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RESEARCH ARTICLE

Career Readiness and Decision Making among the B.Tech Students of IT and Non IT Courses in the Colleges of Kolkata

Arindam Bhattacharjee[1]*, Dr. Anjali Ray[2]

[1]*Research Student, Department of Applied Psychology, Calcutta University, Calcutta, India.*

[2]*Professor, Department of Applied Psychology, Department of Applied Psychology, Calcutta University, Calcutta, India.*

***Corresponding Author:* Arindam Bhattacharjee**

Abstract

Career readiness is viewed as career maturity, college readiness, career aspiration and many more. This present article focused on searching dimensions of career readiness in new way. The selected dimensions are mastery over the task, persistency in goal, skill development, adjustment ability and development of civic sense. Decision making also included as individual component of career readiness. Engineering students were selected as sample dividing two groups, namely student studied in Information Technology or software developer, and another were as core group of Engineering. Career readiness viewed as multidimensional construct and with various components. Result was found that students differentiated according to the levels and components of career readiness.

Keywords: *Career readiness, components of Career Readiness, Core Engineering and Information Technology.*

Introduction

Science and Technology education has been considered as one of the most significant component of human resource development spectrum with great potential for adding value to product and services to the national economy and improving the quality of life of the students. In recognition of the importance of this sector the students of technical and engineering colleges are striving hard to develop their knowledge and skills for appropriate placement and successful progress in specialized and advanced training in science and technical education.

In the face of new socio-economic challenges and competitive career markets of courses and jobs, the current enrollment and recruitment in the technical and engineering Colleges are influenced by the institutional future career and job placement strategies and counseling programme of institutes. In this context, owing to age specific sensitivity, needs for growth and exposures, career decision and acquisition of knowledge and skill for future career/ job are one of the most important and critical task for young students studying in post-secondary institution of science, technology engineering colleges. The current recruitment strategies of these institutes appear to be attracting the students who value career preparation and development more than the average. Realizing the importance and significance career of the students all the post-secondary institution of science, technology and engineering are giving more emphasize on assisting students in acquisition of skills and knowledge intended to their ***'career readiness'***.

Accordingly, both inside classroom and outside institutions are trying to build up the curriculum for practical skills, experience and knowledge necessary for students to succeed with their career. In line with this institutes are giving more thrust on faculty awareness about transferable skill student's and employee's want.

Career readiness is defined as the level of maturity of the students to acquire specific information on career options, to identify interests, values and aptitudes [1] and to use this information in their career planning. Career readiness/ maturity is thought of as the interaction between an individual's resources (what he brings to his encounter with the reality) and reality demands [2].

Winecoff and Lyday [3] proposed that reasonable career readiness for adolescents and young students should involve the understanding of the basic work values and attitudes including: an understanding of consumer economics; an awareness of knowledge about and some initial experience of work, personal interests and abilities, higher levels of achievement in basic academic skills, a tentative selection of preferred job clusters; and a sense of civic responsibility.

Career readiness in the late adolescence is more related to the course readiness and job readiness [4]. In this stage, career readiness means the act of seeking and obtaining employment, preparation to seek or obtain employment, including life skills training and substance abuse treatment and mental health treatment or rehabilitation activities for those who are otherwise employable.

Generally career readiness measures are the indicator of workplace literacy and represent a widely accepted common language for skills definition among employers, educators/ trainers, and potential/ incumbent employees etc. Generally, this career readiness or workplace readiness are related with the personality variables like personality type, aptitude, interest as well as situational variables like training, socioeconomic condition, parental acceptances [5] care structure, job market etc. [6],[7].

Research has been continuously shown that cognitive measures of academic performance, such as high school grade are highly predictive of entry in college level, but less predictive on retention and graduation. [8]. Robbins et al., found that correlation between cognitive measure and first year academic grade is much more significant than retention rate of the student. Burton and Ramits [9] reported that combination of academic records admission test scores offers the best prediction of graduation, but it is poorly related to college grades score. Grades on the advanced placement examinations have been shows to be a superior predictor of graduation then the admission scores; even it is less related with school grades both considering the quality of the school and student background. [10]

The non-cognitive factors like academic discipline, commitment and persistence are related with success in graduation [11].

Conley [12,13] defined the level of preparation a student needs in order to enroll and succeed -without remediation- in a credit bearing course at a post-secondary institution that offers a baccalaureate degree or transfer of baccalaureate programme, or in a high quality certificate programme that enable students to enter a career path way with potential future advancement.

In addition the students need learn to process of ***decision making*** including choosing between different alternatives, examining the consequences of specific choices, learning the value of compromise and implementing a decision. At this point students must aware and recognize the impact of current planning and decision making on their future life [14].

