successfully implemented in many schools around the world. OECD (2019) has posited, "Individuals will face deep and rapid changes: many will have to change not only their job but even their occupation, and most will have to modernize their skills and working practices" (p.7.). Further, it has enunciated that the meteoric changes in the employment sector and working style "require employers and workers to make on-the-job adjustments, adapting and learning new technologies and ways of working" (p.13). Subsequently, there are a variety of skills being analysed around the world to improve the workplace preparedness of the 21^{st} Century students. Moreover, the studies on 21st-century skills can be viewed under different terminologies like soft skills, employability skills, etc. that include the Life and Career skills of the P21 framework. Prastiwi et al. (2020) have opined, "21^{st} Century skills must be taught in higher education because universities will create graduates who have not only learning skills and literacy skills, but also life skills" (p.313). Shekhawat (2020) has propounded that a curriculum with both soft skills and technical skills is more cru-

cial. Moreover, the author has identified that during the recruitment process, the students have been analysed based on their "attitude, leadership, motivation, teamwork, persuasive strategies to deal with people, communication skills, interpersonal skills, conflict management, etc." (p.264). In addition, the author stated the gap between the industrial expectations and course modules of educational institutes.

Likewise, Caten et al. (2019) have studied the importance of soft skills for Engineers that include, leadership, creativity, communication, management, professionalism, ethics, and flexibility. Caten et al. (2019) have stated that the importance of soft skills has surpassed technical skills as skills like leadership, ethics, resilience, flexibility, etc. give professional ability for the individual to improve their career and tackle the current industrial demands. Hirudayaraj et al. (2021) have compared the students' proficiency level and analysed the importance of skills set like work ethic, commitment, flexibility, leadership attitude, etc. with the recruiters' perspectives. The authors have identified that entry-level candidates should possess all the above skill sets and further, they are expected to think from different perspectives, and manage their time and responsibilities on their own which are aspects of Life and Career skills. The inevitability of Life and Career skills in constructing employment opportunities for graduates, and in empowering them to compete in the competitive world of work is discernible from these observations.

In addition, there have been research studies conducted on the need for 21^{st} Century Skills education for obliterating the prevailing skills gap. Chu et al. (2017) have mapped out the landscape of 21st-century skills development in Hong Kong, Switzerland and the US. In addition, they have investigated the curricula, school administration and policy making on the "intricate process of implementing twenty-first-century skill education" and have proposed the inquiry-based pedagogical approach to developing students' skill sets. Concordantly, it is recognised from the above-cited works of literature that the 21^{st} Century skills set are most requisite and to be developed among the students through various methods. On this account, Sural (2017) has evaluated 293 teacher candidates from Eskisehir Osmangazi University in Turkey, on their preparation to teach 21^{st} Century skills, and has proposed an integrated educational setting for effective teaching and learning of 21^{st} Century Skills. Consequently, Sen et al. (2018) have suggested that schools should be structured towards 21st-century skills coalescing knowledge and skills. Stehle and Peters-Burton (2019) have analysed lesson plans of seven STEM high schools to understand the teachers' engagement in developing students' 21st-century skills and found that around 75% of the lesson plans have a minimum of single 21st-century skills. St.Louis et al. (2021) have proposed the Project-based Learning (PjBL) framework along with the inclusive Biologist Exploring Active Research with Students (iBEARS) program to facilitate the 21^{st} Century skills

of the students and prepare them to succeed in the competitive edge of the world of work.

Most of the above studies have concentrated on integrating 21st-century skills into the school curriculum through different programmes, pedagogical methods, and techniques. However, there is no specific concentration on Life and Career skills among the educators. The skills set analysed in the above literature have been random skill sets which have not been categorised under a holistic framework like P21. The tenets of Life and Career skills have not been briefly identified or discussed in the workplace preparedness of the students of Engineering in India. In this regard, this paper will focus on identifying the usefulness of tenets of Life and Career skills in developing the skill set of the students of Engineering to meet the industrial demands and its impact on their recruitment process.

