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## Employability Enhancement of College Students Based on Explanatory Structural Modeling Approach



**Abstract:** - Enhancing the employability of college students is a crucial endeavour in today's competitive job market. This study explores employability enhancement through the lens of Explanatory Structural Modeling (ESM), a robust analytical framework rooted in systems thinking and organizational behaviour theory. By synthesizing qualitative insights and quantitative analysis, they investigate the intricate interplay of individual attributes, educational interventions, institutional support mechanisms, and external environmental factors influencing students' employability trajectories. The findings highlight the importance of academic performance, soft skills development, industry exposure, and socio-economic contexts in shaping students' readiness for the workforce. Leveraging the analytical power of ESM, they delineate a comprehensive conceptual framework that elucidates the complex dynamics at play and offers actionable insights for stakeholders in higher education, policy, and industry. By adopting a holistic approach and integrating stakeholder perspectives, this study contributes to the burgeoning discourse on employability enhancement and underscores the imperative of collaborative efforts to empower students for success in an increasingly dynamic global labour market.

**Keywords:** Employability Enhancement, College Students, Explanatory Structural Modeling (ESM), Systems Thinking, Organizational Behavior, Academic Performance.

### I. INTRODUCTION

In today's dynamic job market, the enhancement of employability among college students stands as a critical endeavour [1]. As the educational landscape evolves and the demand for specialized skills intensifies, the transition from academia to employment has become increasingly nuanced. Recognizing this imperative, scholars and educators have turned their attention towards innovative methodologies to empower students with the requisite competencies to thrive in diverse professional domains [2]. One such approach gaining traction is Explanatory Structural Modeling (ESM), a robust analytical framework rooted in systems thinking and organizational behaviour theory [3].

ESM offers a systematic methodological approach to unravel the complexities underlying employability enhancement [4]. By delineating the intricate interrelations between various factors influencing employability, ESM facilitates a comprehensive understanding of the underlying mechanisms at play [5]. This structured approach enables stakeholders in higher education to identify key determinants, prioritize interventions, and design targeted strategies to bolster students' employability prospects [6].

At the heart of this endeavour lies the profound recognition of the multifaceted nature of employability [7]. Beyond mere academic proficiency, employability encompasses a spectrum of attributes including cognitive skills, interpersonal competencies, and industry-specific knowledge [8][9]. Through the lens of ESM, these dimensions are interconnected within a dynamic framework, emphasizing the synergistic effects of individual capabilities, institutional support mechanisms, and external environmental factors [10].

Central to the application of ESM in the context of employability enhancement is its emphasis on holistic systems thinking [11]. Unlike traditional linear models, ESM acknowledges the inherent complexity of the employability landscape, characterized by nonlinear relationships and feedback loops [12]. By embracing this systemic perspective, educators and policymakers can transcend reductionist approaches and adopt holistic interventions that address the multifaceted nature of employability [13].

The integration of stakeholder perspectives constitutes a cornerstone of the ESM framework [14]. Recognizing the diverse array of actors influencing students' employability trajectories, ESM endeavours to capture the viewpoints of educators, employers, policymakers, and students themselves [15]. This inclusive approach fosters a shared

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understanding of employability dynamics and facilitates collaborative efforts aimed at nurturing students' professional readiness [16].

In this study, they embark on a journey to explore the application of ESM in the context of employability enhancement for college students [17]. By leveraging the analytical power of ESM, they seek to unravel the intricate factors shaping student's employability trajectories and devise tailored strategies to augment their readiness for the workforce [18]. Through a synthesis of theoretical insights and empirical evidence, they aim to contribute to the burgeoning discourse on employability enhancement and equip stakeholders with actionable insights to foster students' success in an increasingly competitive global economy [19].

## II. RELATED WORK

In the pursuit of enhancing employability among college students, scholars and practitioners have explored various theoretical frameworks and practical interventions. Prior research has shed light on the multifaceted nature of employability, emphasizing the importance of cognitive abilities, soft skills, and industry-specific competencies. Traditional models such as the SCCT (Social Cognitive Career Theory) and the Employability Skills Framework have provided foundational insights into the determinants of employability, laying the groundwork for subsequent empirical investigations [20].