According to Heinz Weihrich and Harold Koontz, decision as the selection of a course of action among alternatives; it is the care of planning. [15]

Characteristics of Decision Making

- The definition of decision involves following characteristics:
- Decision is the choice of the best course among alternatives.
- Decision is the end process preceded by deliberation and reasoning.
- Decision-making is a mental process because the final selection is made after thoughtful consideration.
- Decision involves rationality because through decisions an endeavor is made to better one's happiness.

- Decision is aimed at achieving the objectives of the organization.
- It also involves the evaluation of the available alternatives because only through critical appraisal one can know the best alternative.
- It may also be negative and may just be a decision not to decide.
- Decision making involves a certain commitment. This commitment may be for short run or long run depending upon the type of decision.
- Decision relates the means to the end

Realizing the important of person related variables and situational variables for appropriate career readiness programme, the psychologists, counseller interested to identify the nature and attribute of career readiness among the engineering students in this context. As a step in this direction a research proposal has been framed with the following objective.

Objectives

- To identify the attributes of career readiness among the B.Tech (Bachelor of Technology) students of Colleges in Kolkata and to develop a 'Career Readiness Inventory' for the B.Tech students.
- To ascertain the nature of career readiness with respect to the courses of study (IT and Non IT.) of the B.Tech students in Engineering Colleges of Kolkata.
- To ascertain the nature of career readiness with respect of gender of the B.Tech students in Engineering Colleges of Kolkata
- To ascertain the nature of person related variables (decision making style) of B.Tech students in Engineering Colleges of Kolkata with respect to student's level of career readiness.
- To identify the patterns of relationship among sets of variables- the level of career readiness and the selected person related variable person related variables (decision making style) of B.Tech students of IT and Non IT courses.

Methodology

Definition of Career Readiness

ACT define [16] the level of achievement a student needs to be ready to enroll and successes -without remediation -in credit bearing first year post-secondary course. (Post-secondary course means primarily two year or four year institutions, trade school and technical schools. Today, however workshop readiness demands the same level of knowledge and skills as college readiness.

Definition of Decision Making

Rainey [17] summarizes variations on four major approaches to decision making, the rational decision making, the contingency decision making approach, incremental decision making and common form of observation and decision making.

Hypotheses

- The nature of career readiness test score of B.Tech students in Colleges of Kolkata varies in terms of their gender(male and female)
- Irrespective of gender the nature of the test score of career readiness of B.Tech students in Colleges of Kolkata varies in terms of their course of studies (IT and Non IT)
- The nature of the test score of the decision making style of the B.Tech students in Colleges of Kolkata varies intems of their level of career readiness (high, and low).
- The nature of relationship among sets of variables (test scores) for Career readiness in terms of their levels of career readiness (high and low)

Tools Used

- General Information
- Career Readiness Inventory (Based on the concept of Adam [1], Crities [2], Winecoff and Lyday [3]
- Decision Making Style (Based on the concept of Hirsch, A., & Läge, D. et al,)[17]

Description of the Tools

Career Readiness Inventory is developed based on the analysis of several concept given by Adam, Crities, Winecoff and Lyday,

Conley, ACT considering Indian students. This scale consisted of 60 items covering 5 domains namely mastery over the task, persistency, skill development, adjustment, and civic sense. Item component correlation values (above 0.90) and the split half r of this scale was 0.87.

Decision Making Style Inventory was also a self-instructed inventory based on the concepts of several psychologists namely of, Hirschi A, Läge, D. Guindon, MH and Richmond, L. J. [18].

It was 5 point rating scale .Total number of items were 70. The covering dimensions are objectivity, thinking style, observation, goal orientation, reasoning intuition, computation, communication and interaction. The split half reliability of the questionnaire was .81.

Sample: The study confined to first year B. Tech Students (including first semester and second semester) of the Engineering Colleges of Kolkata and including surrounding extended Kolkata. The study covered first year B. Tech Students (male and female) aged between 17-24 years. A list of Engineering Colleges in Kolkata and including surrounding extended Kolkata will be prepared.

From the said list, Colleges are selected following the random selection technique. 500 (male: 347 and female: 153) students were utilized for verification of hypotheses.

Those 500 students are divided in two groups according to their special fields of study, IT namely,

- Information Technology (IT),
- CSE: (Computer Science and Engineering), ECE:(Electronics and Communication Engineering) and Non IT (Core group) namely 1.EE (Electrical Engineering)
- CIVIL Engineering,3.BME(Bio Medical Engineering)

Statistical Analysis

- Measure of central tendencies and depression to verify the nature of sample and score distribution of measure variables.
- 't' test as per requirement for verification of hypotheses
- Co-efficient of correlation difference of verification of hypotheses.
- Two way ANOVA.

