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A STUDY ON UPSKILLING AND RESKILLING INITIATIVES FOR FUTURE WORKFORCE IN ACADEMICS AND IT SECTORS AT CHENNAI

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Abstract

In this dynamic economic and technology landscape, the need for continuous learning has transcended the boundaries of personal growth and become a strategic necessity. The advent of artificial intelligence, automation and rapidly shifting industry standards, the result has a widespread concern about job displacement and skill redundancy. With this reference and backdrop, upskilling and reskilling have emerged as powerful tools to ensure employability, and sustainability in both personal careers and organizational success.

Here this study focuses on the role of upskilling and reskilling initiatives in two vital and interlinked sectors with academics and Information Technology (IT). While IT is one of the most affected industries due to technology advancement, the academic sector bears the responsibility of preparing future professionals. Hence, understanding how both sectors perceive and implement skill development strategies is critical to workforce transformation.

Using a structural questionnaire administered among 50 top level professionals across both sectors, this study explores awareness levels, training participations, relevance, barriers, and the role of organizations in supporting such initiatives. The project integrates a comprehensive literature review and presents data-driven insights with the goal of recommending actionable strategies for improving talents readiness in India's future workforce.

Keywords: Reskilling, Upskilling, Digital transformation, future of jobs, Learning and development (L&D), Workforce readiness, Skill gap, Lifelong Learning, Talent development, Academic sector preparedness, Technology disruption, Digital skills, cloud computing, Blended learning, Employee engagement.

Introduction

With the rise of high disruptive technologies such as machine learning, cloud computing, robotic process automation, and block-chain is undergoing and unprecedented changes in this 21st century workplace. The self-life of existing skills is becoming alarmingly short. Reports from the World Economic Forum (WEF) estimate that over one billion people will need to reskill by 2030. In such a fast-evolving disruptive environment, individuals and organizations are compelled to adopt a learning mind-set to remain competitive.

Here the twin concepts of upskilling are to enhancing one's current skills and reskilling is to learn new skills for a different role or in industry are central to this transformation. In India, these concepts are gaining momentum due to various reasons:

- Increased automation and outsourcing
- The push toward digitalization and e-governance
- The rise of remote and hybrid work models
- Shifting demands, in higher education and curriculum delivery

In this context, the Information Technology (IT) sector – a pioneer in innovation – is constantly expected to upgrade its workforce. Simultaneously, the academic sector is under pressure to align teaching methodologies and content with industry-relevant skills. However, the pace of change in skills often outpaces both sectors' ability to adapt and practice.

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This study aims to explore how professionals in these sectors are navigating the shift. Are they aware of the importance of skill development? Are they participating in initiatives actively? What support do organizations provide? And what challenges hinder their learning journey?

By answering these questions, this study contributes to the field of Human Resource Management by highlighting real-world trends and offering recommendations for future-ready skilling strategies.

Objectives of the study

All research endeavour must be guided by a clear set of objectives to maintain focus and directions. The objectives of this paper were framed after reviewing current academic research, industry whitepapers, and observing the increasing relevancies of skill development in professional ecosystems.

The core objectives are;

1. To assess the level of awareness among professionals in the academic and IT sectors regarding the concepts and benefits of upskilling and reskilling
2. To analyse the participation rate and preferred modes of skill development (e.g. online course, workshop, in-house training) adopted by professionals
3. To evaluate the effectiveness and relevance of training programs in improving job performance, role transitions and career growth.
4. To identify the key challenges or barriers that prevent individuals from engaging in continuous learning – such as time, cost, motivation, and organizational support.
5. To examine the role played by organizations and HR departments in enabling a learning culture through policy frameworks, funding and digital infrastructure.
6. To provide actionable recommendations for educational institutions, corporate bodies, and policymakers to enhance upskilling and reskilling strategies that align with future workforce requirements.

By achieving these objectives, the study will serve as a guide for future HR interventions, training design, and institutional capacity building in India's digital economy.