Objectives of the Study

Based on the research gap found in the review of literature, this paper focuses on the following research objectives:

1. To analyse the usefulness of integrating the tenets of Life and Career skills as a part of English syllabi in the Engineering curriculum in preparing the students of engineering towards industrial demands.

2. To identify the impact of Life and Career skills on the recruitment process of the students of Engineering.

Methodology

Research Design

The present study has adopted an online survey method to solicit the perceptions of teachers and students. The online survey was conducted between July and August 2019, by employing Google form comprising the questionnaires that were circulated among the students of engineering, placement officers, and English teachers of all the twelve engineering institutes of Puducherry District affiliated with Pondicherry University.

Research Sample

Random sampling method has been utilized to select the sample of the study and the final year students of engineering and English teachers working in the engineering institutes of Puducherry district have been chosen as samples.

A total of 1048 students belonging to eight different branches of engineering programme have participated in this survey where 53.3% of respondents (R) are male and 46.7% of respondents are female. The branches of the students are Mechanical Engineering (R-16.6%), Electronics and Communication Engineering (R-25.1%), Information Technology (R-11.2%), Electronics and Electrical Engineering (R-6.3%), Computer Science Engineering (R-27.8%), Civil Engineering (R-2.7%), Electronics and Instrumentation Engineering (R-0.9%), Bio-Medical Engineering (R-9.1%), and Chemical Engineering (R-0.5%). Likewise, a total of 34 male (R-38.2%) and female (R-61.8%) teacher respondents from twelve engineering institutes in the Puducherry district participated in this survey. The designation of teacher respondents is described in Table 1.

Table 1

Designation of Teacher Respondents.

Designation	Frequency	%
Guest Lecture	2	5.9
Placement Officer	2	5.9
Assistant Professor	22	64.7
Senior grade Assistant Professor	3	8.8
Associate Professor	4	11.8
Professor	1	2.9
Total	**34**	**100.0**

Instrument Used

An online questionnaire consisting of two parts has been used as an instrument for data collection. Part I of the questionnaire comprises demographic details of the respondents, while Part II contains the tenets of Life and Career skills. The questionnaire has been developed based on the definitions provided by the P21 (2009) framework and Madeira City Schools Planning Commission report on 21^{st} Century Skills (Denecke et al., 2009).

Reliability and Validity

The constructs of the questionnaires have been tested for reliability by computing Cronbach's Alpha test. The values 0.957 (Students) and 0.990 (Teachers) in Table 2 indicate that the items in the questionnaire have excellent internal consistency.

Table 2

Reliability Statistics of Students' and Teachers' Questionnaires.

	Students	**Teachers**
Cronbach's Alpha	0.957	0.990
No. of Items	24	24

The validity of the questionnaire has been evaluated using Pearson's Correlation statistics. Table 3 and Table 4 represent the validity results of the students' and the teachers' questionnaires respectively. The critical correlation value (r_c) for the students' questionnaire is 0.08 and for the teachers' questionnaire is 0.436. It is evident from the results that the total score (r_{xy}) values are higher than the r_c values indicating that the items in the questionnaire are valid.

Table 3

Validity of Students' Questionnaire.

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11
V1											
V2	0.77**										
V3	0.74**	0.76**									
V4	0.72**	0.76**	0.76**								
V5	0.66**	0.74**	0.74**	0.81**							
V6	0.45**	0.50**	0.51**	0.55**	0.57**						
V7	0.47**	0.49**	0.51**	0.52**	0.54**	0.64**					
V8	0.42**	0.44**	0.50**	0.47**	0.49**	0.54**	0.58**				
V9	0.41**	0.48**	0.49**	0.49**	0.51**	0.55**	0.61**	0.61**			
V10	0.47**	0.50**	0.49**	0.53**	0.57**	0.55**	0.53**	0.53**	0.61**		
V11	0.85**	0.90**	0.88**	0.89**	0.89**	0.66**	0.65**	0.60**	0.62**	0.65**	

