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Impact of digitization towards unemployment in manufacturing sectors: A self-determination theory perspective on unemployment in digitization

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Abstract
The topic of digitization has gained a lot of attention these days; many researchers are trying to find out the advantages, disadvantages, and implications of digitization. However, research on unemployment and jobless growth in manufacturing sectors due to digitization is a need of the moment. This moment of introducing many digitized machines and technological tools to do the work. With this kind of change we need to take note of the changes in the manufacturing industries and the working conditions of the employees. And it is a need of the hour to address the impact of digitization on the working conditions of employees in manufacturing industries and the solutions needed to address them. Based on this, the theoretical study reveals the unemployment caused by digitization and its impact on employees and how the digital impact can be addressed to solve the unemployment problem.

Keywords: Unemployment, manufacturing sectors, digitization, employees

Introduction
Digitization nowadays, aims to improve the quality of human life. However, digitization in large sectors such as manufacturing is a challenge that creates unemployment problems for Employees. Digitalization of various types in sectors such as manufacturing has led to reduced employee participation and increased unemployment. And unemployment affects not only the personal life of the employees but also the society, and the economic situation, etc, Therefore, in order to solve this situation, this study explores the attitudes of employees on the impact of digitization in manufacturing sectors and the education, training, technical knowledge, etc. required for the implementation of digitization in manufacturing sectors and reveals the methods to solve the problem of unemployment.
Although digitization is a step forward in most sectors such as manufacturing, Many new technological machines and devices can be installed to achieve higher productivity. Machines and technological devices installed through the impact of digitization reduce human work more. As a result of digitization, the work is completed with a few employees while many employees are required to do a job, Due to this, the contribution of most of the employees is reduced and there is an unemployment situation for them. Also, even if employees are used to increase production during problems such as mechanical repair, technical failure, etc. in the manufacturing sector, their work status continues until the situation is rectified and having reached various dimensions in the digital environment, we also complete various work situations with professional assistance. The work of various manufacturing sectors such as information exchange, procurement, export and import, are also completed through digital applications. Taking advantage of this situation, many profit-oriented manufacturing companies try to achieve their primary objective by retaining as many employees as they need and laying off the remaining employees. Digitization and technology are thought to be necessary to increase productivity, but many workers refuse to accept that the standard of living will be affected.

Contemporary Digitization practices in manufacturing sectors
Modern Machineries
The use of modern machinery in the manufacturing sector is being implemented in new dimensions day by day. Manufacturing sectors such as paper, steel, cement, etc. have a lot of new modern machines. And if the production done by the employees is approximately one ton per day then the production done by this type of machines is 100 tons to 300 tons.

By this the human capital is greatly reduced and the modern machines are autonomous in the manufacturing sectors.

3D Manufacturing

Three-dimensional additive manufacturing technology, also known as 3D, is one of the most important technologies currently being implemented in all manufacturing industries. Design and repair of many manufactured products through human activities are quickly designed and manufactured through mechanical design with 3D technology to improve the shape, quality, and efficiency of manufactured products. With this technology, car, bike, and spare parts, computer components, machines, and steel rods, which were previously designed by human activities, are now being made through 3D manufacturing. This also reduces human activities in manufacturing sectors.

Applications

Digital dimensions have reached various heights in this modern age. As part of this, various production and business activities are carried out through mobile, computer and applications, It is possible to monitor, and manage work in different locations while maintaining communication, quality and speed of work and with the implementation of these types of digital services at any time without time and space constraints, manufacturing companies can do their jobs efficiently, and these types of technologies involve low type of cost.

ERP

ERP is based on enterprise resource planning. Various manufacturing companies have implemented this digital technology in their companies. In this digital technology, the day-to-day production, human resources, resource utilization, procurement, are recorded as digital transactions. Based on this technology, the manufacturing sector is able to do the work quickly and accurately. And based on this, customer management, and future planning management can be handled.

AI and Robotics

Economically developed countries are currently adopting technologies such as robotics and AI, and although this impact on India, this type of digital technology is not yet fully operational. Manufacturing companies in the Western countries use these types of technologies for tasks that cannot be performed by humans and cannot be executed. It also ensures consistency in production areas by reducing defects through quality improvement, quality analysis, anomaly monitoring through age technology.

Impact of Unemployment

Lack of Funds

Due to unemployment, many people suffer. One of the most important is lack of funds. Money is essential for people to live their daily life just as the body runs because blood flows to the body. Also due to unemployment people lose their ability to earn money and are unable to meet their basic needs. For this unemployment causes loss of earning power and lack of finance is a vulnerability.

Poverty

Although many programs have been launched by our governments to eradicate poverty for many years, poverty continues as a constant. This is further reinforced by unemployment. Food is essential for human survival, yet there are many people who are affected by poverty due to unemployment and need help from others. Since man is not an individual but a family in society, unemployment may further affect him to alleviate this overall poverty.

SBI Bank has indicated in its report that India is ranked 111th in the Global Poverty Index and the poverty level in India is estimated to be 5 percent by 2024.

Displacement

Although human society is considered to be a shifting society, nowadays migration, urbanization, etc. are the major problems in our society. People migrate to cities in search of work from areas affected by rural poverty and unemployment. As a result, large cities that already have a large population absorb more people, thereby causing changes in the conditions of health, shelter, transportation, climate, environment, etc. in the human society, which also affects the human race itself.