Scope of the study

The scope of a research study is to outline its boundaries and helps readers to understand its relevance and limitations. This project focuses specifically on upskilling and reskilling practices in two distinct professional sectors – Academics and Information Technology – in the Indian context.

The scope of this study as follows:

i. Sectoral scope: The research is limited to two sectors- one is academic sector where faculty members, lecturers, education coordinators, curriculum designers, and researchers from schools, colleges and universities, and the other is IT sectors, where the software engineers, system analysts, developers, HR professionals and training managers in both MNCs and start-ups. These sectors were selected because that the IT sector is highly dynamic and continuously affected by technology change. The academic sector plays a foundational role in workforce preparation and required periodic pedagogical reforms.

ii. Geographic scope, where the respondents belong to urban and semi-urban regions of India, particularly Tier 1 and Tier 2 cities, where digital skilling programs are accessible.

iii. The functional scope is where the study covers the dimensions of skill development like awareness and participation in training programs, modes of upskilling and reskilling, the outcomes and career impact, the organizational and institutional support and the individual perceptions and barriers.

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iv. Regarding the time scope, the research was conducted over a three-month period (February – April 2025), which limits the data to a specific window of workforce conditions and this scope enables a focused yet insightful investigation into skill readiness within India's professional ecosystems.

Limitations of the study

No research is free from the claim to be entirely free from limitations. Recognizing them allows for transparency and sets realistic expectations for interpreting the findings.

This report is based on the feedback of 50 responses, which may not represent the broader Indian workforce or all sub-segments within each sector.

A convenience sampling method was used due to time constraints and accessibility, which introduces sampling bias and affects generalizability.

Most of the response were from urban and semi-urban areas, which excludes rural voices where digital access and training opportunities might differ significantly.

The data was collected using self-reported questionnaires, which can suffer from response bias, overestimation of participation, or subjective interpretation of training outcomes.

Due to the short project timeline, the study could not conduct follow-up interviews or longitudinal tracking to assess the long-term impact of skill development initiatives.

While focused insights were gathered from IT and academia, findings may not directly apply to sectors such as healthcare, construction or manufacturing.

Despite these limitations, the study provides meaningful, sector-specific data that can inform further research or serve as a basis for larger-scale studies.

Research methodology

The process is outlined to collect, organize and interpret data to derive meaningful conclusions. This study is quantitative descriptive research design and is adopted to examine upskilling and reskilling practices in two major sectors – with Academia and Information Technology (IT).

Here the methodology was carefully designed to ensure alignment with the objectives of the study and also provides reliable data that can support the interpretation of behavioural patterns, professional needs, and organizational efforts regarding skill development.

Th research design chosen is descriptive in nature. This type of design is used when the goal is to describe characteristics, patterns, trends and practices of a defined population or sector. Since the aim of this study is not to test a hypothesis but to assess the current status of upskilling and reskilling initiatives, the descriptive method is the most appropriate.

Very particularly in this study descriptive studies are particularly useful in human resource research, as they help identify:

- Attitudes and perceptions of individuals toward learning
- Frequency and mode of participation in training programs
- Barriers and challenges in professional development
- Organizational support in talent management


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This study follows a cross-sectional approach, means that the data is collected from respondents at a single point of time rather than longitudinally.

As primary data refers to first-hand information gathered directly from individuals in the target group – A structured question is developed and distributed digitally and the respondents' opinions, experience and behaviours regarding upskilling and reskilling are collected.

To support the primary data, secondary data was obtained from the academic journals, industry whitepapers like NASSCOM, McKinsey, WEF reports, Government policy documents like NEP 2020, National Skill Development Mission and also from the recent articles and organizational case studies. So, the combination of primary and secondary data enhances the reliability and depth of the study.

In regard to sampling techniques, this study uses non-probability sampling, particularly the convenience sampling method. This means respondents were chosen based on availability, willingness and accessibility, rather than a random selection process, since the limitations of time and resources.