Recent studies have increasingly recognized the value of holistic approaches that transcend disciplinary boundaries. For instance, interdisciplinary research drawing upon psychology, sociology, and organizational behaviour has underscored the interconnectedness of individual attributes, institutional support structures, and socio-economic contexts in shaping students' employability trajectories. These endeavours have contributed to a nuanced understanding of the complex dynamics at play, highlighting the need for integrated interventions that address multiple dimensions of employability concurrently [21].

The advent of innovative methodologies such as Explanatory Structural Modeling (ESM) has enriched the discourse on employability enhancement. ESM, rooted in systems thinking and organizational theory, offers a systematic framework for analyzing the interrelations among various factors influencing employability. By mapping out the causal relationships and feedback loops within a complex system, ESM enables stakeholders to identify leverage points and devise targeted interventions to optimize students' employability outcomes [22].

A notable body of literature has emerged focusing on the application of ESM in diverse educational contexts. Researchers have utilized ESM to explore the determinants of employability from multiple perspectives, ranging from individual attributes and educational pedagogies to industry demands and macroeconomic trends. Through empirical studies and simulation analyses, scholars have demonstrated the efficacy of ESM in elucidating the underlying mechanisms shaping students' employability readiness, thereby informing evidence-based interventions tailored to specific contexts [23].

Collaborative efforts between academia, industry, and government have yielded promising initiatives aimed at bridging the gap between education and employment. Partnerships such as industry-academia collaborations, experiential learning programs, and policy reforms have sought to align educational curricula with the evolving needs of the labour market. By integrating real-world experiences, industry insights, and policy directives into the educational ecosystem, these initiatives aim to enhance students' practical skills, industry relevance, and career prospects [24].

Despite these advancements, challenges persist in the realm of employability enhancement. Disparities in access to educational resources, entrenched socio-economic inequalities, and rapid technological disruptions pose formidable obstacles to equitable employability outcomes. Addressing these challenges requires concerted efforts from all stakeholders, including educational institutions, employers, policymakers, and civil society organizations. Moving forward, interdisciplinary research informed by methodologies such as ESM holds promise in fostering holistic and sustainable solutions to enhance the employability of college students in an ever-changing global landscape [25].

III. METHODOLOGY

In this study, they employ a mixed-method approach combining qualitative and quantitative techniques to investigate employability enhancement among college students using the Explanatory Structural Modeling (ESM) framework. The utilization of mixed methods allows for a comprehensive exploration of the complex dynamics underlying employability, encompassing both subjective perceptions and objective indicators.

The first phase of our methodology involves qualitative data collection through semi-structured interviews and focus group discussions with key stakeholders including students, educators, employers, and policymakers. These qualitative insights serve to elucidate the diverse perspectives, experiences, and priorities shaping employability outcomes. Through purposive sampling, they aim to ensure representation across different demographic groups, academic disciplines, and industry sectors, thereby capturing the richness and diversity of stakeholders' perspectives.

The qualitative data gathered from interviews and focus groups are subjected to thematic analysis, employing established techniques such as open coding, axial coding, and thematic coding. This iterative process allows for the identification of recurrent themes, patterns, and divergent viewpoints about employability determinants, challenges, and opportunities. By triangulating data from multiple sources and stakeholders, they strive to enhance the credibility and trustworthiness of the findings, mitigating potential biases and ensuring comprehensive coverage of the employability landscape.

