

Analysis of Autonomy in Engineering and Polytechnic Colleges

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Abstract— Autonomy is the authority of an institution to decide its activities without any interference from the government. The current research paper covers some of the significant gaps in the literature of autonomy in the context of engineering and polytechnic colleges. The main aim of this research is to analyse the potential of autonomy and its use by autonomous institutions. For this purpose, an instrument is developed comprising 40 parameters and these parameters are categorized into four levels viz Institute level, department level, teacher level, and student level. A four point scale is used to analyse the responses of respondents on all 40 parameters. The study is based on responses of Director, Dean, and faculty members. The results showed that there is enormous potential of autonomy which is not used to its full extent. At the end, important and significant recommendations are made to use the full potential of the autonomy.

Keywords— *autonomy; engineering; polytechnic; potenti; utilization.*

I. INTRODUCTION

The education policies of the county have encouraged autonomy of technical institutions in order to provide need based, relevant and quality education to students. There are number of autonomous technical institutions in India which fall under government funded, government aided and self-financed. Philosophically, it is claimed that autonomous institutions have enormous potential, which can be harnessed for the satisfying the learning needs of the students and delight the employers providing right kind of professionals. The term 'Autonomy' can be defined as ideological shift or transformation. The concept of autonomy in the broader sense denotes a certain level of independence in decision making Olga Verdenhofa (2016). Since autonomy is considered tool so it can be used either way. That is why autonomy goes with accountability.

II. LITERATURE REVIEW

A brief literature survey was carried out on autonomy of higher and technical education and found that most of the

content available is conceptual and based on the personal views of the people.

Rahul Deo (2014) evaluated service quality of autonomous and non-autonomous institute in Indore city, and results showed that autonomous institutes have a greater responsibility and they also offer flexibility in academic curricula, they can change in teaching methodology and training students in latest developments. Raghavendran V. (2018) conducted a micro level study across Karnataka state. The author investigated that, autonomous colleges need to energize within themselves in terms of curricular aspects, teaching-learning, research, consultancy and collaboration, providing full learning resources, student support and progression, adopting best innovative practices. Nikhitha Mary Mathew (2016) investigated the functioning of autonomous colleges according to prescribed guideline, investigation of improvement, potentially disadvantages of the system in Kerala. The results indicated that lack of autonomy in higher education results in the poor quality of education. The results showed that academic autonomy was implemented well in colleges with respect to conduct of examinations and evaluations but it is also observed that not all autonomous colleges reshape courses.

After the brief review of literature it is found that no one attempted to research potential of autonomy and its utilization so a snap study is conducted by researchers.

III. RESEARCH OBJECTIVES

The main objective of the research study is to analyse potential of autonomy and its utilization in the autonomous technical institutions.

IV. RESEARCH METHODOLOGY

It is a SNAP study on potential of autonomy and its utilization so based on the literature gap research problem is defined. The study is completed in various steps as shown in the Figure 1.

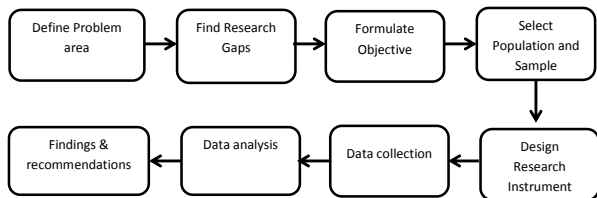


Fig. 1. Research methodology.

A. Population

All autonomous engineering and polytechnic colleges of India.

B. Sample

Purposive sampling technique is used. The research instrument was mailed to 800 respondents out of which 83 respondents provided information within time limit.