The total sample size is 50 respondents were 25 is collected from professors, Associate professors, Assistant professors and research scholars whereas other 25 is collected from the IT sectors – including software developers, IT analysts, project managers, HR professionals and training coordinators. Respondents were from both male and female professionals working in private and public institutions with experience of minimum one year to fifteen years and above.

A structured questionnaire was used to collect data with 15 well-framed questions by categorizing as;

Category	**Descriptions**
Demographics	Sector, designation, years of experience
Awareness	Awareness level of upskilling/reskilling
Participation	Frequency and mode of participation
Training effectiveness	Relevance and outcome of learning programs
Barriers	Time, cost, interest, organizational support
Organizational role	Employer involvement, encouragement
Suggestions	Feedback and ideas for improvement

The survey used multiple-choice, check-box, Likert scale, and short-answer formats, which allowed for both quantitative analysis and qualitative insights.

Before distribution, the questionnaire was pilot tested with 5 users to ensure clarity and avoid ambiguity and modified slightly based on their feedback to enhance comprehension.

The mode of data collection was given in digital nature as the respondent was both in IT and academia, the survey was distributed online using Google Forms. Distribution methods include both direct emails to professionals, LinkedIn shares in professional groups and also through WhatsApp forwarding within academic networks. The use of Google Forms ensured, ease of access from any device, automatic compilation of responses in spreadsheets, visual summary of trends for each question.

Once all responses were received the data was downloaded and processed with key tools using frequency distribution to identify the most common responses, percentage calculations to compare different groups, cross-tabulation to compare academic and IT responses.

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Ethical responsibility was maintained throughout the study process and the measures ensured was, all respondents voluntarily participated after being informed of the study's purpose, no personal identifiers like name, email, or company name were collected, all responses were kept private and used strictly for academic evaluation. This research is not affiliated with or influenced by any corporate interest.

In conclusion, the methodology followed in this study is well-designed with the objectives and scope. The structured data collection, careful questionnaire designed and appropriate analytical techniques provide a strong foundation for the insights and conclusions derived. Despite minor limitations due to sampling and scale, the findings can serve as reliable base for future extended studies and practical interventions in the field of workforce development.

Literature review

This forms the theoretical foundations of any academic research. It offers an understanding of existing knowledge, identifies research gaps, and positions the current study in the broader intellectual context. This review synthesizes academic publications, global reports, governments policies and industry-specific papers on upskilling and reskilling practices in the academic and IT sectors.

The World Economic Forum (2020) in The Future of Job Report" emphasized in 2025, that half of all employees globally will need to reskill due to automation and digital transformation. The report identified critical future skills such as analytical thinking, active learning, problem-solving and technology design. It also highlighted that only 21% of business in developing countries have well-defined upskilling strategies, pointing to a global readiness gap. This reinforces the urgency and the global alignment of the topic. It supports the argument that India's IT and academic sectors need to accelerate their reskilling initiatives to remain competitive and productive.

The National Association of Software and Services Companies (NASSCOM) in "Future Skills Talent in India", published sector-specific report predicting that over 90 million Indian workers will require digital reskilling by 2030. The report emphasis that cloud computing, cybersecurity, AI and data science are high-priority areas for the IT workforce. It also showed that only 40% of IT firms currently offer structured upskilling programs, and the rest depend on self-initiated learning. This directly validates the research objectives of assessing organizational support and reveals a critical gap in corporate L&D strategies in the IT sectors.

McKinsey & Company (202) in "Reskilling India: A Shared responsibility", in a India-focused study stressed the need for multi-stakeholder collaboration between the government, academia, and industry. The report found that more that 60% of Indian employees feel their skills are becoming obsolete. But yet formal retaining is rare due to a lack of incentives skill hubs and digital training platforms. This supports the objectives of identifying challenges and recommending ecosystem-level interventions that go beyond individuals' effort.

