

Visualize to Realize through Career Vision Approach

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Abstract— Believing that any student, if given the right kind of inspiration, motivation, training and exposure, will certainly be able to realize his/her potential, the Career Vision Approach program is an integrated and comprehensive program across first year orientation for all incoming undergraduate students of engineering, with an emphasis on student success, learning and earliest introduction into career. First year students are in many ways the most vulnerable group in our institute. Through orientation, peer mentoring and transition, the program is aimed at supporting new students to become successful university learners, prepared to achieve their personal and career goals. This paper focuses on answering two questions: first, ‘why consider strategic approaches to the first year in Engineering education?’ and second, ‘how can we be more strategic about supporting the first year experience?’

Keywords: Induction, Transition, Career Vision

I. INTRODUCTION

To know how to teach our freshmen, we must understand them better. We must have a clear-eyed view of who they are, where they come from, how they have been instructed, what values they hold, and what their expectations and goals are. [Erickson and Strommer, 1991, p4]

In the pursuit of achieving excellence in engineering education, Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology (VNRVJIET) envisaged a unique initiative called ‘CAREER VISION APPROACH (CVA) that is built into academic curriculum and calendars. CVA visualizes the targeted careers for students reflecting the real world in which the student will later be embedded. VNRVJIET provides, through CVA a well-structured learning program that suits the diversified needs of the student population, to enhance their life skills and creative talent. Participation in these activities provides opportunities for students to see how what they are learning, works in different settings on and off the campus. Thus, through this program, student’s leaning is facilitated and enhanced through career building enriched educational experiences.

A. Why Strategic approaches to first year students in engineering Education?

1) Why it matters

“It’s time for colleges and universities to rethink the traditional roadmap for career preparation to accelerate their students’ long-term career success.”[8]

As this generation prepares for their future, many studies have shown that one of the most important factors in choosing an Institute is the Institute’s reputation for job placement after graduation. For this reason, it’s important for Institutes and universities to understand more about their current and future students’ perceptions and motivators as they relate to career influencers and career preparation so they can:

- Provide their students with the tools and resources they need to be successful in the workforce, and
- Differentiate their Institute college/university to help reach their recruitment.

For some students, particularly those from different economic, linguistic, social and culturally deprived backgrounds, the transition to university can be a significant battle in that it may constitute a conflict of values, a challenge to one’s identity and a threat to familiar ways of knowing and doing (Krause, 2006).

There is therefore certainly a need to stress the importance of strategic thinking, planning, policy making and action as fundamental to supporting successful student transition to higher education and ensuring a high quality first year experience for a diverse range of students.

In order to maintain standards and rigor in the first year and at the same time being responsive to the changing environment in which students live, study and work- both now and in the future, Institutes need to be proactive in shaping novice student’s experiences, attitudes and behaviors.

Careful planning and thought must be given to how we manage student expectations in such an environment: balancing responsive action with responsible curriculum, assessment and student support initiatives.

Strategic thinking and action is also demanded of institutes in light of the demands of the industry for more work-ready, well rounded graduates who demonstrate both depth of knowledge and breadth of skills.

Where students are effectively engaged and integrated into the institution, their connections with the facets of the institute are strong and seamless, and the institution reciprocates by ensuring that every effort has been made to be relevant to students’ lives beyond the institute

First year students in turn need to study their career options carefully early.

B. How can the institute be more strategic about supporting the first year experience?

Recognizing that the years between Engineering studies and the rest of a student's life is all about "finding yourself", the Career Vision program is a step towards increasing the sense of direction among the students, helping the students discover their true strengths, develop confidence in the decisions they make and motivate them to succeed in life.

Understanding early what one needs to be successful in a career in professional will help the student make better choices, be more focused and confident and satisfied. This will make the process more efficient and will give a lot more control and less stress.

Understanding that student career readiness is a core goal for the institute and its present generation of students preparing for their future, VNRVJIET envisaged a new initiative called Career Vision Approach (CVA).

The first step in supporting students' transition from school to university education is a comprehensive system of induction to institute life for incoming first year students. Students' first encounters with the institute establish lasting impression.

The primary goal should be to engage the first year student making the transition to professional education in life learning. This is partly influenced by the student's perceptions of how relevant the university experience is in terms of personal career aspirations and goals for the future. The student should be involved in self-reflection during the engagement process dreaming of the opportunities and skills need to be developed in order to achieve their goals.

