

Deep Learning Based Framework for Human Resource Practices on Employment Outcomes at Universities

Damandeep Johar¹, N Roopalatha²

¹Research Scholar, Department of GITAM Hyderabad Business School, GITAM (Deemed to be University), Hyderabad Campus, Rudraram, Telangana State India, damanjohar@gmail.com

²Assistant Professor, Department of GITAM Hyderabad Business School, GITAM (Deemed to be University), Hyderabad Campus, Rudraram, Telangana State India, irala@gitam.edu

Human resource management (HRM) strategies have a significant impact on hiring outcomes in the higher education sector. Conventional approaches to human resource management fall short, however, when confronted with the complex dynamics of university employment. The advent of deep learning techniques in the last few years has opened up exciting new avenues for the analysis of diverse and massive datasets, opening the door to better human resource management approaches. This study proposes a novel deep learning-based architecture to improve HRM procedures and enhance employment outcomes in educational institutions. The suggested system uses a trio of deep learning architectures—deep belief networks (DBNs), recurrent neural networks (RNNs), and convolutional neural networks (CNNs)—to examine multidimensional data associated with university employment. Included in this data collection are applicant qualifications, performance evaluation standards for teachers, institutional resources, and job market trends. The actionable insights obtained from these many data sources may help universities enhance their talent development, recruitment, and retention initiatives.

Keywords: Human resource management (HRM), Convolutional neural networks (CNNs)

Recurrent neural networks (RNNs), Deep belief networks (DBNs).

1. Introduction

A new era in data analysis has begun with the introduction of deep learning algorithms, which provide robust resources for mining diverse and expansive datasets for hidden patterns and insights. Some examples of deep learning models include deep belief networks (DBNs), recurrent neural networks (RNNs), and convolutional neural networks (CNNs). These models are very good at managing complicated data formats and finding hidden links and patterns. Universities may improve their human resource management processes and the employment results for academics, staff, and the institution overall by using deep learning.

Human resource development (HRD) should start the moment an employee is hired and go on throughout their career, regardless of their position in the company or degree of responsibility they have. Human resource development (HRD) is defined by T.V. Rao as an approach whereby an organization's personnel are continuously and systematically assisted in

(i) Develop or hone skills necessary to carry out a variety of tasks related to their current or anticipated future positions;

(ii) Create a work environment where people feel valued, motivated, and proud of their contributions, and where there is excellent communication between managers and subordinates as well as strong cooperation and teamwork within departments;

(iii) Advance their general skills, find their inner potential, and put it to use for the benefit of themselves and the organisation..

- So that its human resources may become more skilled.
- For the purpose of fostering an environment conducive to accomplishing the organization's stated goals.
- To create an environment of commitment and motivation among employees of the organization.
- To establish norms, processes, and systems for educating employees to achieve higher levels of performance via dedication, confidence, loyalty, and advancement. Human resource development (HRD) aids businesses in many ways, including staffing planning and organisation, system and structure creation, employee development, career path management, performance management system development, organisational development, and consultancy.referenced in [2][3]. The driving force behind the attainment of organisational objectives is the 'care and concern' shown by the organisation towards its personnel. A greater emphasis on Human Resource Development is being propelled by the basic notion of learning[4,5]. Investing in HRD gives a company the flexibility to adapt to new circumstances. It helps a company thrive in the modern business world by making it more dynamic, which is crucial to its survival. The ability to learn and adapt to new circumstances is a key component of effective organisations, which HRD fosters. Typically, businesses with a high level of competition are the ones that succeed. There are three critical steps in developing effective organisations [6]. Important steps include developing organisational skills, reaching corporate excellence, and incorporating human resources into the company. As a consequence, there are two primary goals to strive for at each stage. Organisational HRD practices rely on specific actions to attain objectives at each of the three stages [7].

Availability of jobs:

These are crucial components for the development of any area. It was common knowledge that the cities listed above were centres of learning and industry. It is possible that these areas evolved into centres of industry and academia. These cities are now the industrial centres of their regions, thanks to the academic, scientific, and industrial institutions that have set up shop there. People have been drawn to these cities for employment opportunities due to the presence of excellent educational institutions and major industrial parks [8]. Because of this, there is now access to competent labour. The companies, research organisations, and

academics in the area have all benefited from the abundant supply of skilled workers. The people of that city and their way of life have both benefited from this [9]. The benefits of the same apply to both skilled and unskilled labour. Thanks to the abundance of available labour, many cities have jumped ahead in urban growth and infrastructural development. The expansion of businesses, universities, and research institutes in and around major urban centres is a direct outcome of this trend [10].