Skill India & NSDC (2020) in "Skill Gap Analysis", surveyed a skill gap analysis across states and sectors. It revealed that soft skills like communications and collaboration are equally important as technical skills. In the academic sectors, outdated syllabi, limited teacher training programs, and rigid institutional structures were cited as key barriers to preparing students for future roles. This supports the functional scope of your study by addressing systemic gaps in academia and aligning with the focus on educators' readiness for reskilling.

Harvard Business Review (2021), in "Building a Culture of Lifelong Learning", argues that modern organizations must treat upskilling as part of their strategic workforce planning, not just HR compliance. The authors stressed that companies with a strong learning culture experience 30-50% higher retention and engagements. It also shared that employees who engage in regular learning are more innovative, adaptive, and better aligned with business goals. This validates the importance of organizational support and learning culture, reinforcing one of your key research objectives.

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KPMG India Report (2022), "Learning for the New Normal", stuy highlights how the COVID-19 pandemic accelerated digital learning adoption. The IT and education sectors were found to have the highest rate of transition to online learning. However, challenges includes content relevance, learner motivation, and lack of live mentoring. The report recommended blended learning models, micro-credentialing, and gamification to improve engagement. This study offers insights into the post-pandemic skill development landscape, which your study timeline (2025) builds upon.

The summary of the literature review highlights;

Insights	Sectors affected	Relevance
Urgency of digital skill development	IT & Academia	Core driver of your research
Low organizational support in skilling	IT, General & Academia	Supports objectives on employer role
Limited access and curriculum rigidity	IT & Academia	Relevant to academic sector scope
Soft skills gaining equal importance	IT & Academia	Important for future workforce
Learning culture impacts performance	IT	Aligns with HRM-based suggestions

The literature not only validates the important of research topic but also reveals the current gaps like; lack of structure program in mid-level IT roles, Infrequent reskilling among senior academic staff policy-practice disconnect at organizational levels.

This review sets a strong foundation for your primary data analysis, helps to interpret response in the context of existing research.

Data analysis and Interpretation

Following the literature review and identification of critical factors in workforce skilling, this section presents the primary data analysis. So, the questionnaire comprised 18 questions in 5 categorizations.

Sec – A was designed t o understand the background of the respondents, helping categorize data by age, gender, experience level and sector.

Sec – B, was designed to measure the respondent's knowledge, exposure, and engagement in upskilling or reskilling programs.

Sec – C, focused on understanding the effectiveness and relevance of the training efforts undertaken by the respondents.

Sec – D, explores the role of institutions and the challenges faced by individuals when engaging in learning initiatives.

Sec – E, evaluates the respondent's attitude towards future skill needs and sought ideas for improvement.

So, majority of the respondents fall in 35-40 years, dominantly female participation is observed, particularly from academic respondents.

The analysis reflects a strong interest in skill development from young professionals and students. It also highlights the growing involvement of women in career advancement, particularly in education. Sectoral representation allows for comparative insights into organizational behaviour and training culture.

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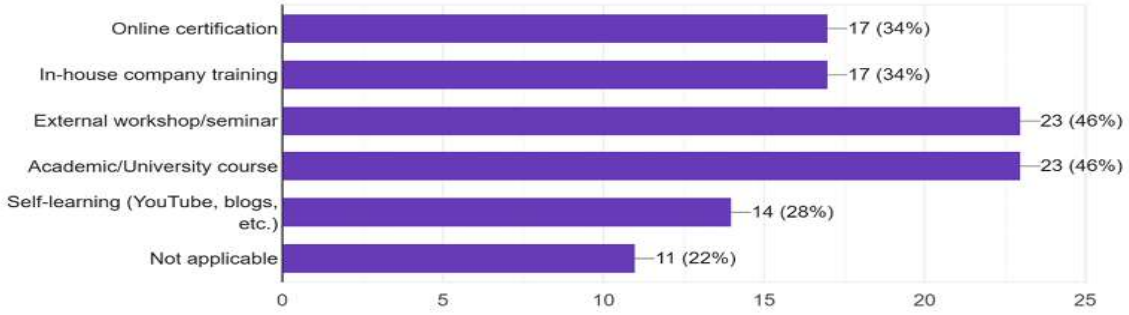
Awareness is high but conceptual clarity is lacking. There is a need for targeted oriented or induction programs to explain what upskilling / reskilling actually means in practice and how it affects career development.