**Correlation is significant at the 0.01 level (2-tailed)

Note. V1=Usefulness of Flexibility & Adaptability, V2=Usefulness of Initiative & Self-Direction, V3=Usefulness of Social & Cross-Cultural skills, V4=Usefulness of Initiative & Self-Direction, V5=Usefulness of Leadership & Responsibility, V6=Importance of Flexibility & Adaptability, V7=Importance of Productivity & Accountability, V8=Importance of Social & Cross-Cultural, V9=Importance of Initiative & Self-Direction, V10=Importance of Leadership & Responsibility, V11=Total Score

Table 4

Validity of Teachers' Questionnaire.

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11
V1											
V2	0.93**										
V3	0.93**	0.96**									
V4	0.88**	0.94**	0.92**								
V5	0.93**	0.93**	0.95**	0.93**							
V6	0.73**	0.76**	0.76**	0.68**	0.80**						
V7	0.69**	0.70**	0.72**	0.64**	0.77**	0.95**					
V8	0.64**	0.67**	0.65**	0.63**	0.73**	0.92**	0.91**				
V9	0.69**	0.72**	0.70**	0.65**	0.76**	0.95**	0.93**	0.92**			
V10	0.71**	0.74**	0.75**	0.66**	0.79**	0.99**	0.96**	0.88**	0.92**		
V11	0.95**	0.97**	0.97**	0.94**	0.98**	0.85**	0.81**	0.77**	0.81**	0.83**	

**Correlation is significant at the 0.01 level (2-tailed)

Note. V1= Usefulness of Flexibility & Adaptability, V2= Usefulness of Initiative & Self-Direction, V3= Usefulness of Social & Cross-Cultural skills, V4= Usefulness of Initiative & Self-Direction, V5= Usefulness of Leadership & Responsibility, V6= Importance of Flexibility & Adaptability, V7= Importance of Productivity & Accountability, V8= Importance of Social & Cross-Cultural, V9= Importance of Initiative & Self-Direction, V10= Importance of Leadership & Responsibility, V11= Total Score

Data Analysis

The collected data have been coded and statistically analysed using SPSS software. Descriptive statistics has been used to analyse the students' and teachers' perspectives on the usefulness of Life and Career Skills. Further, correlation analysis has been computed to identify the relationship between the respondents' opinion on the usefulness of the skill set and the significance of Life and Career Skills in the students' recruitment process.

Analysis of Results

Flexibility and Adaptability

Flexibility and Adaptability skills will facilitate the students to adapt to the different roles or designations of their workplace and will enhance their ability to work in puzzled situations, to prioritize and complete their work. Besides, the 21st-century workplace requires graduates with the ability to work effectively

and complete tasks by adapting to changing circumstances (Kivunja, 2015). In this line, Table 5 represents the students' and the teachers' perspectives on the usefulness of Flexibility and Adaptability skills in the engineering curriculum for the career readiness of the students of engineering.

Table 5

Descriptive Statistics of Flexibility and Adaptability.

Flexibility and Adaptability Skills	Students		Teachers	
	Mean	SD	Mean	SD
Work in Ambiguity	3.83	1.13	4.21	1.09
Prioritize Work	3.63	1.10	4.12	1.17
Take Responsibility	3.70	1.16	4.09	1.26
Adapt to Various Roles	3.76	1.22	4.32	1.15
Overall	**3.73**	**1.15**	**4.19**	**1.17**

The results in Table 5 indicate that 'prioritizing' and 'taking responsibility' are considered useful next to 'Work in ambiguity' (Students: M-3.83 and Teachers M-4.21) and 'adapt to various roles' (Students: M-3.76 and Teachers M-4.32), which are considered to be highly useful for workplace preparedness of the students of engineering. Pulakos, et al. (2000) have proclaimed, "fast pace of environmental and organizational change implies heightened pressure on employees to be increasingly adaptable, versatile, and tolerant of uncertainty to perform effectively in new or changing work situations" (as cited in Dam, 2013, p. 123). In concord with this, the results evince that the Flexibility and Adaptability skills set will be useful to equip the students towards the changing needs of 21^{st} Century workplace.