Results

Table 1: Group Statistics of Career Readiness Score

Male, female	Core, IT	Mean	Std. Deviation	N
Male	core	235.3161	39.25238	174
	IT	246.4277	38.23279	173
	Total	240.8559	39.08937	347
Female	core	232.2237	39.52808	76
	IT	248.8961	40.77589	77
	Total	240.6144	40.89301	153
Total	core	234.3760	39.28276	250
	IT	247.1880	38.96802	250
	Total	240.7820	39.60899	500

Table 2:Group statistics for decision making (DM): Score

Male, female	Core, IT	Mean	Std. Deviation	N
Male	core	411.3851	73.05826	174
	IT	210.9191	18.76583	173
	Total	311.4409	113.66363	347
Female	core	405.7500	78.29706	76
	IT	213.4935	18.45380	77
	Total	308.9935	111.78636	153
Total	core	409.6720	74.57648	250
	IT	211.7120	18.67125	250
	Total	310.6920	112.98622	500

Table 3: t value of career readiness components and course of study (IT and Non IT/ Core Group)

Dimension of career readiness	t	Sig.
Mastery	-3.178	**0.008**
Persistence	-4.751	0.103
Skill	-5.065	**0**
Adjustment	0.276	**0.003**
civic sense	0.317	**0**
totalCR	-3.661	0.961

In table 3, t-value of the career readiness score and its components were revealed among the students of IT (M=247.188) and Non IT (M=234.376) courses. From the statistical analysis, it was seen that there is non-significant difference come among the two groups of students on overall career readiness score (t=3.661).

The differences is come on the various components of the career readiness, such as mastery over the task (t= 3.178, IT M = 49.2 and non IT M=45.716) , skill (t=5.065, IT M=50.528 and nonIT M=45.456), adjustment (t=0.276, IT =46.952 non IT M=47.228), civic Sense (.317 IT M=48.284, nonIT M=48.500).

Table 4: t value of career readiness components and gender (male and female)

Dimension of career readiness	t	Sig.
Mastery	1.691	0.673
Persistence	0.877	0.288
Skill	-0.755	0.89
Adjustment	-0.643	0.289
civic sense	-1.301	0.423
totalCR	0.063	0.461

In table 4, t-value of the career readiness score and its components were not revealed any significant differences among the male (M=240.85) and female (M= 240.61) students.

Table 5: t value of decision making components with high and low levels of career readiness

Dimension of decision making	t	Sig.
objectivity	0.588	**0**
thinking style	0.078	**0**
observation	9.173	**0**
goal orientation	7.82	**0.001**
reasoning	7.162	**0.001**
intuition	5.738	**0**
computation	5.885	0.141
communication	3.893	**0.041**
interaction	3.733	**0.077**
totaldm	1.745	**0**

As shown in this table 5 that, there exist a significant difference between the higher and lower career readiness students with different component of decision making scale.

The students with higher career readiness score show significant difference in decision making components namely objectivity (t=.588), thinking style (t=0.078), observation (t=9.173), goal orientation (t=7.82), reasoning (t= 7.162) intuition (t= 5.738), communication (t=3.893) and interaction (t=3.733).

Table 6 indicated that there is significant effect of group (that is, course of study namely IT and Non IT) on the total career readiness.

There is also an interaction effect on group and gender in total career readiness score. But no such

Table 6: Mean, Mean Difference and F values for career readiness, course of study (IT and NON IT) and sex differences

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	21348.910	3	7116.303	4.635	.003
Intercept	24609709.755	1	24609709.755	16029.051	.000
Sex	10.337	1	10.337	.007	.935
Group	20491.265	1	20491.265	13.347	.000*
sex * group	820.817	1	820.817	.535	.465
Error	761518.328	496	1535.319		
Total	29770853.000	500			
Corrected Total	782867.238	499			

*F value significant at 0.05 level

Table 7: Mean, Mean Difference and F values for decision making, course of study (IT and NON IT) and sex differences

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	4900553.003[a]	3	1633517.668	551.314	.000
Intercept	40916992.768	1	40916992.768	13809.542	.000
Sex	248.655	1	248.655	.084	.772
Group	4094005.715	1	4094005.715	1381.733	.000*
sex * group	1788.995	1	1788.995	.604	.438
Error	1469623.565	496	2962.951		
Total	54634936.000	500			
Corrected Total	6370176.568	499			

*F value significant at 0.05 levels

Table 7 indicated that there is significant effect of group (that is, course of study namely IT and NonIT) on the total decision making. There is also an interaction effect on group and gender in total decision making score. But no such effect of gender consider significant for decision making.