C. Induction Process

As a first step in supporting student learning, the institute initiates the students into the academic program through a structured induction process for a successful transition and to create a vision of their careers early in the program. By relating the student's perceptions and motivators to career influences and career preparation, the institute provides the students with the tools and resources they need to be successful in their careers.

The Induction process is meant to:

- Introduce the students to the various learning centers and the opportunities available at the institute.
- Facilitate the interaction with faculty and senior students-Matrixing
- Demonstrate how the facilities can be used to improve the student's self-learning skills.
- Create awareness of the milieu of engineering education and its implications.
- Motivate and stimulate students to put their best efforts in their chosen field.

II. METHODOLOGY

During the first three days at the institute, the students along with their mentors

Visit the all the Central and Departmental facilities, get acquainted with Faculty members and attend to talks in the department regarding the Curriculum and the scope of the course.

Also, a unique feature of the induction program is Matrixing. This event allows first-year students to interact with the senior students in a casual environment. Initially it helps to get to know each other. Experiences are shared by the seniors on various issues - academic, extracurricular and co-curricular. During the second round of matrixing later in the year, the senior students present their projects in progress and a roll- on of these projects to the next lower level seniors and the next is explored. This event helps to create an environment where the common project interests are identified. The purpose is to help the new comers understand the different core areas and decide the area of interest and specialization for their upcoming projects during the course of time.

Once the students begin settling down in their courses of their first-year Engineering Program, the sessions of the Career Vision program begin. These sessions are integrated into the academic timetables and are aimed at providing the student a vision of his career early in the first-year.

Career Vision Approach(CVA) is designed to set first-year students on their own career paths equipped with appropriate tools for exploration and discovery, and provide them with the expectations of the industry and opportunities to develop the necessary skills to fully engage as learners and ultimately as citizens.

The purpose of career vision is to give a clear and inspiring direction to the students for their future. Career Vision creates vision and clarity from vagueness, and confusion by providing objectivity, support and confidentiality, within a framework of action planning, and accountability that ensures goals are achieved. It keeps the students focused on their long-term objectives and enables them to define and maintain their personal direction, so that they are not swayed off track.

The images in a student's Career and Life Vision will reflect one's desires about different aspects of one's work and life: culture, pace, surroundings, activities, expertise, experiences, people and other broader life factors, including family, friendships, community, the world, values, time, relationships, and possessions.

Once the student envisions and clearly see these images, he/she can work backwards to explore and evaluate various career paths that could lead him/her towards making these images real.

VNR VJIET adopts a proactive approach to career vision, focusing on the emerging future and the unfolding events and trends, allowing one to anticipate and plan for the future before it arrives.

The CVA program's goal is to approach 'whole student growth' by having students identify their strengths, create a self-directed learning plan, relate their strengths toward personal, academic, and career success, and establish a culture of reflection that leads to lifelong learning. These outcomes are enhanced by high impact practices that engage and motivate student learning.

Consistent with the mission of the college and embedded in the required first year engineering sequence, the program leverages current research in engineering education and first year experiences to meet students' learning and development needs.

The career vision approach program at VNR VJIET recognizes that each person's aptitudes—the potential to acquire a skill or learn to perform a task are different- that each person has a unique combination of aptitudes that provides insight into what types of work tasks and environments offer the greatest potential for success *and* satisfaction.

Through career vision,

- Students understand their natural abilities
- Gain clarity and purpose in their career direction
- Develop strategies to make the transition
- Create a “career vision” or a detailed picture that integrates personal information with their current situation and opportunities in the workplace
- Develop self-knowledge and confidence to engage in the process
- Determine and develop a self-marketing strategy to accomplish their desired outcome

Thus, four years prior to their graduation, the student in the First Year is aptly called an “Engineer-in Dreams”. During this year, the students are given insights into technological developments. They attend talks given by Alumni about experiences in industry and insights into the work of practicing Engineers, have sessions where they interact with each other developing the leadership and team building skills, get introduced to the entrepreneurial activities of the institute and become acquainted with the various differentiators of the institute.

Stimulating lectures by practicing and renowned engineers give a know-how of engineering education, enabling the students to understand the difference it makes to the individual and the society, ethical implications and the impact of all these in contributing to the society

Thus awareness is created of the milieu of engineering education and its implications; are motivated and stimulated to put their best efforts in their chosen field.