Initiative and Self-Direction Skills

Besides the edification provided by the educational institutions to equip the students for meeting the demands of the 21^{st} Century digital age, the students are still in exigency to acquire the skills and gain expertise for empowering themselves to sustain and promote success in their future careers and lives. In this line, Denecke et al. (2009) have catalogued Initiative and Self-Direction skills as Self-monitoring, demonstrating initiation towards professional expertise, prioritizing tasks, Managing time, etc. Congruently, Table 6 represents the perspectives of students and teachers towards the efficacy of Initiative and Self-Direction skills.

As exhibited in Table 6, the students' (M -3.73) and teachers' overall mean

Table 6

Descriptive Statistics of Initiative and Self-Direction Skills.

Initiative and Self-Direction Skills	Students		Teachers	
	Mean	SD	Mean	SD
Monitor their learning	3.91	1.13	4.21	1.23
Demonstrate initiative towards a professional target	3.54	1.09	4.18	1.19
Keep track of learning progress	3.58	1.17	4.26	1.24
Critically Reflect on past performance	3.89	1.11	4.09	1.24
Gain expertise in learning beyond the curriculum	3.73	1.14	4.18	1.40
Find resources to achieve the goal	3.77	1.15	4.29	1.36
Prioritize and complete tasks within the given time	3.69	1.19	4.29	1.24
Overall	**3.73**	**1.14**	**4.21**	**1.27**

scores (M-4.21) indicate that incorporating the Initiative and Self-Direction skills in the English classroom of the engineering curriculum will capacitate the students to work independently, monitor their performance, utilize time productively, be goal-oriented, etc. In addition, the results indicate that students have rated high on 'self-monitoring' (M-3.91) and 'retrospective learning' (M-3.89) and teachers have rated high on 'goal management' (M-4.29) and 'time management' (M-4.29). Congruently, the engineering industry also requires its workforce to be highly encouraged to use their initiative skills and prepared to be highly self-reliant (Trilling & Fadel, 2009) . Besides the highly rated tenets, all the tenets of the Initiative and self-direction skills set should be blended for significant contribution towards prolific workplace readiness. The students must take the initiative to learn across their field of study and be competitive to succeed in the workplace of the present informative and digital age.

Social and Cross-Cultural Skills

21^{st} Century workplace situation includes the collaborative venture of different organizations with customers of different social and cultural backgrounds across the world. In line with this, Soule (2020) has posited the hurdles of social and cross-cultural skills as, social interaction "is far more complex

than in previous centuries due to the advent of electronic social media, the 'shrinking' of the world and the increasing cultural diversity across the globe" (p.23). These observations reveal the inevitability of the students being able to demonstrate productive teamwork, cultural liaison, group cooperativeness, and cross-cultural socialization. In consonance with this, Table 7 presents the mean and standard deviation of the constituents of Social and Cross-cultural skills rated by the students of engineering and the English Teachers.

Table 7

Descriptive Statistics of Social and Cross-cultural Skills.

Social and Cross-cultural Skills	Students		Teachers	
	Mean	SD	Mean	SD
Work productively in a group	4.00	1.09	4.32	1.25
Bridge Cultural Differences within a team	3.52	1.17	4.24	1.16
Connect different perspectives of teammates	3.80	1.14	4.06	1.39
Work with a social and cross-cultural group	3.67	1.27	4.03	1.40
Overall	**3.75**	**1.17**	**4.16**	**1.3**

The overall mean scores of students (M-3.75) and teachers (M-4.16) in Table 7 exhibit the respondents' agreement towards the benefits of incorporating Social and Cross-cultural skills in the engineering curriculum. Kivunja (2015) has stated that social and Cross-cultural skills will enable students "to learn from and to work collaboratively with people representing diverse cultures, religious beliefs and lifestyles, in a spirit of mutual respect, trust, and transparency" (p.7). In this line, the results imply that the students are to be provided opportunities for developing their social skills to face the global workplace challenges by incorporating Social and Cross-cultural skills in the engineering curriculum.