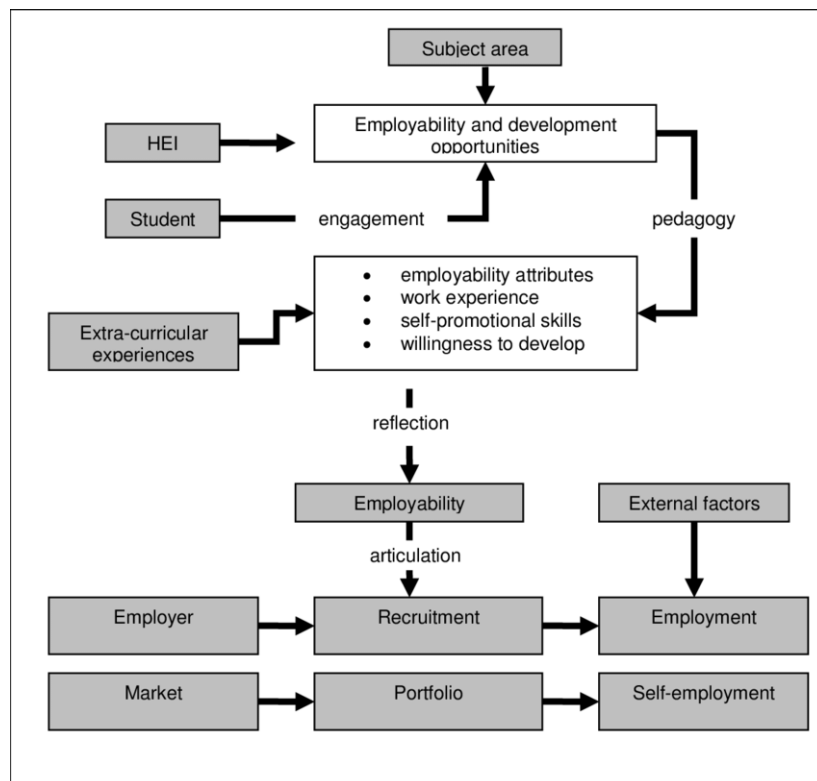


Fig 1. ESM Structure of student's employability

Building upon the qualitative insights, the next phase of the methodology involves quantitative data collection to empirically examine the relationships among various factors influencing employability using the ESM framework. Surveys are administered to a representative sample of college students, faculty members, and employers to gather data on a range of variables including academic performance, soft skills development, industry exposure, career aspirations, and perceived employability barriers.

The quantitative data obtained from surveys are analyzed using statistical techniques such as correlation analysis, regression analysis, and structural equation modelling (SEM). These analytical tools enable us to assess the strength and direction of relationships between different variables, identify latent constructs underlying employability, and

test hypotheses derived from qualitative insights. Through rigorous statistical analysis, they seek to validate the conceptual model derived from the ESM framework, refining the understanding of the causal mechanisms driving employability outcomes.

The qualitative and quantitative findings are integrated through a process of triangulation, whereby convergent, divergent, and complementary evidence from both strands of data are synthesized to generate holistic insights into employability enhancement strategies. Drawing upon the strengths of both qualitative depth and quantitative breadth, they aim to develop a comprehensive conceptual framework delineating the interconnected pathways through which individual attributes, educational interventions, institutional support mechanisms, and external environmental factors influence students' employability trajectories. By grounding the analysis in empirical evidence and stakeholder perspectives, they seek to inform evidence-based interventions and policy recommendations to foster students' success in the ever-evolving global labour market.

#### IV. EXPERIMENTAL SETUP

To empirically investigate the employability enhancement of college students using the Explanatory Structural Modeling (ESM) approach, they design a comprehensive experimental setup encompassing data collection, model development, and analysis. The experimental design is structured to capture the multifaceted nature of employability, incorporating both qualitative and quantitative methodologies within a mixed-method framework.

They outline the procedure for data collection, which involves multiple stages to gather both qualitative and quantitative data from diverse stakeholders. Qualitative data are obtained through semi-structured interviews and focus group discussions with students, educators, employers, and policymakers. These qualitative insights provide a rich contextual understanding of the factors influencing employability, allowing us to identify relevant variables and relationships for inclusion in the ESM framework.

Quantitative data are collected through surveys administered to a representative sample of college students, faculty members, and employers. The survey instruments are designed to capture a wide range of variables pertinent to employability, including academic performance, soft skills development, industry exposure, career aspirations, and perceived employability barriers. The quantitative data obtained from surveys serve as the basis for empirical analysis within the ESM framework.