The students are exposed to these themes for four weeks along with their academic programs. The students then present their understanding of these themes, thus cultivating a more intellectually stimulating environment and creating exceptional and memorable connections, making a critical difference in their first year engineering experience.

Participating in these activities enables the student to envision the career that will completely fulfill them. These activities help the students to visualize their goal or a vision of their future- a vision that inspires, energizes, motivates and directs them into achieving it. The first year learning thus focuses on supporting overall enhancement and promoting a personal foundation for lifelong learning. The student in the first year is called an “Engineer-in-Dreams”.

Four Years prior to graduating as an engineer, a student visualizes his or her career prospects and CVA offers a student to preset his or her goal.

The student could choose from one of the following diverse careers:

- Research
- Concept development and Innovation
- Design and Development
- Testing and Validation
- Manufacturing and Quality Systems
- Analytics and Post Delivery systems
- Entrepreneurship
- Jobs in Defence, Government and others

CVA envisaged a learning process that is on one hand campus based and on the other it is external to campus. In the campus based learning, CVA includes the traditional methods like class room learning, tutorials and participating in laboratory experiments, self-study through open sources, active learning techniques, etc.

Of the various learning components in the campus based learning, learning percentage from tutorials and lab works is emphasized much more than the other components. VNR VJIET designs the undergraduate laboratory course to work out a healthy balance between the “Wholeness of knowledge” and specialization that caters to a current technological demand.

External to campus includes learning through Industry and attending and participating in projects, seminars, workshops, etc.

Multiple transitions that students experience as they move from one year to the next are also to be related.

III. VNR VJIET ROAD MAP FOR TRANSFORMING THE INSTITUTE TO CAREER EXPERIENCE

A. Career Vision Approach

1) I Year: Building Career Vision – “Engineer in Dreams”

- Orientation and Matrixing with the seniors
- Insights into Engineering Career options

B. II year: Experiencing career Vision- “Shadow Engineer”

- Shadow Engineering
- Mapping to Industry competencies

C. *III year: Fine tuning Career Vision- “Engineer in Mirror”*

- Workplace technologies
- Independent term papers and Projects
- Assessment on soft skills

D. *IV year: Reaching Career Vision- “Engineer in Project”*

- Industry relevant project
- Industry Cap (placements)
- Corporate Readiness program

IV. I YEAR: BUILDING CAREER VISION – “ENGINEER IN DREAMS”

As a first step in supporting students learning, the Institute initiates the students into the academic environment through a structured induction process for a successful transition and to create a vision of their careers right in the beginning. As part of induction, Four Years prior to their graduation, a sense of curiosity and explorative thirst for new and innovative technologies is triggered through exhibiting TED and other Videos and an awareness to goal setting and industry expectations and various career opportunities, team-building and leadership skills and entrepreneurship skills is created through the themes:

- Exposure to New Technology & Careers through Ted Videos
- Thinking Differently
- Skills and Josh
- Entrepreneur in you

The students are exposed to these themes for four weeks as part of induction by the faculty coordinators of Career Vision Approach. The students then present their understanding of these themes, thus cultivating a more intellectually stimulating environment and making a critical difference in their First Year VNRVJIET experience. The student in the First Year is thus called an Engineer in Dreams.

A. *Career Vision Promotion Centre*

This is a centralized, comprehensive resource centre to assist all VNRVJIET students with their career management needs. The centre is maintained by Library and information resources centre. The centre is utilized by the students to view videos on new and innovative technologies and careers.

V. II YEAR: EXPERIENCING CAREER VISION- “SHADOW ENGINEER

Believing that students learn more when they are intensely involved in their education and are asked to think about and apply why they are learning in different settings, the philosophy of education at VNRVJIET is Career Vision Approach (CVA) of “why they are learning what they are learning”. CVA is envisaged as a learning process that is on one hand campus based and on the other hand it is external to campus.

During the second year of engineering, the students are exposed to the engineering real world of Industry. They spend a week with a current engineer in the multidisciplinary areas (Civil, Computer Science, Electrical, Electronic, Mechanical, Instrumentation, Software &Hardware and System Design, etc.) to see what the industry life is really like and understanding the relevance of the course curriculum in the Industry. Visiting students will go around the Industry, see the manufacturing processes and facilities and most importantly spend time with working engineers about their experiences. It is an opportunity for budding engineers to learn what it means to be an engineer and more importantly mapping their curriculum to industry competences and realizing why they are learning what they are learning. The student in the second Year is appropriately called a Shadow Engineer.