Around 60% of respondents reported attending some kind of training in the past year. This suggests growing learning mindset, especially among early-career professionals. However, participation must be made consistent and encouraged formally by institutions and employers.

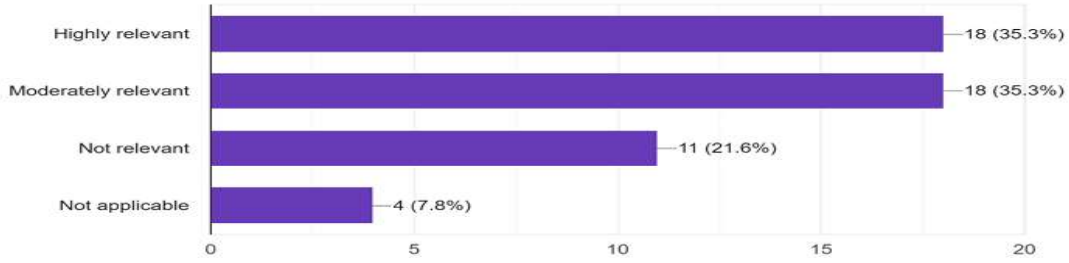
Mode of learning adopted



Modes of Training Chosen (Online, Workshop, Self-Learning, etc.)

Blended learning is preferred. IT sector employees tend to prefer online and self-paced training, while academics rely on institutional programs and seminars. This showcases the sectoral difference in access and autonomy over learning.

Relevance of Training to Career Growth



Relevance of Training: Highly / Moderately / Not Relevant

While most training is seen as somewhat helpful, tere is a gap in aligning training to specific job roles or growth paths. Training should be based on clear career development plans and job role requirements.

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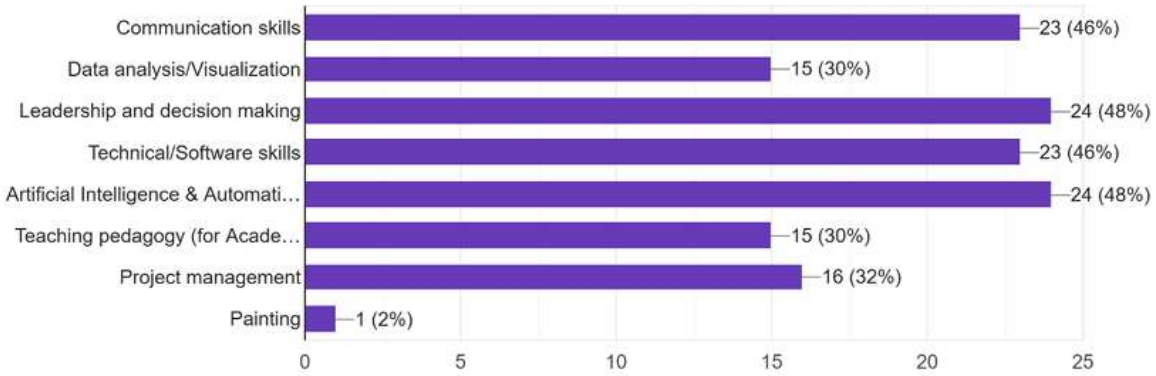
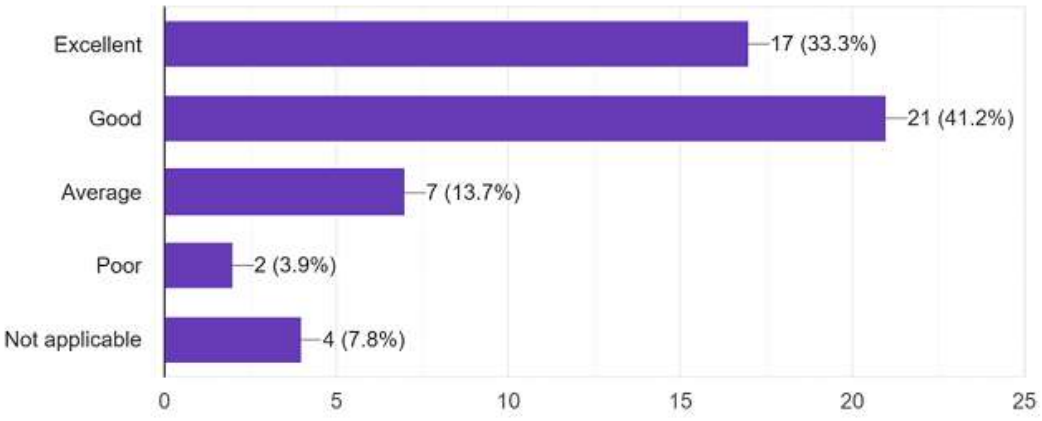
Skills focused during Training