C. Design of research instrument

The instrument is designed based on the literature review, experiences of the researchers and future trends taking place in higher and technical education of India. A four point rating scale for ascertaining the potential of autonomy and its utilization on significant and important parameters is designed addressing all levels and dimensions of autonomy. This instrument comprises of 40 indicators, out of which 20 are stated at institute level, 5 stated at department level, 10 stated at teacher level and 5 stated at students level respectively. A four point scale was used to record the opinion of respondents on all forty parameters at two dimensions, one on potential of autonomy and other on utilization of autonomy. The parameters on potential of autonomy are framed in a way to avoid the overlaps at institute, department, teacher and student level. These parameters are derived from the literature review. The research instrument was circulated to 40 potential respondents to know their views on the content coverage, structure and language. Based on the views of the respondents the instrument is fine-tuned in the light of the research objective. Then the instrument was prepared in google form for data collection.

D. Data collection

The instrument was mailed to 800 respondents for gathering their responses on potential of autonomy and its utilization. Total 15 days time was given to the respondents for providing the information. In all 83 respondents from different autonomous institutions provided information.

E. Data analysis

Excel sheet is used to calculate weighted mean of the responses on all parameters on 'potential of autonomy' and 'potential utilized' by autonomous institutions.

V. RESULTS AND DISCUSSIONS

The analysis of the data is done at institute, department, teacher and student level on identified parameters. The results are based on the analysis of the data.

A. Analysis of Responses at Institute Level

- Professional governance of institute through policies and systems: More than 45% respondents rate very high, 39% respondents rate high, 13% respondents rate average and 4% respondents rate low potential of autonomy on professional governance of institute through policies and systems. But, in case of utilization of autonomy 22% rate very high, 43% rate high, 27% rate average and 8% rate low.
- Effective and efficient management at institute level: More than 46% respondents rate very high, 41% respondents rate high, 11% respondents rate average and 2% respondents rate low potential of autonomy on effective and efficient management at institute level. But, in case of utilization of autonomy 22% rate very high, 40% rate high, 28% rate average and 11% rate low.
- Quality education: More than 46% respondents rate very high, 37% respondents rate high, 12% respondents rate average and 5% respondents rate low potential of autonomy on quality education to all students of all batches. But, in case of utilization of autonomy 19% rate very high, 46% rate high, 22% rate average and 13% rate low.
- Management of change and innovation: More than 47% respondents rate very high, 36% respondent rate high, 13% respondents rate average and 4% respondents rate low potential of autonomy on Management of change and innovation. But, in case of utilization of autonomy 24% rate very high, 36% rate high, 31% rate average and 8% rate low.
- High quality research work at institute level: More than 36% respondents rate very high, 36% respondents rate high, 14% respondents rate average and 13% respondents rate low potential of autonomy on high quality research work at institute level. But, in case of utilization of autonomy 14% rate very high, 22% rate high, 37% rate average and 27% rate low.
- Implementation of collaborative projects: More than 45% respondents rate very high, 33% respondents rate high, 16% respondents rate average and 7% respondents rate low potential of autonomy on implementation of collaborative projects with

stakeholders including industry. But, in case of utilization of autonomy 16% rate very high, 34% rate high, 30% rate average and 20% rate low.