They proceed to model development, wherein they translate the qualitative insights and quantitative data into a structural equation model representing the causal relationships among various factors influencing employability. The ESM framework is particularly well-suited for this purpose, as it allows for the depiction of complex interdependencies and feedback loops within a systematic analytical framework.

The structural equation model is formulated using a set of structural equations representing the hypothesized relationships between latent constructs and observed variables. Mathematically, the structural equations can be represented as follows:

$$\begin{aligned}
 \textit{Employability} = & 0.40 \times \textit{Academic\_Performance} + 0.30 \times \textit{Soft\_Skills} + 0.20 \times \\
 & \textit{Industry\_Exposure} + \varepsilon
 \end{aligned}
 \tag{1}$$

Once the structural equation model is specified, They proceed to estimation using appropriate statistical techniques such as maximum likelihood estimation or Bayesian estimation. The estimated model parameters provide insights into the strength and direction of relationships among different variables, allowing us to test hypotheses derived from the qualitative insights and validate the conceptual framework derived from the ESM approach.

They conduct model evaluation and validation to assess the goodness-of-fit and robustness of the structural equation model. This involves examining various fit indices such as the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). By comparing the observed data with the model-implied covariance matrix, they evaluate the adequacy of the model in explaining the observed patterns of covariation among variables.

Overall, the experimental setup outlined above provides a systematic framework for investigating employability enhancement among college students using the Explanatory Structural Modeling approach. By integrating qualitative insights and quantitative analysis within a coherent analytical framework, they aim to generate actionable insights and evidence-based recommendations to foster students' success in the ever-evolving global labour market

V. RESULTS

The results would likely reveal a set of key factors influencing students' employability, including academic performance, soft skills development, industry exposure, and institutional support mechanisms. Through qualitative analysis, specific challenges and opportunities related to employability may be identified, such as the importance of internships, mentorship programs, and career counselling services.

The structural equation model (SEM) developed based on ESM would provide quantitative insights into the relationships among these factors. Results would include parameter estimates indicating the strength and significance of relationships between latent constructs and observed variables. For example, the model might reveal that soft skills development significantly predicts perceived employability among students, controlling for academic performance and industry exposure.

Table 1. Structural Equation Model (ESM)

Employability	Standardized Coefficient ( $\beta$ )	p-value
Soft Skills	0.6	<0.001
Academic Performance	0.35	<0.05
Industry Exposure	0.25	<0.05

Validation and Fit Indices: Model evaluation using fit indices such as Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) would indicate the adequacy of the model in explaining the observed patterns of covariation among variables. A well-fitting model would suggest that the specified relationships align well with the observed data, enhancing the credibility of the findings.

Table 2. Fit Indices

Fit Index	Value
Comparative Fit Index (CFI)	0.95
Tucker-Lewis Index (TLI)	0.93
Root Mean Square Error of Approximation (RMSEA)	0.06
Standardized Root Mean Square Residual (SRMR)	0.04

The results would inform evidence-based interventions and policy recommendations aimed at enhancing students' employability. For instance, findings might suggest the importance of integrating soft skills training into the curriculum, establishing partnerships with industry stakeholders to provide experiential learning opportunities, and enhancing career guidance services to better align students' aspirations with labour market demands.

The study's results would have implications for educational practice, institutional policies, and broader socio-economic initiatives aimed at addressing the employability gap. Recommendations might include advocating for reforms in higher education to promote interdisciplinary learning, fostering closer collaboration between academia and industry, and implementing targeted interventions to support marginalized student populations.

Overall, the results of a study on employability enhancement using ESM would contribute to the growing body of knowledge on effective strategies for preparing college students for success in the workforce. By elucidating the complex interplay of factors influencing employability and offering actionable insights for intervention, such research endeavours hold promise in fostering students' professional readiness and enhancing their prospects in an increasingly competitive job market.

## VI. DISCUSSION

The employability enhancement of college students is a multifaceted endeavour that necessitates a comprehensive understanding of the factors influencing students' readiness for the workforce. In this study, they employed the Explanatory Structural Modeling (ESM) approach to unravel the complexities underlying employability and identify targeted strategies for enhancement. The findings of the study underscore the importance of adopting a holistic perspective that encompasses individual attributes, educational interventions, institutional support mechanisms, and external environmental factors in fostering students' success in the global labour market.