Most Chosen Skills for Upskilling/Reskilling

A balance mix of soft and technical skills is evident. IT respondents prioritize data and tech skills, while academic professionals value communication and pedagogy. This highlights the need for sector-specific training design.

Quality of Training Programs



Training Quality: Excellent / Good / Average / Poor

Overall, training quality is perceived positively, but there is a need to improve engagement, application-based delivery and interactive tools.

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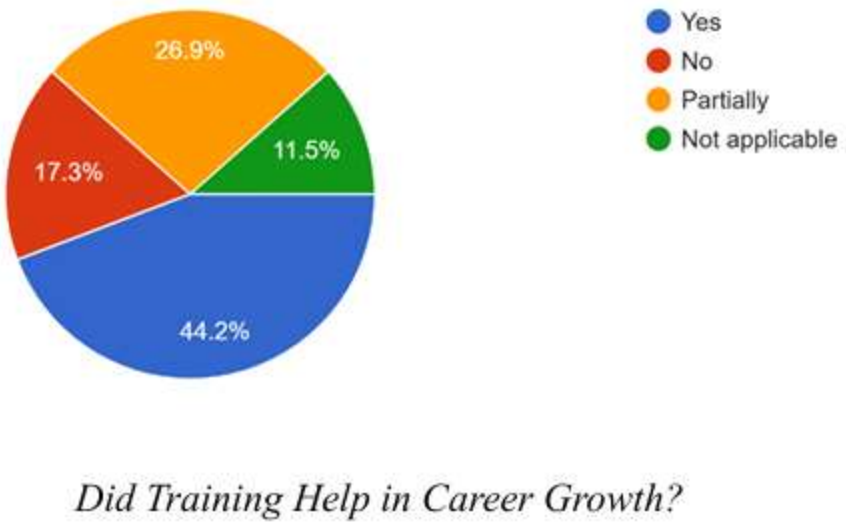
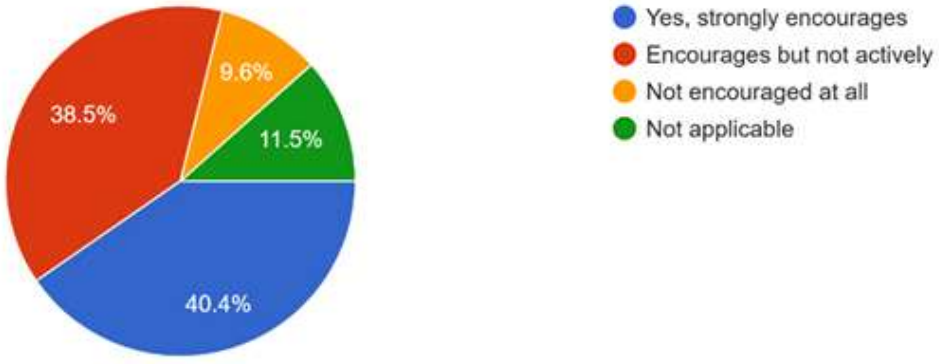
Impact on Career Advancement



Did Training Help in Career Growth?