- Generation of resources: More than 36% respondents rate very high, 39% respondents rate high, 14% respondents rate average and 11% respondents rate low potential of autonomy on generation of resources to meet the growing requirements. But, in case of utilization of autonomy 18% rate very high, 36% rate high, 29% rate average and 17% rate low.
- Extension activities: More than 27% respondents rate very high, 46% respondents rate high, 22% respondents rate average and 6% respondents rate low potential of autonomy on extension activities to masses related to areas of functioning of the institute. But, in case of utilization of autonomy 12% rate very high, 37% rate high, 34% rate average and 17% rate low.
- Fulfilling corporate social responsibility: More than 35% respondents rate very high 39% respondents rate high, 16% respondents rate average and 11% respondents rate low potential of autonomy on fulfilling corporate social responsibility. But, in case of utilization of autonomy 16% rate very high, 33% rate high, 35% rate average and 17% rate low.
- Patent filing: More than 29% respondents rate very high 39% respondents rate high, 16% respondents rate average and 17% respondents rate low potential of autonomy on patent filing. But, in case of utilization of autonomy 12% rate very high, 25% rate high, 22% rate average and 41% rate low.
- Publication of research papers and reports: More than 39% respondents rate very high, 35% respondents rate high, 19% respondents rate average and 7% respondents rate low potential of autonomy on publication of research papers and reports. But, in case of utilization of autonomy 19% rate very high, 34% rate high, 28% rate average and 23% rate low.
- Setting benchmarks: More than 43% respondents rate very high, 34% respondents rate high, 18% respondents rate average and 5% respondents rate low potential of autonomy on setting benchmarks in areas of functioning for other institutions. But, in case of utilization of autonomy 19% rate very high, 35% rate high, 31% rate average and 14% rate low.
- Institute branding: More than 53% respondents rate very high, 27% respondents rate high, 17% respondents rate average and 4% respondents rate low potential of autonomy on institute branding among students and employers. But, in case of utilization of autonomy 29% rate very high, 43% rate high, 18% rate average and 10% rate low.
- Accreditation of programmes: More than 45% respondents rate very high, 35% respondents rate high, 13% respondents rate average and 7% respondents rate low potential of autonomy on accreditation of programmes and institute from national and international agencies. But, in case of utilization of

autonomy 25% rate very high, 41% rate high, 19% rate average and 14% rate low.

- Satisfaction of employees: More than 31% respondents rate very high, 43% respondents rate high, 18% respondents rate average and 7% respondents rate low potential of autonomy on satisfaction of employees. But, in case of utilization of autonomy 11% rate very high, 40% rate high, 33% rate average and 17% rate low.
- Generate funds to promote motivational teaching: More than 40% respondents rate very high, 25% respondents rate high, 25% respondents rate average and 10% respondents rate low potential of autonomy on generate funds to promote motivational teaching. But, in case of utilization of autonomy 10% rate very high, 29% rate high, 35% rate average and 27% rate low.
- Professional development of students: More than 42% respondents rate very high, 39% respondents rate high, 14% respondents rate average and 5% respondents rate low potential of autonomy on professional development of students through learner centric pedagogy and Information communication technology. But, in case of utilization of autonomy 19% rate very high, 36% rate high, 33% rate average and 12% rate low.
- Rewards and recognition: More than 41% respondents rate very high, 40% respondents rate high, 12% respondents rate average and 7% respondents rate low potential of autonomy on rewards and recognition for unique achievements to students, faculty members and staff members. But, in case of utilization of autonomy 19% rate very high, 33% rate high, 27% rate average and 22% rate low.
- Attract talented faculty members: More than 45% respondents rate very high, 31% respondents rate high, 19% respondents rate average and 5% respondents rate low potential of autonomy on attract talented faculty members for accepting challenges and meritorious students for admissions. But, in case of utilization of autonomy 20% rate very high, 35% rate high, 24% rate average and 20% rate low.
- Ensure career progression: More than 43% respondents rate very high, 35% respondents rate high, 17% respondents rate average and 5% respondents rate low, potential of autonomy on ensure career progression through training and development for faculty. But, in case of utilization of autonomy 30% rate very high, 41% rate high, 31% rate average and 8% rate low.

B. Analysis of responses at department level

- Offer need based programmes: More than 45% respondents rate very high, 37% respondents rate high, 13% respondents rate average and 5% respondents rate low potential of autonomy on offer

need based programmes. But, in case of utilization of autonomy 16% rate very high, 42% rate high, 28% rate average and 14% rate low.