Productivity and Accountability

The 21st Century workplace has brought a colossal transition to the nature of work necessitating the students to be facilitated with goal setting, professional, ethical, project management, liability, and reliability skills. Following this, Table 8 represents the students' and the teachers' attitudes towards the usefulness of Productivity and Accountability tenets in the engineering curriculum for the career readiness of the students.

The overall mean scores of students (M-3.8) and teachers (M-4.02) in Table

Table 8

Descriptive Statistics of Productivity and Accountability.

Productivity and Accountability Skills	Students		Teachers	
	Mean	**SD**	**Mean**	**SD**
Set a standard and challenging goal	3.90	1.08	4.12	1.37
Exhibit punctuality	3.83	1.11	3.97	1.31
Manage projects	3.73	1.14	4.06	1.37
Reliable among classmates	3.74	1.24	3.94	1.50
Overall	**3.8**	**1.14**	**4.02**	**1.39**

8, evince that both agree with the effectuality of Productivity and Accountability skills set in the engineering curriculum to prepare the students with requisite skills set to meet the workplace exigency. The results exhibit that the students (M-3.90) and the teachers (M-4.12) have highly rated that 'goal setting' skill is essential for procuring jobs. In the workplace environment, the students may face many obstacles and competing pressures in setting challenging goals and achieving the target. Hence, the students have to be trained in real-life industry-oriented goal-setting skills. Likewise, punctuality and reliability are aspects of demonstrating diligence and positive work ethics (Denecke et al., 2009). Many organizations expect their workforce to produce accountable deliverables, meeting customer demands in a short period even in ambiguous situations. Henceforth, as the results depict, it is essential to prepare the students with productivity and accountability skills set for the competitive edge of the 21st-century world of work.

Leadership and Responsibility

Leadership has been defined by Bass (1990) as the "ability to induce compliance by followers, the exercise of influence, a form of persuasion, an instrument to achieve goals, an effect on interactions among people" (Kivunja, 2015) . In concord with this, Table 9 identifies the students' and the teachers' perceptions of the usefulness of Leadership and Responsibility skills in the engineering curriculum for workplace preparedness.

Table 9 presents the rating of students and teachers on the constructs of Leadership and Responsibility skills. The overall mean scores of students (M-3.83) and teachers (M-4.27) depict that the implementation of the Leadership and Responsibility skills set in the English classroom of engineering programme will guide the students to be prepared for the workplace. Farr

Table 9

Descriptive Statistics of Leadership and Responsibility.

Leadership and Responsibility Skills	Students		Teachers	
	Mean	SD	Mean	SD
Influence and Guide others towards a goal	3.94	1.13	4.21	1.39
Be a leader and take responsibility	3.73	1.16	4.26	1.42
Maintain unity among the teammates	3.90	1.16	4.38	1.26
Exhibit Integrity	3.82	1.12	4.26	1.24
Accept criticism positively	3.77	1.20	4.24	1.37
Overall	**3.83**	**1.15**	**4.27**	**1.34**

and Brazil (2009) have propounded the need to equip the Leadership skills of young engineers to succeed in the 21st-century workplace and have given a framework for developing the leadership abilities of the students. It is inferred from the results that the enhancement of Leadership skills involves equipping the students to influence and guide others, to demonstrate integrity, and especially to accept criticism positively.

Relationship Between Significance and Usefulness of Life and Career Skills

The students and teachers have been asked to rate the importance of Life and Career skills in the recruitment process of the students of engineering. The overall mean values (M = 3.78 & 4.29) in Table 10 indicate that both students and teachers believe the predominance of these skill sets in the promotion of students' career opportunities.