While skilling is helping some, lack of follow-up or application may limit its effectiveness. Organizations must complement training with mentoring, internal mobility and growth tracking.

Organization Support



Support by Organization – Strong / Weak / None

Employers are passively supportive, especially in the academic's sector, formal learning and Development (L& D) policies are missing. HR teams should proactively track and promote learning at the workplace.

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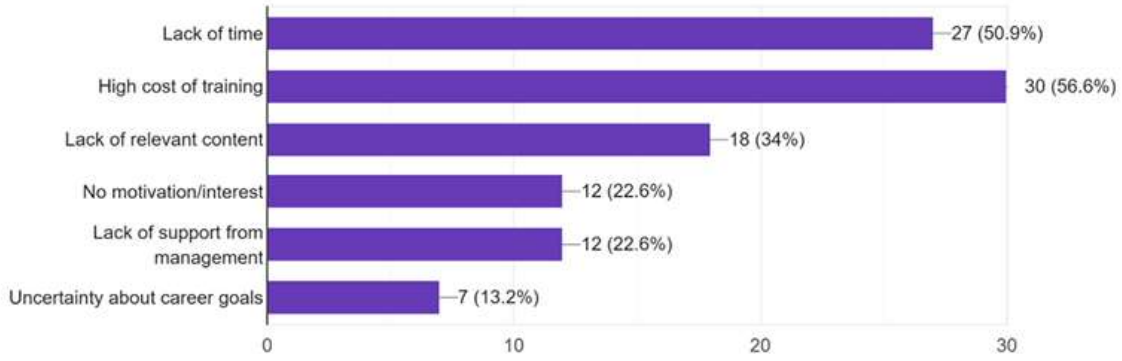
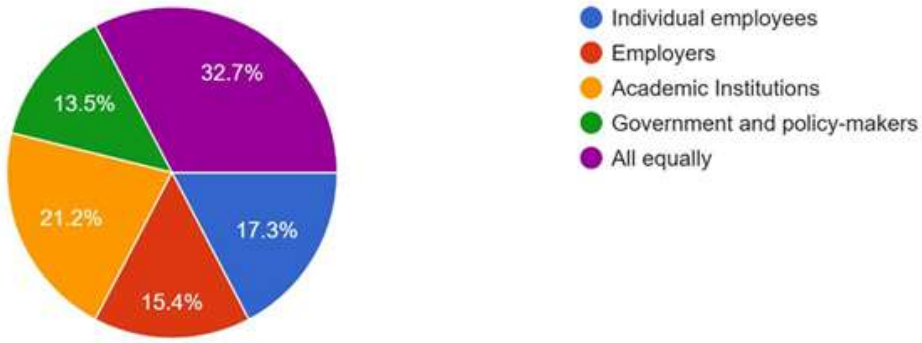
Challenges Faced in Upskilling / Reskilling



This is very strong agreement that skilling is essential for survival in future job markets and must be leveraged in organizational and academic policy-making.

Primary role of promoting Upskilling / Reskilling



Responsibility: Individual / Employer / Institution / All Equally

Upskilling is noticed as a shared responsibility, which encourages the formation of multi-stakeholders' models in involving academia, industry and government.

Suggestions for improvement

Though few questions are left blank, key suggestions from the respondents include;

- Institutional support for industry certification
- Recognition and incentives for learning efforts
- Integration of upskilling in academic curriculum
- Availability of practical, project-based content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- Access to low-cost online platforms

Here the feedback points toward the need for system-level reforms such as curriculum modernization, company-led microlearning, and skill-based progression systems.

