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Research Article

ENGINEERING GRADUATES IN KERALA: CHALLENGES AND OPPORTUNITIES

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Dr.Sruthy Xavier

Research Scholar, Research Department Of Economics, P.M.Govt.College, Potta P.O, Chalakudy, Thrissur, Kerala, India

ABSTRACT

This article examines the challenges and opportunities faced by engineering graduates in Kerala, India. With the rapid growth of engineering education in the state, it is essential to understand the factors that influence the employability and career prospects of engineering graduates. A mixed-methods approach was employed, including interviews, focus group discussions, and surveys, to gather data from engineering graduates, employers, and educational institutions. The study identified challenges such as a lack of industry-relevant skills, limited practical training opportunities, intense job market competition, and a gap between industry expectations and educational curriculum. However, the research also revealed significant opportunities in the booming IT sector, government entrepreneurship initiatives, and potential for research and development activities. The findings have implications for policymakers, educational institutions, and graduates themselves to enhance the employability and address the challenges faced by engineering graduates in Kerala.

KEYWORDS

Engineering graduates, Kerala, challenges, opportunities, employability, career prospects, industry relevance, practical training, job market, industry expectations, curriculum, IT sector, entrepreneurship, research and development.

INTRODUCTION

Engineering education in Kerala has witnessed remarkable growth over the past decade, leading to a substantial increase in the number of engineering

graduates. However, the employability and career prospects of these graduates have become a subject of concern. As the engineering job market becomes increasingly competitive, it is crucial to understand the

challenges faced by engineering graduates in Kerala and identify the opportunities available to them. This article aims to explore the multifaceted challenges and potential prospects for engineering graduates in Kerala, shedding light on the factors that shape their career trajectories and suggesting strategies to enhance their employability.

The rapid expansion of engineering colleges in Kerala has resulted in a significant increase in the number of engineering graduates. However, this growth has raised questions about the quality of education and the preparedness of graduates for industry demands. Concerns have been raised about the relevance of the engineering curriculum, the acquisition of practical skills, and the alignment of educational outcomes with industry expectations. These issues highlight the need to investigate the challenges faced by engineering graduates in Kerala and identify the opportunities that can lead to their professional success.

The objectives of this study are twofold: (1) to identify and analyze the challenges faced by engineering graduates in Kerala, and (2) to explore the opportunities and potential avenues for their career growth and development. By examining these factors, this research aims to provide valuable insights for policymakers, educational institutions, and engineering graduates themselves to address the challenges and capitalize on the available opportunities.

METHODS

The methods section describes the research approach, data collection methods, and the sample population used in the study.

Research approach:

A mixed-methods approach was employed for this study, combining qualitative and quantitative data collection methods. Qualitative data were gathered through in-depth interviews and focus group discussions, while quantitative data were obtained through surveys.

Sample population:

The participants in this study consisted of engineering graduates, employers from various industries, and representatives from educational institutions in Kerala. The selection of participants was based on purposive sampling to ensure diverse perspectives and experiences. For the survey component, a randomly selected sample of engineering graduates from different engineering disciplines and colleges in Kerala was included.

Data collection:

Semi-structured interviews and focus group discussions were conducted to gather qualitative data. These sessions explored the challenges faced by engineering graduates and the potential opportunities available to them. The interviews and discussions were audio-recorded and transcribed for analysis. Additionally, a survey questionnaire was developed to collect

quantitative data on the experiences, perceptions, and aspirations of engineering graduates. The survey was administered online, and the responses were collected for statistical analysis.

Data analysis:

Thematic analysis was employed to analyze the qualitative data obtained from interviews and focus group discussions. The transcriptions were coded and

organized into themes and sub-themes related to challenges and opportunities for engineering graduates. For the survey data, descriptive statistics and inferential analysis were performed to examine the patterns and associations within the quantitative responses.

RESULT

The results section presents the findings of the study, focusing on the challenges faced by engineering graduates in Kerala and the opportunities available to them.

Challenges Faced by Engineering Graduates:

Lack of Industry-Relevant Skills:

The majority of engineering graduates expressed concerns about their lack of industry-relevant skills. They felt that the theoretical knowledge acquired during their education did not adequately prepare them for the practical demands of the job market.

Limited Practical Training Opportunities:

The study revealed that practical training opportunities, such as internships and industry projects, were not integrated effectively into the engineering curriculum. This resulted in a gap between theoretical learning and real-world application, hindering graduates' ability to apply their knowledge in practical settings.

Intense Job Market Competition:

The rapid growth of engineering colleges in Kerala has led to an oversupply of engineering graduates, resulting in intense competition for limited job opportunities. Graduates expressed concerns about

the fierce competition and the challenges of securing suitable employment.

Gap between Industry Expectations and Educational Curriculum:

The study found that there was a gap between the expectations of the industry and the content of the engineering curriculum. Graduates reported that the curriculum did not adequately address the emerging needs and technologies in various industries, creating a mismatch between their skills and industry requirements.

Opportunities for Engineering Graduates:

Booming IT Sector: The research highlighted the significant opportunities available to engineering graduates in the booming IT sector in Kerala. The IT industry offers a wide range of job prospects, including software development, data analytics, and cybersecurity.

Government Entrepreneurship Initiatives:

The study identified government initiatives promoting entrepreneurship as potential avenues for engineering graduates. Government support programs, financial assistance, and incubation centers can help graduates establish their startups and contribute to job creation.