Further, Table 11 presents the correlation analysis computed to investigate the relationship between the usefulness of Life and Career skills set in the engineering curriculum and the importance of the skills set in the students' recruitment process with specific reference to students' and teachers' perspectives. As indicated in Table 11, there is a significant relationship between the usefulness of Life and Career skills and the importance of the skills set in the recruitment process of the students of engineering at 0.01 level. It reflects that Life and Career skills play a cardinal role in the career opportunities of the students of engineering emphasizing the need to integrate the skills set in the engineering curriculum.

Table 10

Importance of Life and Career Skills in the Recruitment Process.

Life and Career Skills	Students		Teachers	
	Mean	**SD**	**Mean**	**SD**
Flexibility & Adaptability	3.86	1.15	4.26	1.48
Initiative & Self-Direction	3.79	1.17	4.38	1.30
Social & Cross-Cultural	3.70	1.15	4.24	1.44
Productivity & Accountability	3.65	1.13	4.24	1.37
Leadership & Responsibility	3.88	1.24	4.32	1.43
Overall	**3.78**	**1.17**	**4.29**	**1.40**

Table 11

Relationship between Usefulness of Life and Career Skills and its Significance in the Recruitment Process.

	R	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
	S										
V1	T										
	S	0.77**									
V2	T	0.93**									
	S	0.74**	0.76**								
V3	T	0.93**	0.96**								
	S	0.72**	0.76**	0.76**							
V4	T	0.88**	0.94**	0.92**							
	S	0.66**	0.74**	0.74**	0.81**						
V5	T	0.93**	0.93**	0.95**	0.93**						
	S	0.45**	0.50**	0.51**	0.55**	0.57**					
V6	T	0.73**	0.76**	0.76**	0.68**	0.80**					
	S	0.47**	0.49**	0.51**	0.52**	0.54**	0.64**				
V7	T	0.69**	0.70**	0.72**	0.64**	0.77**	0.95**				
	S	0.42**	0.44**	0.50**	0.47**	0.49**	0.54**	0.58**			
V8	T	0.64**	0.67**	0.65**	0.63**	0.73**	0.92**	0.91**			
	S	0.41**	0.48**	0.49**	0.49**	0.51**	0.55**	0.61**	0.61**		
V9	T	0.69**	0.72**	0.70**	0.65**	0.76**	0.95**	0.93**	0.92**		
	S	0.47**	0.50**	0.49**	0.53**	0.57**	0.55**	0.53**	0.53**	0.61**	
V10	T	0.71**	0.74**	0.75**	0.66**	0.79**	0.99**	0.96**	0.88**	0.92**	

Continued on next page

Table 11 continued

**Correlation is significant at the 0.01 level (2-tailed)
Note. V1= Usefulness of Flexibility & Adaptability, V2= Usefulness of Initiative & Self-Direction, V3= Usefulness of Social & Cross-Cultural skills, V4= Usefulness of Initiative & Self-Direction, V5= Usefulness of Leadership & Responsibility, V6= Importance of Flexibility & Adaptability, V7= Importance of Productivity & Accountability, V8= Importance of Social & Cross-Cultural, V9= Importance of Initiative & Self-Direction, V10= Importance of Leadership & Responsibility, R=Respondents, S=Students' Response, T=Teachers' Response

Findings of the Study

Research Objective 1

The higher education institutes in India must produce more productive students who can face the unforeseen challenges and demands of the industry with adaptable skill sets. As CoreEL Technologies have stated, "out of 6 lakh B.Tech. graduates, 15-20 per cent are employable by engineering firms" (Srividhya & Vijayakumari, 2017), the students of engineering in India lack the skill set required by the recruiters. In this line, the paper proposes Life and Career skills to be integrated with the engineering curriculum to capacitate the students of engineering for their future employability. In consensus with this, the results from Table 5 to Table 9 have indicated that both the students of engineering and English teachers from the engineering institutions perceive that the Life and Career skills in the engineering curriculum will develop the students' preparedness towards the global workplace.

