

Exploring Novel Training Methods To Bridge The Industry-Student Gap: A Study Of MCA Students At Rashtrasant Tukadoji Maharaj Nagpur University

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Abstract

To guarantee that students can find work after graduation, it is essential that academic programmes meet the needs of businesses. In order to close the skills gap between employers and Rashtrasant Tukadoji Maharaj Nagpur University's Master of Computer Applications (MCA) students, this research looks at new ways of teaching computer science. The study examines the efficacy of several training techniques in improving students' employment preparedness via a mixed-methods approach, which includes surveys and interviews. Personalised learning, service learning, and gamification are some of the approaches that MCA students are most interested in, and this research looks at their effects on skill development and employability. The study also looks at possible roadblocks to new training techniques' acceptance and offers solutions to such problems. Educational institutions and industry stakeholders may get significant insights from this research on how to improve the employability of MCA graduates. It explains how unique training strategies can close the industry-student gap.

Keywords – Industry-student gap, Employability, Personalized learning, Service learning, Skill development

Introduction

To guarantee that graduates can find work in today's dynamic labour market, it is essential that academic instruction be in line with industry expectations. This is particularly evident in the Master of Computer Applications (MCA) programme, where students are expected to demonstrate not only technical proficiency but also flexibility and job-readiness in response to evolving industry needs and technological developments. Preparing Master of Computer Applications (MCA) students for successful jobs in an ever-changing and competitive market environment is a difficulty that many educational institutions, like Rashtrasant Tukadoji Maharaj Nagpur University, encounter.

Academic programmes have long neglected the relevance and practicality of their lessons in favour of a concentration on theory and technical abilities. But, stakeholders in the business are placing a greater emphasis on the value of non-technical skills, such as the ability to solve problems and have practical experience, alongside technical competency. This means that companies have high expectations of MCA graduates but aren't always met with their actual abilities.

Educational institutions may help close this gap by investigating new approaches to training that bring together academics and business leaders to build well-rounded skill sets. Universities may do a better job of preparing students for success in the modern workforce by incorporating innovative pedagogical approaches and chances for experiential learning into course curricula.

Rashtrasant Tukadoji Maharaj Nagpur University's Master of Computer Applications (MCA) students' employability is the focus of this study, which seeks to examine the efficacy of many creative training approaches in this regard. This project aims to find ways to bridge the gap between students and industry by analysing popular approaches like gamification, personalised learning, and service learning. The goal is to help students get the computer applications jobs they want. In addition, the study will provide practical suggestions for educational institutions and industry partners, as well as investigate possible obstacles to the implementation of new training techniques. Contributing to the current conversation on boosting the employability of MCA graduates in a fast changing digital context, this research explores unique ways to training and skill development.

Literature review

The literature surrounding the employability of Master of Computer Applications (MCA) graduates and the role of innovative training methodologies in bridging the industry-student gap provides valuable insights into the challenges and opportunities in contemporary higher education.

Numerous studies have highlighted the growing demand for skilled IT professionals in various sectors, emphasizing the need for MCA graduates to possess a blend of technical expertise and soft skills (Jayanthi & Govindaraju, 2016; Venkatesh & Srinivasan, 2017). However, there is often a mismatch between the skills taught in academic programs and those required by employers (Jayasudha & Santhi, 2018). This gap underscores the importance of innovative training methods in preparing students for the workforce.

Innovative training methodologies, such as personalized learning, service learning, and gamification, have gained traction in higher education for their ability to engage students, promote active learning, and develop transferable skills (Ke & Kwak, 2013; Deterding et al., 2011). Research suggests that these approaches not only enhance academic performance but also foster creativity, critical thinking, and collaboration—qualities highly valued by employers (Hanus & Fox, 2015; Kapp, 2012).

Personalized learning tailors educational experiences to individual students' needs, interests, and learning styles (Khan, 2014). Studies have demonstrated its effectiveness in improving student outcomes and motivation, as well as fostering autonomy and self-directed learning (Pane et al., 2015; Vlachopoulos & Makri, 2017). In the context of MCA education, personalized learning can provide students with opportunities to explore their interests,

deepen their understanding of complex concepts, and develop specialized skills relevant to their career goals.

Service learning integrates community service with academic coursework, allowing students to apply theoretical knowledge to real-world problems while addressing community needs (Jacoby, 2015). Research indicates that service learning enhances students' civic engagement, social responsibility, and cultural competence, in addition to fostering professional skills such as communication and teamwork (Eyler et al., 2001; Astin et al., 2000). Incorporating service learning into MCA programs can help students develop practical skills, build professional networks, and gain hands-on experience in solving industry-relevant challenges.

Gamification applies game design principles to non-game contexts to engage and motivate users (Deterding et al., 2011). In education, gamification has been shown to increase student engagement, motivation, and retention, as well as promote collaboration and problem-solving skills (Landers & Landers, 2014; Hamari et al., 2014). By gamifying learning experiences, MCA programs can create immersive and interactive environments that simulate real-world scenarios, allowing students to practice skills, receive immediate feedback, and track their progress in a fun and engaging way.

Despite the benefits of innovative training methodologies, challenges such as faculty resistance, limited resources, and institutional inertia may hinder their adoption in higher education settings (Barab et al., 2015; de Barba et al., 2018). Overcoming these barriers requires institutional support, faculty development initiatives, and a culture of innovation that values experimentation and continuous improvement (Graham et al., 2013; Keengwe et al., 2014).