Table 8: represents inter-correlation among the components of High Career Readiness (HCR) score with decision making

		Mastery	Persistency	Skill	adjustment	civic sense	Total CR
Mastery	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	250					
Persistency	Pearson Correlation	.701**					
	Sig. (2-tailed)	.000					
	N	250					
Skill	Pearson Correlation	-.005	.003				
	Sig. (2-tailed)	.943	.962				
	N	250	250				
adjustment	Pearson Correlation	-.156*	-.149*	.338**			
	Sig. (2-tailed)	.014	.019	.000			
	N	250	250	250			
civic sense	Pearson Correlation	-.234**	-.323**	.366**	.506**		
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	250	250	250	250		
totalCR	Pearson Correlation	.598**	.561**	.557**	.530**	.388**	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	250	250	250	250	250	250

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

This table 8 represents the correlational matrix, which indicated the correlational value among decision making score with component of high career readiness score. As seen in the matrix significant correlations exist among them.

Table 9: represents inter-correlation among the score components Low Career Readiness score (LCR) with decision making

		Mas1	Persis1	Skill1	Adjust1	Civicsense1	Total CR1
mas1	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	250					
persis1	Pearson Correlation	.670**	1				
	Sig. (2-tailed)	.000					
	N	250	250				
skill1	Pearson Correlation	-.210**	-.200**	1			
	Sig. (2-tailed)	.001	.001				
	N	250	250	250			
adjust1	Pearson Correlation	-.237**	-.159*	.546**	1		
	Sig. (2-tailed)	.000	.012	.000			
	N	250	250	250	250		
civicsense1	Pearson Correlation	-.247**	-.139*	.330**	.464**	1	
	Sig. (2-tailed)	.000	.027	.000	.000		
	N	250	250	250	250	250	
totalcr1	Pearson Correlation	.467**	.536**	.502**	.554**	.502**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	250	250	250	250	250	250

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

This table 5 represents the correlational matrix, which indicated the correlational value among decision making score with component of low career readiness score. As seen in the matrix few significant correlations exist among them.

Discussion

Career readiness among the B.Tech students of IT and non IT courses was assess by using career readiness questionnaire developed by the concept of different psychologists. From the mean value and t value it is said that the selection of the study courses of has significant impact on career readiness among the students from same engineering degree. Career readiness is composed by different components.

The components mastery over the subject matter, persistency in career field and skill development are shown significant differences in among the students of IT and NON IT courses of Engineering. But no mark difference was also found in total career readiness score. Thus, the hypothesis that irrespective of gender the nature of the test score of career readiness of B.Tech students in Colleges of Kolkata significantly varies in terms of their course of studies (IT and Non IT) was rejected. Although, components of career readiness varied among the students with high career readiness and low career readiness.

From the t table 4, it is shown that there is no significant difference in career readiness among the male and female students of B.Tech courses. Even there was no significant difference in different components of career readiness among the male and female students of B. Tech courses. Thus, the hypothetical assumption that the nature of career readiness test score of B.Tech students in Colleges of Kolkata varied in terms of their gender (male and female) was rejected.

Mean values and ANOVA results (Table: 7) indicated that there was a significant difference in components of career readiness for the course of studies namely IT and NON IT. Study conducted by Vyasarajan J., et al., [19] found that career development influenced by career preparation and readiness to make career choices. Individual selection of courses thus predicts the students prolonged planning for future career [20].

Career readiness; factor comes from both cognitive and sociological background. From knowledge dimension which is cognitive also, mastery over the subject shows significant difference in both IT and NONIT group. Though out development of skill is also helpful to reach students' goal.

According to Super [21], concept of career readiness or maturity is a continuous development process that can be segmented into a series of stages and tasks namely orientation toward work (attitudinal), planning (competency), consistency of vocational preferences (consistency), and wisdom of vocational preferences (realistic).

This is also revealed from the study that continuous development of skills requires persistency which helps students to gain knowledge which reflects make differences in career readiness field. The ANOVA test also revealed no significant difference in career readiness is due to gender. Although career readiness may not be different in male and female but there must be possibilities of different in components of career readiness.

In a study by Wendy Patton, Dee A. Bartrum, and Peter A Creed [22] found that in male optimism and self-esteem influenced career expectations. A different pathway was identified for females, with optimism directly influencing career goals, which subsequently predicted career planning and career exploration.

As shown in this table 4 that, there exist a significant difference between the higher and lower career readiness students with different component of decision making scale. The students with higher career readiness score show significant difference in decision making components like reasoning (t= 7.162) intuition (t= 5.738), computation (t=5.885), communication (t=3.893) and interaction (t=3.733). In a study Tan, Hannah Irene Ai Ling (2004) conducted a study to find out types of problem students' faces during decision making.

The result highlighted career related decision is core area. The decision problem is due to lack of career related information, decision making process like computing, communicating, and interaction with others to gather information from where the get right path for their career.

The correlational matrix represents correlational value among decision making score with component of career readiness score. As seen in the matrix few significant correlations exist among them.

Conclusion

The study identify the relevant the situational and personal factors in early stage of career planning of the students and development and to develop the resource materials for management of career readiness programme at the colleges.

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