Flexibility and Adaptability skills can help students to work in the most critical situations and adapt themselves according to the changes in the workplace situations. Initiative and Self-Direction skills can help the students to learn beyond the curriculum and foster their skills and knowledge of the new content required at the workplace. Social and Cross-cultural skills can make the students interact and communicate better in the globalized digital workplace, which may continue in post-pandemic situations. Productivity and Accountability skills will help the students sustain their careers even during the decreasing customer demands of the pandemic, which results in underemployment. Besides, Leadership and Responsibility skills can help the students to take work responsibility and guide their team members towards facing the challenges of the world of work.

Research Objective 2

Further, the paper has established the importance of Life and Career skills (as in Table 10) in the recruitment process regarding students' and teachers' perceptions. In addition, the paper has identified that the significance of the skills

set in the recruitment process of the students is strongly correlated with the usefulness of the skills being integrated into the curriculum, as shown in Table 11. Correspondingly, the paper accentuates that Life and Career skills need to be incorporated into the English classroom of the engineering Curriculum to help teachers and students enhance their skill set and achieve success in the challenging 21st-century workplace. In accordance with this result, Abdullah et al. (2020) have studied the Life and Career Skills of polytechnic students in Malaysian institutes and have recommended educational institutions to embed these skills set within the Polytechnic curriculum. Correspondingly, the findings of the present study corroborate the efficacy of Life and Career skills in enhancing the skill set of the students of engineering and in promoting them to achieve better career prospects in the challenging workplace environment, if incorporated in the English course of the engineering curriculum.

Recommendations And Conclusions

Kumaravadivelu (2003) has proposed post-method pedagogy to implement 21^{st} Century Skills in the EFL classroom. This method concentrates on three Ps namely, Particularity, Practicality and Possibility. Lichtenegger (2014) has surveyed the English teachers of the Austrian Secondary School for Economic Professions (HLW) and has proposed the integration of 21st-century skills of the P21 framework in the English as Foreign Language (EFL) Classroom. In addition, Graham (2020) has published edited articles on methods and approaches to implement 21st-century skills in the English Language Teaching (ELT) classroom. In line with these revelations, the paper recommends the implementation of Life and Career skills in the English classroom of the Engineering programme. Instead of teaching content through monotonous lectures, education should provide opportunities for the students to develop their knowledge. Consequently, it is identified that teachers require innovative strategies and techniques to integrate these skill sets in their classrooms. Thus, the paper postulates a deliberate task-based approach for promoting activities such as variegated situational puzzles, collaborative problem-solving, role-plays, feedback sessions, teambuilding, multitasking, goal-setting, etc., in the classroom, which in turn empowers the students to adapt to various situations, be intelligible in handling various unanticipated circumstances, liable, self-directed, be socializing, etc. Moreover, the paper recommends that educational experts design a module on Life and Career skills in collaboration with employers, to assist the teachers in the implementation of these skill sets in the classroom.

The educational institutions must prepare the students of engineering according to the transforming demands of the industrial sector, by equipping the students with the requisite skills set to persist in the pace of change. The employability reports of Indian organizations like Aspiring Minds (Aspir-

ing Minds, 2019) have stated that there is a profound skills gap between industry expectations and students' skill sets. On this account, this paper has analysed the impact of Life and Career skills on increasing the employment opportunities of the students of engineering. The paper has explored the perceptions of the students of engineering and the teachers of English from engineering institutions on the effectiveness of integrating Life and Career skills in the engineering curriculum. The results have exhibited the efficacy of these skill sets in facilitating the students to be prepared to meet the challenges of the 21st-century workplace. The findings have explicated that these skill sets should be incorporated in the English classroom of the engineering programme to augment the students as per the industrial requisites of the 21st-century workplace. Congruently, the paper emphasizes the integration of Life and Career skills in the engineering curriculum to bridge the skills gap and prepare the students of engineering to become work-ready graduates, eventually improving the employment opportunities of the students of engineering.

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