- Offer flexible programmes: More than 40% respondents rate very high, 42% respondents rate high, 11% respondents rate average and 7% respondents rate low, potential of autonomy on offer flexible programmes to suit the requirements of the students and industry. But, in case of utilization of autonomy 19% rate very high, 40% rate high, 31% rate average and 12% rate low.
- Offer programmes of high quality: More than 41% respondents rate very high, 39% respondents rate high, 17% respondents rate average and 4% respondents rate low potential of autonomy on offer programmes of high quality. But, in case of utilization of autonomy 17% rate very high, 36% rate high, 35% rate average and 12% rate low.
- Develop department: More than 45% respondents rate very high, 37% respondents rate high, 12% respondents rate average and 6% respondents rate low potential of autonomy on develop department for academic programmes, training, research and consultancy. But, in case of utilization of autonomy 18% rate very high, 34% rate high, 35% rate average and 13% rate low.
- Develop the campus connection: More than 41% respondents rate high, 41% respondents rate high, 13% respondents rate average and 5% respondents rate low potential of autonomy on develop the campus connection in between students and mentor. But, in case of utilization of autonomy 19% rate very high, 36% rate high, 31% rate average and 13% rate low.

C. Analysis of responses at teacher level

- Offer latest content: More than 51% respondents rate very high, 27% respondents rate high, 16% respondents rate average and 5% respondents rate low potential of autonomy on offer latest content in science and technology. But, in case of utilization of autonomy 22% rate very high, 35% rate high, 30% rate average and 13% rate low.
- Action-based teaching and learning and reflective practices: More than 48% respondents rate very high, 36% respondents rate high, 12% respondents rate average and 4% respondents rate low potential of autonomy on action-based teaching and learning and reflective practices. But, in case of utilization of autonomy 22% rate very high, 37% rate high, 25% rate average and 16% rate low.
- Use of ICT and flipped class approaches: More than 51% respondents rate very high, 29% respondents

rate high, 16% respondents rate average and 5% respondents rate low potential of autonomy on use of ICT and flipped class approaches. But, in case of utilization of autonomy 23% rate very high, 33% rate high, 29% rate average and 16% rate low.

- Generation of peer student observation: More than 35% respondents rate very high, 39% respondents rate high, 24% respondents rate average and 2% respondents rate low potential of autonomy on generation of peer student observation for improving teaching learning. But, in case of utilization of autonomy 13% rate very high, 34% rate high, 37% rate average and 16% rate low.
- Provide opportunity of self-assessment: More than 45% respondents rate very high, 37% respondents rate high, 13% respondents rate average and 5% respondents rate low potential of autonomy on provide opportunity of self assessment. But, in case of utilization of autonomy 18% rate very high, 46% rate high, 29% rate average and 7% rate low.
- Offer academic and career guidance: More than 54% respondents rate very high, 37% respondents rate high, 6% respondents rate average and 2% respondents rate low potential of autonomy on offer academic and career guidance to students including entrepreneurship. But, in case of utilization of autonomy 20% rate very high, 48% rate high, 17% rate average and 14% rate low.
- Industry based major project work: More than 48% respondents rate very high, 33% respondents rate high, 16% respondents rate average and 4% respondents rate low potential of autonomy on encourage students to undertake industry based major project work and file. But, in case of utilization of autonomy 14% rate very high, 39% rate high, 30% rate average and 17% rate low.
- Undertake consultancy projects: More than 41% respondents rate very high, 36% respondents rate high, 12% respondents rate average and 8% respondents rate low, potential of autonomy on undertake consultancy projects to generate revenue and resources. But, in case of utilization of autonomy 14% rate very high, 31% rate high, 34% rate average and 20% rate low.
- Offer MOOCs based training programmes: More than 40% respondents rate very high, 42% respondents rate high, 10% respondents rate average and 6% respondents rate low potential of autonomy on offer MOOCs based short term training programmes for students and teachers. But, in case of utilization of autonomy 20% rate very high, 36% rate high, 27% rate average and 17% rate low.
- Contribute for furthering the profession: More than 36% respondents rate very high, 39% respondents rate high, 16% respondents rate average and 6% respondents rate low potential of autonomy on contribute for furthering the profession (set

professional benchmarks). But, in case of utilization of autonomy 16% rate very high, 36% rate high, 27% rate average and 22% rate low.