Job Satisfaction

In today's business world, job satisfaction is crucial. A company's ability to expand and thrive is dependent not only on its technical prowess, improved plant architecture, and environmental awareness, but also, and perhaps more importantly, on its treatment of its people [11]. Consideration of employee happiness and satisfaction with the workplace is essential for every organisation that aspires to achieve success and maximise efficiency. Job satisfaction is one of the most talked about and researched topics in today's society. The study of contentedness in one's work life has benefited from the work of several scholars. The term "job satisfaction" is shorthand for how happy a person is with their work. Employees' motivation to work more and produce better results is directly correlated to how they feel about their work [12].

2.Human resource management

Applying management ideas to the task of overseeing an organization's employees as they work towards shared and, at times, divergent objectives is what's known as human resource management. The core tenet of human resource management is the belief that an organization's people are its most valuable asset, the source of its competitive advantage, and the only thing that can really make a difference. In order to implement effective human resource management, organisations must ensure that their HR policies and practices are in sync with their current corporate and functional strategy. The organisation may reap the advantages of variety that comes with internationalisation if it values its human resources. The development of human capital is one of human resources' primary responsibilities. The store of intellectual abilities, information, etc., that a company has and that might significantly affect its success [13].

- **Training:** When it comes to organisational structure and surroundings, training is all about using extended courses for workers to boost individual and group performance. The word refers to the process of teaching workers new techniques and ways of performing their occupations so that they can execute their tasks effectively, reliably, and with little waste of time and materials.
- **Performance appraisal:** Giving feedback and counselling to workers of different generations is best done in this way. The performance assessment method is thought to have a significant impact on the organization's team and individual conduct.
- **Team work:** It's the method by which a team of individuals works together in an organisation to accomplish a shared objective. Members of problem-solving teams work together in an amicable setting to find solutions to the organisations' recurring issues. In order to function effectively in a team, employees may need to get training from their employer. The likelihood of interpersonal disputes decreases as a result of teamwork, which encourages individuals to collaborate by making use of their unique abilities while also providing helpful criticism.

- **Employee participation:** Employees are encouraged to actively participate in the decision-making process by defining goals, developing plans, reviewing their own performance, and offering recommendations for improvement. Employees are empowered to offer ways to enhance the way work is done, which leads to improved job performance.

2. Secondary Functions of Hrd

By effectively managing your company's most precious asset—its employees—an efficient HR department may provide structure to your organisation and enable it to satisfy business goals. Human resource professionals may work in a variety of fields, or disciplines, and each of those fields might include more than six core responsibilities. If a small firm doesn't have an HR department, they may nevertheless manage their workers efficiently by joining a professional employer organisation or outsourcing their HR activities..

(i) **Recruitment** Recruiters and employment experts are often evaluated based on how many vacancies they fill and how quickly they do it. An organization's ability to train its employees is greatly aided by in-house recruiters, as opposed to outside firms that provide such services. Their responsibilities include advertising jobs, finding potential applicants, screening them, conducting initial interviews, and coordinating the recruiting process with managers who are ultimately responsible for making the final hiring decisions.

(ii) **Safety** Workplace safety is an important factor. Employers are obligated to provide a safe working environment for workers under the Occupational Safety and Health Act of 1970. Supporting workplace safety training and maintaining legally required records for reporting occupational injuries and fatalities are two of HR's primary tasks. On top of that, when it comes to workers' compensation, HR safety and risk experts often collaborate with HR benefits experts. In a unionised workplace, human resources may have a single expert manage both employee and labour relations, or they may have two experts with distinct areas of specialty. Through the measurement of job satisfaction, employee commitment, and the resolution of workplace dispute, employee relations is the HR discipline that focuses on building the employer-employee connection. As part of their job in labour relations, companies may be required to respond to union organising drives, negotiate CBAs, and provide legal interpretations on matters pertaining to union contracts.

