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A Literature Review on Ergonomics, Ergonomics Practices, and Employee Performance

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Abstract

Background: The modern history of ergonomics can be traced back to the world war from 1939 to 1945. From the 1960s to the 1990s, there were many changes made to ergonomics. Some of these were cognitive ergonomics, organizational ergonomics, positive ergonomics, and spiritual ergonomics. Ergonomics is becoming more of an issue in organizations in both developed and developing countries since the rise of occupational safety and health. Today, every company in the world puts more thought into making their workplaces safe.

Objective: The goal of this study is to fill in the gaps in the evidence between ergonomics and employee well-being, focusing on ergonomics, ergonomic practices, and employee performance.

Methods: This study uses an exploratory research design and gathers information from secondary sources to back up the title. Research papers are carefully chosen from scientific databases like Scopus, Web of Science, Science Direct, and Google Scholar by making criteria for each part to make sure the idea goes into depth and analyzes the role of ergonomics in improving employee performance.

Results: Most research is done on physical ergonomics and organizational ergonomics. When people do research on ergonomics, they don't think much about how people act and think. Most ergonomics research is also done in industrial and developed countries, which makes sense. When it comes to research and use of ergonomics, developing countries are a long way behind. Most small businesses in developing countries don't care about ergonomics in the workplace.

Conclusion: Accessing and improving ergonomics in the workplace could improve employee performance and productivity while reducing burnout, absenteeism, and turnover rates. So, it's important to study ergonomics more, especially for places like Nepal.

Keywords: Ergonomics, Ergonomics Practices, Employee Performance, Literature Review

JEL Classification: I12, J28, J81

Introduction

Ergonomics comes from the Greek words ergo, which means work, and nomos, which means health. It is the study of how people work and how to design the workplace so that people can easily adapt to it and be more productive. Ergonomics is the study of how a worker interacts with his or her working environment. This includes the physical space in which a person works, as well as the tools and materials, work practices, and work structure, whether the person works alone or as part of a team. Modern ergonomics can be traced back to the world war from 1939 to 1945. In the United Kingdom, experts from different fields were interested in how well people did their jobs and how important theory and method were. This was the start of the field of ergonomics (Wilson, 2000). From the 1960s to the 1990s, there were many changes made to ergonomics. Some of these were cognitive ergonomics, organizational ergonomics, positive ergonomics, and spiritual ergonomics (Mokdad & Abdel-Moniem, 2017). Ergonomics has become a bigger issue for the organization since the rise of safety and health at work. Every company in the world has put more thought into making their workplaces safer (Pun, 2011).

Ergonomics in the workplace adds value to the business and makes employees more interested in their jobs. Organizations think that a healthy workplace can help foster a culture of innovation and creativity (Sabir et al., 2019). The government has passed a law to make sure that people have safe and healthy jobs. The goal of ergonomic standards is to make people feel safe and secure (Akinbola & Popoola, 2019). Ergonomics should be used to improve quality, productivity, and safety by making products, tasks, and environments fit people instead of the other way around. Ergonomists look at the worker, the workplace, and the design of the job to figure out how well a person fits their job (Jaffar et al., 2011). Ergonomics is based on the idea that the demands of a job shouldn't go beyond what a worker can do and what their limits are. This is to prevent stress at work, which can be dangerous to their safety, health, and productivity. The goal of an ergonomics program is to make the workplace safe and productive so that the organization can reach its goals (Neumann & Dul, 2005). Industrial design has replaced traditional product design in China. "People-oriented" and "ergonomic design" are terms that are being used by more and more companies to describe their products. One of the ergonomics trends in the business world is the idea of "green design" (Cheng, 2011).

