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# The Iterative Dichotomiser 3 Method Improves Soft Skills Training Decisions Using Survey Data

Publisher: IEEE

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Subir Gupta ; Quang-Trung Hoang ; Bhaswati Roy ; Subrata Chowdhury ; Sandip Mukherjee ; Aditya Kumar Pathak All Authors

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## Abstract

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## Abstract:

This investigation explores student expectations and perceptions regarding higher education institutions, focusing on aligning professional programs with student career aspirations. The study evaluates how effectively academic institutions understand and meet training needs essential for student success in professional fields. Students were categorized using the Iterative Dichotomiser 3 methodology to forecast their training requirements. Analytical tools such as the confusion matrix and the ROC curve assessed the precision of these predictions. The results show a specificity rate of 74.1 %, a sensitivity of 78.6%, and an overall accuracy of 76.7%. The combined sensitivity and specificity score is 3.527, and the empirical area under the ROC curve is 0.76, suggesting the model's reasonable efficacy. The findings indicate a significant student demand for enhanced instruction in soft skills, underscoring the need for educational institutions to adapt their curricula to better prepare students for professional challenges.

Published in: [2024 IEEE International Conference on Machine Learning and Applied Network Technologies \(ICMLANT\)](#)

Date of Conference: 12-13 December 2024

DOI: [10.1109/ICMLANT63295.2024.00008](#)

Date Added to IEEE Xplore: 05 March 2025

Publisher: IEEE

### ISBN Information:

Electronic ISBN:979-8-3503-8918-0

Print on Demand(PoD) ISBN:979-8-3503-8919-7

Conference Location: San Salvador, El Salvador

## I. Introduction

The foundational years of a student's education are critically influential, shaping individual futures and determining the quality of a nation's workforce, which drives economic growth and wealth creation [1] [2]. Developing skills during these early years is essential, providing a robust basis for future educational and societal contributions. Education, therefore, is a powerful tool for fostering equity by potentially minimizing the effects of socioeconomic disparities on academic performance. Traditionally, research focused on the impact of quantitative inputs like teacher quality and school resources on student outcomes, typically measured by standardized test scores. These studies, however, often overlook the broad [Sign in to Continue Reading](#) asizing cognitive skills such as I.Q. while neglecting non-cognitive skills such as resilience, self-reliance, and determination [3]. Despite the critical role these non-cognitive or "soft" skills play in academic and workplace success, they have historically been under-prioritized in educational policies, primarily due to the challenges associated with measuring such skills. This oversight can lead to significant gaps in student development, as these soft skills are crucial for personal growth

## Authors

Subir Gupta

Dept. of CSE(AIML), Haldia Institute of Technology, West Bengal, India

Quang-Trung Hoang

Faculty of Electrical and Electronic Engineering, Phenikaa University, Hanoi, Vietnam

Bhaswati Roy

Dept. of FMS, Dr.B.C.Roy Engineering College, Durgapur, WB, India

Subrata Chowdhury



Dept. of Computer Science and Machine Learning, Sreenivasa Inst. of Technology and Management Studies, Chittoor, Andhra Pradesh, India

[Sandip Mukherjee](#)

Dept. of FMS, Dr.B.C.Roy Engineering College, Durgapur, WB, India

[Aditya Kumar Pathak](#)

Dept. of IT, Haldia Institute of Technology, West Bengal, India

[Diep Can Duc](#)

Electric Power University, Hanoi, Vietnam

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