(iii) **Compensation and Benefits** It is possible to have a single HR professional that is well-versed in both employee and labour relations and pay and benefits. Setting compensation structures and analysing competitive pay practices are two of the human resources responsibilities related to compensation. In addition to coordinating with the administrator of retirement savings funds and negotiating group health coverage costs with insurers, a pay and benefits expert may also bargain for lower rates. While payroll is technically part of HR's compensation and benefits department, many companies actually hire other companies to handle this administrative task.

(iv) **Compliance** Human resources must ensure compliance with all employment and labour legislation. Dissatisfaction with working conditions, dangerous working conditions, unfair employment practices, and other workplace complaints stemming from noncompliance may have a negative impact on profitability and productivity.

3. Sources of Data

Research in the field of behavioural sciences often makes use of the observation technique. However, it would be useless to just look about. It must be methodically planned and documented, and it must suit the stated study aim, in order to be considered a scientific instrument. Additionally, validity and reliability tests and controls are used. For whatever reason, this approach works best in investigations with participants who are unable to verbalise their emotions. However, this approach is thought of as being somewhat costly.

4. Sampling Procedure

The sampling procedure helps the researchers in order to select the items for the sample. It is as follows:

Population: Population includes all individuals to whom the researchers want to apply their findings. The workers there are dealing with a lot of problems, and their condition may be evaluated as well as everyone else's. Professors, associate professors, and assistant professors employed by public and private colleges and universities as well as those affiliated with private organisations are the intended participants in this research.

Sampling Technique: Selecting a subset of a larger population is the goal of sampling. The budget, timing, and type/nature of the inquiry are all factors that are considered while deciding on a sample selection strategy. Picking responders who are representative of the whole population is essential. A sampling method is used to choose respondents, and the chosen respondents make up a sample. Polling done in this way is called a sample survey.

There are mainly two types of sampling techniques:

1. **Non- Probability Sampling** This sampling method is characterised by the fact that it provides no means of determining the likelihood of inclusion any given item in the population. It goes by a few other names, including judgement sampling, purposeful sampling, and purposive sampling. The researcher makes an intentional choice of things to include in the sample with this sampling method. His decision on the objects is final. Using this strategy, researchers choose a tiny subset of the population to serve as a proxy for the whole. For instance, in order to investigate the economic circumstances of a state's residents, it is common practice to intentionally choose a small number of towns or villages to research extensively, with the hope that they would serve as representative samples for the whole state. This means that the study's organisers' discretion is crucial to the sampling strategy. The researchers' discretion is crucial in this method.

When choosing a sample, there is a possibility that subjective factors will play a role. Systematic, quota, purposive, double, and snowball sampling are some of the subcategories within this larger field of sampling.

2. **Probability Sampling** Random sampling is a method of selecting a subset of a population from which every possible member is chosen. The terms "chance sampling" and "random sampling" describe this kind of sampling. Each unit is drawn with a specified probability in this procedure. The researchers may use this strategy to find out what the populace is like and how to answer their study questions. Some subcategories under which

this sample falls are as follows: There are four types of sampling: cluster, stratified, simple random, and systematic. The probability sampling strategy was employed for sampling in this research investigation. Since this does not include the researcher's subjective opinions or other factors, there is less room for bias and every item has an equal chance of being chosen.

5. Data Analysis Procedure

It involves the tool for analysing the quantitative data. In order to analyse the quantitative data for this study, the researcher has used the most popular tool for analysing the data. These are the statistical techniques and tools. Selecting or choosing the statistical technique for the data analysis depends mainly on the type of the research questions the researcher wants to find the answer, objective and hypothesis of the study.

In order to analyse the data, the researcher used SPSS, which stands for Statistical Package for the Social Sciences. The researcher began by collecting survey answers and then quantitatively coded them. After copying the code to an Excel sheet, the researcher was ready to go. After that, the coded data was imported into the SPSS file and subjected to further processing to get the end result.

6. Conclusion

The implementation of effective HRM practices in higher education institutions, including business schools, is crucial for fostering job satisfaction, enhancing job performance, and promoting organizational commitment among faculty members and staff. These practices contribute significantly to creating a positive work environment conducive to employee engagement and productivity.

Conflicts of Interest

The authors declare that they have no competing interests.

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