D. Analysis of responses at student level

- Demonstrate high level of technical and professional ability: More than 40% respondents rate very high, 37% respondents rate high, 17% respondents rate average and 5% respondents rate low potential of autonomy on demonstrate high level of technical and professional ability. But, in case of utilization of autonomy 14% rate very high, 43% rate high, 22% rate average and 20% rate low.
- Undertake innovative project work: More than 39% respondents rate high, 40% respondents rate high, 16% respondents rate average and 4% respondents rate low potential of autonomy on undertake innovative project work. But, in case of utilization of autonomy 14% rate very high, 37% rate high, 29% rate average and 19% rate low.
- Participate in competitions and debates: More than 43% respondents rate very high, 33% respondents rate high, 14% respondents rate average and 7% respondents rate low potential of autonomy on participate in national and international competitions and debates. But, in case of utilization of autonomy 20% rate very high, 40% rate high, 34% rate average and 18% rate low.
- Publicize innovative work: More than 43% respondents rate very high, 35% respondents rate high, 13% respondents rate average and 6% respondents rate low potential of autonomy on publicize innovative work in seminars and conferences. But, in case of utilization of autonomy 16% rate very high, 35% rate high, 27% rate average and 23% rate low.
- Contribute in consultancy projects and extension services: More than 41% respondents rate very high, 31% respondents rate high, 17% respondents rate average and 8% respondents rate low potential of autonomy on contribute in consultancy projects and extension services of the department. But, in case of utilization of autonomy 18% rate very high, 27% rate high, 29% rate average and 27% rate low.

VI. CONCLUSIONS

It is inferred from the information provided in the analysis that institutions already has autonomy at different level on different areas of functioning at different levels of institute but the utilization varies from 60% to 80%. The utilization of

autonomy on different parameters may be increased by making aware all the department heads, and teachers.

Autonomy is necessary for any engineering and polytechnic college for providing quality education, employability, satisfaction of employee and students and setting benchmarks in various areas. Autonomy used to control examinations, admission process and deciding fee structure also leads to difference in satisfaction level of stakeholders. In autonomous institutes, sustenance of autonomy depends on its utilization. This is the reason that autonomous institutions are rated and recognized in comparison to non autonomous institutions on various dimensions such as faculty, facilities, academic program and administrative system. The results of the analysis showed that the potential of autonomy is not utilized by autonomous institutes to fullest extent on various parameters.

VII. RECOMMENDATIONS

- 1) It is recommended that the Autonomous institutes should
- 2) Improve on governance and management of the institute in order to improve the academics of the institute.
- 3) Ensure quality of education in all programmes through well designed systems and processes.
- 4) Introduce innovations and change in the functioning of the institute in all dimensions such as academics, administration, management, and finance.
- 5) Implement collaborative research projects and problem solving assignments with industry and society.
- 6) Generate resources to meet growing requirements of the institute and improving quality of academic processes.
- 7) Implement extension services for industry and community may be under corporate social responsibility.
- 8) Encourage new product development and file patents.
- 9) Promote research publications and reports based on the research and innovations.
- 10) Set benchmarks for other institutes to follow and create unique image among students and their employers.
- 11) Ensure professional development of faculty members and students and thereby satisfy their needs.
- 12) Encourage healthy competition among students to achieve unique goals and reward them on achievement of goals.
- 13) Offer need based flexible programmes of high quality for the students and training programmes for professionals.

- 14) Develop capacity and capability of the department for academic programmes, training, research and consultancy.
- 15) Mentor, guide, coach and counsel students to harness their full potential for learning and career.
- 16) Implement student centric learning approaches using blended learning, ICT based methods, action learning and reflective practices.
- 17) Encourage students to take projects from world of work and generate economic, environment friendly and sustainable solutions. Encourage them to publish the findings.
- 18) Encourage professional training and development of faculty members for rendering quality services and self-satisfaction.
- 19) Encourage students to participate in international and national level events to learn and share their experiences.
- 20) Involve students in research, consultancy, community development and extension activities of the institute.

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