Education and Social Status

Education and social status is next to food, accommodation for human society. Through Thiruvalluvar's world public secret, Thirukkural 392, one can realize how essential education, and social status, is. It is a very challenging situation when a person through unemployment is affected by factors such as poverty, lack of funds, etc. at the same time the family he belongs to and the education of his children. And because education and social status are interlinked, these problems are huge in human life through unemployment.

Health

Good health is a fixed asset that humans are born with. Although this condition is considered to be affected in various stages, Unemployment and jobless rate lead to problems such as poverty, ill health, and stress among people. It eventually becomes a major disease not only for the individual but also for the society. Money is essential for humans for good health and healthy living. to overcome this, a good lifestyle with employment opportunities can improve people.

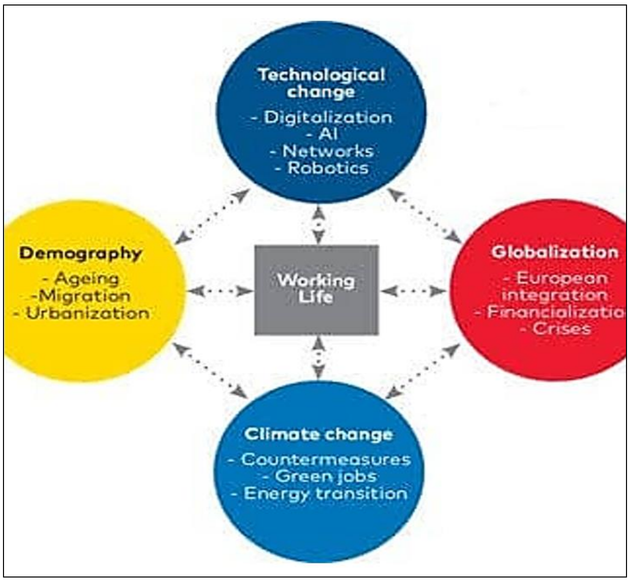

Fig 1: Various factors affecting employment

Types of Unemployment

Demand deficient Unemployment

Due to lack of demand, unemployment, economic conditions, and lockdown, international disease spread, manufacturing companies reduce their production in a situation where the products are not sold properly and in the scenario of reduced production, the number of Employees will also be lower in demand. As a result, manufacturing sectors keep fewer employees and lay off the remaining employees.

Example:
2019-2020 Many manufacturing sectors laid off their employees due to a slowdown in production due to the international pandemic.

Frictional Unemployment

An employee who was recently dismissed from a company, looking for work in a Economic non-recession environment. This is not an unhealthy thing, although it is usually a result of employees trying to find jobs that match their education, quality, and skills.

Structural Unemployment

This type of unemployment is the practice of dismissing employees who lack the newly implemented digital technology skills in organizations and who are unable to cope with the implementation of new practices, and who do not want to move to workplaces with traditional workplaces.

Voluntary Unemployment

This type of unemployment is when an employee quits their job on their own because they feel that the pay is less than the work. they are doing or that their work and quality are not valued by the company they work for. And this type of layoff is completely different from other types of layoff.

Discussion

Although digitalization was initially seen as a new initiative in the manufacturing industry and as a way to reduce employee workload and improve work quality, it is a reality that in this modern world, digital technology dominates all sectors. This is leading to the loss of jobs for many employees. In this modern era, where digital technology is inevitable, a digital work environment is essential in large sectors like manufacturing. Therefore, in order to face this challenging situation, a solution can be found by implementing digital skills training, technology in the education system, the evolution of new AI technology and training, and by creating non-digital environments that support the Digital Work Environment.

Theoretical Implications

A major consequence of digitalization in manufacturing sectors is that employees without digital skills training and education face uncertainty. Although the manufacturing sector was advantageous in the early days, in this modern era, the manufacturing sector is based on the use of digital technology. Due to this, the above types of employees are affected by their working conditions, stress, and social environment.

Practical Implications

Manufacturing companies can contribute to such challenging situations by providing job security and digital skills training to employees. This will be an improved situation for both companies and employees, considering the productivity, speed, and ease of access that digital use brings to the work environment. Furthermore, by engaging employees in digital training approaches, employee engagement can be ensured and companies will only need to examine the content, including infrastructure, training, etc. This situation can be addressed by prioritizing employees who are willing to undergo training in the digital workplace and ensuring that manufacturing companies select those with digital skills and technical training during new recruitment.

Future Implications

This conceptualization, which has been carried out so far, can serve as a hypothesis for future research to examine the unemployment situation in the manufacturing sector.
We consider our theory to be a promising starting point for future research. Furthermore, the concept emphasizes three aspects of recommendations to eliminate unemployment caused by digitalization in the manufacturing sectors mentioned in the concept: digital skills training, creating workplaces that are not conducive to a digital work environment, and technical education.

Conclusion

It improves our understanding of how employees are affected by digitalization in manufacturing sectors. In this modern era, identifying the need for digital transformation and its challenges, helping employees and providing solutions to them is the best approach to the unemployment situation. We hope that this theoretical framework will lead to solutions for employees in today's complex and digital work environment of digital transformation in the manufacturing sectors. Furthermore, manufacturing sectors can address the unemployment situation in the digital age by identifying and employing new hires with digital skills training and technical knowledge during new recruitment.

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