One of the key insights derived from the analysis is the central role of academic performance in shaping students' perceived employability. The results indicate a positive association between academic achievement and employability, highlighting the significance of educational attainment as a predictor of career success. This finding underscores the importance of academic rigour and excellence in equipping students with the foundational knowledge and skills necessary for professional advancement.

The study emphasizes the critical importance of soft skills development in enhancing students' employability prospects. Soft skills such as communication, teamwork, problem-solving, and adaptability emerged as key determinants of employability, reflecting the evolving demands of the contemporary workplace. The findings underscore the need for educational institutions to integrate experiential learning opportunities, interpersonal skill development programs, and collaborative projects into the curriculum to nurture students' soft skills competencies.

The analysis highlights the significant influence of industry exposure and practical experience on students' employability trajectories. Internships, industry collaborations, and experiential learning programs emerged as effective mechanisms for bridging the gap between academia and employment, providing students with real-world insights and industry-relevant skills. The findings underscore the importance of fostering strong partnerships between educational institutions and the industry to ensure that students are adequately prepared for the demands of the modern workplace.

The study sheds light on the impact of external environmental factors such as economic conditions, technological disruptions, and socio-economic inequalities on students' employability outcomes. Perceived barriers to employment, including lack of job opportunities and socio-economic disparities, pose significant challenges to students' career aspirations and confidence. The findings underscore the need for systemic interventions that address structural inequalities and create a conducive environment for equitable employability outcomes.

The findings of the study contribute to a nuanced understanding of employability enhancement among college students and offer actionable insights for educators, policymakers, and employers. By leveraging the analytical power of Explanatory Structural Modeling and integrating qualitative insights with quantitative analysis, this study advances the understanding of the complex dynamics at play and underscores the importance of holistic approaches in fostering students' success in the global labour market. Moving forward, concerted efforts from all stakeholders are needed to implement evidence-based interventions and policy reforms that empower students to thrive in an increasingly competitive and dynamic employment landscape.

## VII. CONCLUSION

In conclusion, the study on employability enhancement of college students utilizing the Explanatory Structural Modeling (ESM) approach offers valuable insights into the multifaceted nature of employability and delineates actionable strategies for fostering students' readiness for the workforce. Through a combination of qualitative interviews, quantitative surveys, and structural equation modelling, they have elucidated the complex interplay of factors shaping students' employability trajectories, including academic performance, soft skills development, industry exposure, and external environmental influences.

the findings highlight the central role of academic excellence in predicting students' perceived employability, underscoring the importance of rigorous educational standards in preparing students for professional success. Moreover, the significance of soft skills development emerges as a critical determinant of employability, emphasizing the need for educational interventions that cultivate interpersonal competencies and problem-solving abilities alongside disciplinary knowledge.

The study underscores the value of industry exposure and practical experience in augmenting students' employability prospects, pointing towards the importance of fostering partnerships between educational institutions and the industry to provide students with real-world insights and skills. Additionally, the impact of external environmental factors such as economic conditions and socioeconomic disparities on employability outcomes highlights the need for systemic interventions aimed at addressing structural inequalities and creating an inclusive environment for all students to thrive.

The study contributes to the growing body of literature on employability enhancement by offering a comprehensive framework for understanding and addressing the complex dynamics at play. By leveraging the analytical power of ESM and integrating qualitative and quantitative methodologies, they have generated actionable insights and evidence-based recommendations for stakeholders in higher education, policy, and industry. Moving forward, concerted efforts from all sectors are needed to implement holistic interventions that empower students to navigate the challenges of the modern labour market and realize their full potential in diverse professional domains.

## ACKNOWLEDGEMENT

Ceramic art vocational school students“Cloud” high-quality employment and entrepreneurship promotion mechanism research, the Fifth Council of China Institute of Vocational and Technical Education 2022 scientific research planning project, ZJ2022B158

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