In summary, the literature underscores the importance of innovative training methodologies in enhancing the employability of MCA graduates and closing the industry-student gap. By incorporating personalized learning, service learning, gamification, and other innovative approaches into the curriculum, educational institutions can better prepare students for success in the ever-evolving field of computer applications. However, addressing barriers to adoption and ensuring effective implementation are essential for realizing the full potential of these methodologies in higher education.

Objectives of the study

- The study aims to evaluate the existing gap between the skills possessed by Master of Computer Applications (MCA) students and the expectations of the industry.
- The research seeks to identify and explore various innovative training methodologies that have the potential to bridge the industry-student gap.
- The study aims to measure the effectiveness of the identified innovative training methods in enhancing the employability of MCA students.

Research methodology

In order to thoroughly examine how innovative training methods have helped Master of Computer Applications (MCA) students at Rashtrasant Tukadoji Maharaj Nagpur University bridge the industry-student gap, this study utilised a mixed-methods approach, combining quantitative and qualitative techniques. First, we will perform a quantitative study to find out what capabilities MCA students have, what the business expects of them, and how successful different training methods are. To make sure the data is reliable and valid, the survey will use approved instruments. Next, we will gather more in-depth information on faculty members', industry experts', and students' viewpoints, experiences, and perceptions of novel training approaches and their effect on employability via qualitative interviews. In order to find out what variables affect the success of training programmes and what patterns or themes are emerging from the qualitative data, we will use a thematic analysis approach. To fill the knowledge gap between MCA programmes and the business world, this mixed-methods study will combine quantitative survey data with qualitative interview transcripts to provide a more complete picture of the research topic.

Data analysis and discussion

Table 1 – compilation of mean and different dimensions of training

Training	N	Mean	R	p-value
Design, programming, and creation of projects or experiences that promote learning	150	3.53	123.25	0.002
Design and programming of learning experiences in environments different from the traditional classroom	150	3.24	103.65	0.001
Temporization of a learning process	150	3.36	126.32	0.002
Management of coexistence and participation in innovative learning environments	150	3.42	104.24	0.001
Selection and organization of the appropriate methodology or strategy to promote learning	150	3.46	112.03	0.001
Design, organization, and development of co-teaching	150	3.61	106.24	0.001
Design of learning assessment: what, how, and when to evaluate	150	3.31	119.87	0.001

The table presents a compilation of means and different dimensions of training effectiveness as perceived by the participants, comprising 150 individuals. Each dimension of training, such as the design and programming of projects promoting learning, management of coexistence in innovative learning environments, and design of learning assessments, received relatively high mean scores ranging from 3.24 to 3.61, indicating a favorable perception of their effectiveness. Additionally, significant correlations were observed between the dimensions of training, as indicated by the respective p-values, suggesting interrelatedness among various aspects of training. This analysis implies that the participants perceive these dimensions of training as crucial for promoting effective learning experiences and educational outcomes. The findings underscore the importance of considering multiple

dimensions of training in educational programs to enhance overall effectiveness and address the diverse needs of learners in innovative learning environments.

The results of the study indicate a generally positive perception of various dimensions of training effectiveness among the participants. The high mean scores suggest that the design and implementation of learning experiences, assessment strategies, and collaborative teaching methods are valued components of effective training. These findings align with previous research highlighting the importance of innovative pedagogical approaches in promoting student engagement, learning outcomes, and overall educational quality (Smith & Ragan, 2005; Ke & Kwak, 2013).

Furthermore, the significant correlations observed between different dimensions of training suggest that these aspects are interconnected and mutually reinforcing. For example, effective assessment strategies may inform the design of learning experiences, while collaborative teaching methods can enhance student participation in innovative learning environments. This interconnectedness underscores the holistic nature of training effectiveness and the need for integrated approaches to educational design and delivery (Hattie & Timperley, 2007).

However, it is essential to acknowledge potential limitations of the study, such as sample size constraints and the subjective nature of participant perceptions. Future research could address these limitations by employing larger and more diverse samples and incorporating objective measures of training effectiveness, such as student performance outcomes and retention rates. Additionally, longitudinal studies could explore the long-term impact of innovative training methods on student learning and career success.

In conclusion, the findings of this study contribute to our understanding of effective training practices in educational contexts. By highlighting the importance of various dimensions of training effectiveness and their interrelationships, the study informs educational practitioners and policymakers about strategies for promoting student engagement, learning outcomes, and overall educational quality in innovative learning environments.

Conclusion

In conclusion, the study provides valuable insights into the perceptions of training effectiveness among participants in the educational context. The findings indicate a positive perception of various dimensions of training, including the design of learning experiences, assessment strategies, and collaborative teaching methods. These dimensions are perceived as essential components of effective training that contribute to promoting student engagement, learning outcomes, and overall educational quality in innovative learning environments. The significant correlations observed between different dimensions of training highlight their interconnectedness and mutual reinforcement, underscoring the holistic nature of training effectiveness. These findings have important implications for educational practice, suggesting the importance of integrated approaches to educational design and delivery.

However, it is essential to acknowledge potential limitations of the study, such as sample size constraints and the subjective nature of participant perceptions. Future research could address these limitations by employing larger and more diverse samples and incorporating objective measures of training effectiveness. Overall, the study contributes to our understanding of effective training practices in educational contexts and informs educational practitioners and policymakers about strategies for promoting student engagement, learning outcomes, and overall educational quality in innovative learning environments.

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