VI. III YEAR: FINE TUNING CAREER VISION-“ENGINEER IN MIRROR”

Engineers should be creative, inquisitive and analytical. They should be able to work as part of a team and communicate well. The students of third year are introduced to working on independent term papers and projects, workplace technologies, assessment of soft skills through training, etc. They are sent to domain specific companies for further industry interaction along with the supervising faculty for a week. They interact with the experts in the industry on latest technologies and mirror themselves as engineers working on projects and getting industry ready. During the third year, the student is aptly called an Engineer-in Mirror.

VII. IV YEAR: REACHING CAREER VISION- “ENGINEER IN PROJECT”

- Industry relevant project
- Industry Cap (placements)
- Corporate Readiness program

During the fourth Year, the student works on industry relevant projects, placements cap and corporate readiness programs, practicing the “Seven Habits of highly Effective People”.

VIII. SURVEY

More than 600 students of different branches of III B.Tech participated in the survey conducted by the team leading the Career Vision Approach Program at VNRVJIET.

The survey's three key objectives were:

A. Did the CVA Program Achieve the Purpose of;

- preparing the student to plan his career after being exposed to the various themes at the beginning of First-year
- influencing students' career choice decisions, their project and internship experiences, and the anxieties and pressures they face related to achieving their goals post-college

B. Survey Analysis

The responses from a random sample from a pool of 600 students were analyzed to:

- Evaluate the pervasiveness of Career Vision program in their professional lives.
- Identify if there is any influence of the Career Vision program on the student to initiate the process of career path visualization.

55

Number of
new Career
Paths
envisioned

IX. RESULTS OF SURVEY

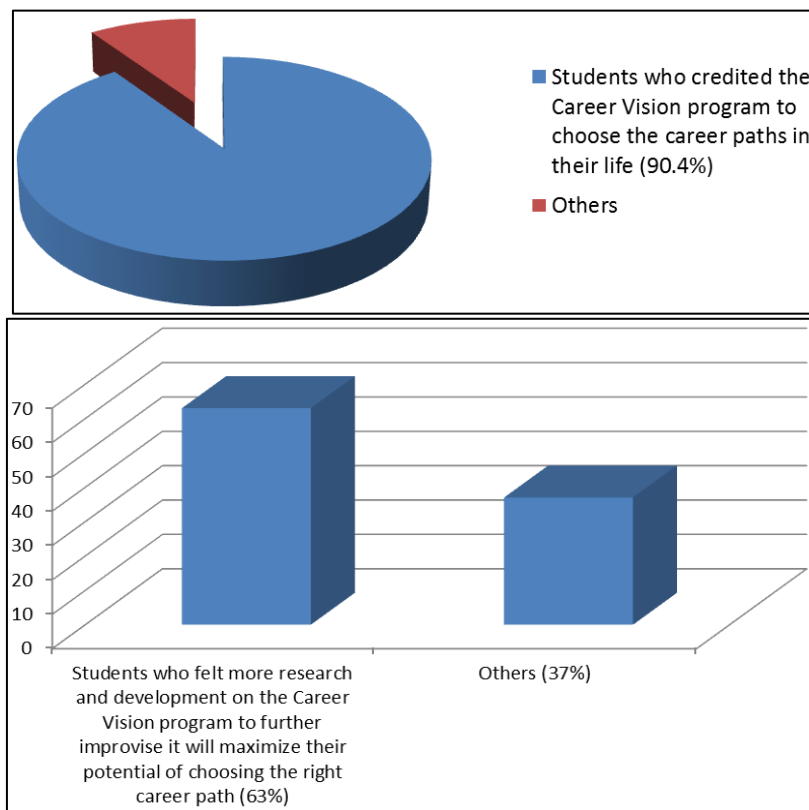


Fig. 1: Results of Survey

X. CONCLUSIONS AND FUTURE WORK

This paper aims to present a strategic approach designed to set first-year students of engineering education on their own career paths equipped with appropriate tools for exploration and discovery, provided with the expectations of the industry and opportunities, to develop the necessary skills to fully engage as learners and ultimately as citizens.

The Career Vision Approach Program at VNRVJIET is thus designed to assist students in discovering their purpose, identifying their strengths, and aligning these newly discovered assets with a plan for their future.

The program can be further improved by including career counseling sessions. The CVA sessions may also be extended to the second and third year level by including the themes wherein they are exposed to more expertise in chosen career paths.

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