Research and Development:

The study revealed the potential for engineering graduates to engage in research and development activities. Collaborations between educational institutions, industries, and research organizations can provide graduates with opportunities to participate in innovative projects and contribute to technological advancements.

These findings provide valuable insights into the challenges faced by engineering graduates in Kerala and the opportunities available to them. The subsequent discussion will further analyze these results, discuss their implications, and provide recommendations for addressing the identified challenges and maximizing the potential opportunities for engineering graduates in the state.

DISCUSSION

The discussion section interprets the results, provides insights into the implications of the findings, and discusses potential solutions to address the challenges faced by engineering graduates in Kerala.

Interpretation of Findings:

The findings of this study highlight several significant challenges faced by engineering graduates in Kerala. One of the key challenges is the lack of industry-relevant skills among graduates. The engineering curriculum often focuses heavily on theoretical knowledge, leaving graduates ill-prepared for the practical aspects of their chosen field. This mismatch between industry expectations and the skills acquired during education hampers the employability of graduates and increases their struggle to secure suitable jobs.

Another challenge identified is the limited exposure to practical training opportunities. The study found that internships and industry projects were not adequately integrated into the curriculum, resulting in a gap between theoretical learning and real-world application. Without hands-on experience, graduates face difficulties in translating their knowledge into practical skills and adapting to the demands of the industry.

Furthermore, the intense competition in the job market poses a significant challenge for engineering graduates. The rapid growth of engineering colleges in Kerala has led to an oversupply of graduates, increasing the competition for limited job opportunities. This situation puts additional pressure on graduates to distinguish themselves and stand out among their peers.

Implications and Recommendations:

The findings have several implications for stakeholders, including policymakers, educational institutions, and engineering graduates themselves. To address the challenges faced by engineering graduates in Kerala, the following recommendations are proposed:

Enhancing the Curriculum:

Educational institutions should revise the engineering curriculum to incorporate more industry-relevant courses and practical training components. This includes promoting hands-on learning, project-based assignments, and internships. Collaboration between educational institutions and industry experts can help ensure that the curriculum reflects the evolving needs of the job market.

Strengthening Industry-Academia Collaboration:

Establishing stronger ties between educational institutions and industries is essential. Industry partnerships can provide students with opportunities for internships, guest lectures, and mentorship programs. This collaboration can also facilitate the sharing of industry insights and trends, helping educational institutions align their offerings with industry expectations.



Promoting Entrepreneurship:

The study identified entrepreneurship as a potential avenue for engineering graduates. Government initiatives and support programs should be established to encourage entrepreneurship among engineering graduates. Providing resources, mentoring, and financial support for startups can help graduates explore entrepreneurial opportunities, create job opportunities, and contribute to the economy.

Continuous Skill Development:

Engineering graduates should proactively engage in continuous learning and skill development to stay updated with emerging technologies and industry trends. Participating in professional development programs, attending workshops and seminars, and obtaining industry certifications can enhance graduates' employability and competitiveness.

Bridging the Industry-Graduate Gap:

Increased collaboration between industry and educational institutions can help bridge the gap between industry expectations and the skills acquired by graduates. Industry participation in curriculum development, guest lectures, and internships can provide graduates with exposure to real-world challenges and enhance their industry readiness.

It is crucial for stakeholders to work collectively to address these challenges and capitalize on the available opportunities. By equipping engineering graduates with industry-relevant skills, practical training, and entrepreneurship support, Kerala can nurture a skilled workforce that meets the demands of a rapidly evolving job market.

CONCLUSION

In conclusion, this study sheds light on the multifaceted challenges faced by engineering graduates in Kerala and the potential opportunities available to them. The findings highlight the need for a comprehensive approach involving various stakeholders to address the challenges and enhance the employability and career prospects of engineering graduates in the state.

The study identified several challenges, including a lack of industry-relevant skills, limited practical training opportunities, intense job market competition, and a gap between industry expectations and the educational curriculum. These challenges call for a closer alignment between engineering education and industry requirements. It is imperative to emphasize practical-oriented learning, strengthen industry-academia collaborations, and provide more robust internship programs. By bridging the gap between theoretical knowledge and practical skills, engineering graduates can be better prepared to meet the demands of the job market.

However, amidst the challenges, significant opportunities exist for engineering graduates in Kerala. The booming IT sector, government initiatives promoting entrepreneurship, and the potential for research and development activities offer avenues for career growth and professional development. It is crucial for engineering graduates to capitalize on these opportunities by acquiring relevant skills, staying updated with emerging technologies, and fostering a spirit of innovation.

To address the identified challenges and capitalize on the available opportunities, collaboration among policymakers, educational institutions, industry

representatives, and engineering graduates themselves is essential. This collaboration should focus on revisiting and revising the engineering curriculum to meet industry demands, enhancing practical training opportunities through internships and industry projects, and fostering an entrepreneurial ecosystem that encourages innovation and job creation.

Furthermore, ongoing monitoring and evaluation of interventions aimed at addressing the challenges faced by engineering graduates will help ensure their effectiveness and inform future initiatives. Longitudinal studies tracking the career trajectories of engineering graduates can provide insights into the long-term impact of interventions and help shape policies and programs accordingly.

By addressing the challenges and leveraging the opportunities, engineering graduates in Kerala can be better equipped to navigate the dynamic job market, contribute to the state's economic growth, and fulfill their potential as skilled professionals and innovators.

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