Key findings and Discussions

- This study reveals a growing awareness and positive attitude is required towards upskilling and reskilling among the professionals in the academics and IT sectors, more particularly among the early-career stage of the individuals. Most of the respondents are aware of the concepts, may lack deep understanding, by indicating the need for orientation programs.
- Participation in skill development initiatives is increasing, with a preference for online certifications and workshops. However, the relevance and the impact of these trainings vary – many find them moderately helpful, but not always directly aligned with their career paths. Respondents emphasized the need for training that is role-specific and outcome-based.
- Skills focused include a balance of technical like data analysis, AI and soft skills like communications, leadership skill, are by reflecting these hybrid skill demand. While most respondents rate the training quality is as good, but the lack of structured organizational support remains a key concern in academia.
- Challenges such as lack of time, cost barriers and limited employer encouragement persist, respondents unanimously view upskilling as a critical for future security. The majority believe it is a shared responsibility among individuals, employers, institutions and the government.
- Suggestions include better institutional support, curriculum integration, incentives and practical, industry-aligned training programs. Overall, the findings call for a strategic and collaborative approach to building a future-ready workforce.

Suggestions and Recommendations

With reference to primary data collected, literature reviewed, and insights drawn, the following practical and strategic recommendations are proposed to strengthen upskilling and reskilling practices in the academic and IT sectors.

For academic's institution

- Integrating skill development into curriculum reflects the incorporation of industry-relevant certifications and practical modules into regular degree programs and also to offer credits for internships, MOOCs and hands-on projects.
- By conducting regular faculty development programs and encouraging factulty members to stay updated through digital pedagogy training and exposure to industry tools.
- By collaborating with industry partners with companies to co-create skilling courses and offer mentorship opportunities to students.
- By creating campus skilling hubs and set-up dedicated labs or centers for digital learning, entrepreneurship and emerging technologies.

For IT sectors and Employers

- Design personalized learning tracks by using performance reviews and career aspirations to suggest tailored learning paths for employees
- By making L & D a strategic HR function like allocating specific budgets for training and tie learning KPIs with performance incentives.
- By encouraging micro-certification and continuous learning and to promote short, focused courses that employees can complete without disrupting work schedules.

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- By recognize and rewarding upskilling and also introduce badges, learning leaderboards and promotions-linked credentials.

For the Government and Policy-Makers

- Subsidize digital learning platforms and the partner with edtech platforms to provide free or low-cost training for the early career professionals and teachers.
- By expanding national skill registries and by maintain dynamic, AI-enabled registries that map emerging skills with industry demand and track national learning data.
- And also, by providing incentives skilling through tax benefits that offers tax rebates to organization as well by investing in employee upskilling.

For Individuals

- Adopt a lifelong learning mindset and view skilling as a continuous investment, not as one-time effort.
- Balance technical and soft skills and focus on both domain-specific certifications and transferable competencies like leadership and communications.
- Next is to plan skilling around career transitions and use skill audits and career goals to decide whether to upskill in the same role or reskill for a new one.

Conclusion

This study on "Upskilling and Reskilling Initiatives for the Future Workforce" reveals that both the academia and IT sectors in India should recognize the importance of skill development but differ in terms of executions and ecosystems readiness.

The data indicates a rising interest in continuous learning, particularly among the young professionals. However, gaps remain in training relevance, organizational support and the alignment between skill acquisition and career progression.

To address these gaps, a multi-stakeholder's approach involving academic institutions, corporate bodies, policymakers and individuals is essential. Strategic recommendations such as curriculum integrations, corporate incentives, flexible learning, and public-private partnerships must be adopted.

In conclusion, upskilling and reskilling are no longer optional but they are very critical levers for sustaining employability, driving innovation, and building a future-ready workforce. The success of any sector now hinges on its ability to learn, adapt and transform continuously. As such, a culture of lifelong learning must be nurtured and sustained across all professionals' domains.

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