Businesses and corporations have been trying to figure out how to reorganize their workplaces in new ways for decades (Adhikari et al., 2021). Also, the trend toward more interesting and flexible office architecture, as well as the need to meet the different and growing needs and expectations of different employees, has led to a lot more talk about how and where good work is done (Harris,2016). Innovative workplaces cut down on health problems and make workers more productive. Flexible working hours, an inspiring interior, chances to learn and explore, new ways to relax, and a sense of ownership could be great ways to make the workplace more innovative and lead to the ergonomics design (Nielsen et al., 2017). Due to how poorly designed workplaces are in India, the number of people getting sick from their jobs is rising at an alarming rate (Chowdhury & Chakraborty, 2017). The performance of employees has a bigger effect on the performance/goal of the organization (Sabir et al., 2019). In the past, financial motivation was the most effective way to improve job performance (Adhikari et al., 2021). But in the present, ergonomics has become a factor that affects how motivated employees are and how well they do their jobs. In a developing country like Nepal, ergonomics is the latest business practice, but it is still a new idea, and most businesses don't know how to design their workplaces with ergonomics in mind. Even the people in charge of an organization can't make ergonomics a part of the culture and system. In fact, the practice hasn't been looked into much because people don't know much about ergonomics. Nepal's government has started to pay attention by enforcing a few laws and rules, but it's still early and we need more evidence to know what's really going on in terms of health and safety at work.

The success and goals of the company depend more on how well the employees do their jobs. Before the last few years, people often thought that financial incentives were the most important factor in determining overall job performance. But now that ergonomics are part of the picture, they affect both how well workers do their jobs and how motivated they are. This study fills in the gaps in the evidence between ergonomics and employee well-being, focusing on ergonomics, ergonomic practices, and worker performance. Research papers are carefully chosen from scientific databases like Scopus, Web of Science, Science Direct, and Google Scholar by making criteria for each part to make sure the idea goes into depth and analyzes the role of ergonomics in improving employee performance. During the paper selection process, we made it a rule that the paper had to talk about ergonomics, ergonomics practices, or employee performance in a direct or indirect way. This was set up to find the evidence gap in the papers that were looked at from 2000 to 2022. Based on some possible examples from the past, the main idea of ergonomics and how it affects employee performance are looked at.

Ergonomics, Ergonomics Practices and Employee Performance

This section highlights origin, issues and emergence of ergonomics; ergonomics practices prevailed in the world and Asian context, and employee performance under various ergonomic conditions.

Emergence of Ergonomics

Ergonomics comes from the Greek words ergo, which means work, and nomos, which means health (rules, law). Ergonomics means "the laws of work" because it comes from the words "work" and "natural laws." Ergonomics is the study of how workers and their jobs interact in a way that affects every part of the workplace. As Makhbul et al. (2013) explain, ergonomics is the design of a workplace, equipment, product, environment, and staff policies that take into account the biomechanical, physical, and psychological needs of employees. This improves the effectiveness and productivity of the work system while making sure the worker is safe, healthy, and happy.

In 1857, Wojciech Jastrzebowski used the word "Ergonomics" for the first time in a Polish newspaper. Some people might say that ergonomics is not a new idea. For example, hand tools have been used since the beginning of time, but ergonomics is a fairly new idea. Tools help people focus and give them power. They also help them do their work. Some of the ways this is done are by cutting, shattering, scraping, and piercing. Since the Stone Age, people have made different hand tools, and this is when the interest in ergonomic design began (Helander, 1997). In the eighteenth century, Ramazzini wrote The Diseases of Workers, which showed how different types of work were linked to certain health risks. For example, the start of cumulative trauma disorder and the events that were felt were caused by repetitive hand motions, poor body posture, and a lot of mental stress (Moray, 1995).

The International Ergonomics Association was started by a project that the European Productivity Agency (EPA), which is part of the Organization for European Economic Cooperation, worked on (IEA). In 1955, the EPA made a section called "Human Factors," and in 1956, a group from the agency went to the U.S. to learn more about human factors research. In 1957, at the University of Leiden in the Netherlands, the EPA held a technical seminar called "Fitting the Job to the Worker." At a special meeting in Paris in 1958, it was decided that the IEA would be made and that the Congress would be held in Stockholm in 1961. Even though the IEA was officially founded in 1958, it was actually started in 1957 in Leiden (Helander, 1997; Shahnavaz, 1996). Ergonomics took a big step forward after it was used in industry for the first time in Europe in 1950. This was done by using information from work physiology, biomechanics, and anthropometry to set up the workplace and industrial processes to make workers healthier and increase industrial productivity (Keyserling & Chaffin, 1986).

Modern ergonomics can be traced back to the world war from 1939 to 1945. In the United Kingdom, experts from different fields were interested in how well people did their jobs and how important theory

and method were. This was the start of the field of ergonomics, which has two strong subgroups. There are two smaller groups: anatomy and physiology and experimental psychology. In the United States, a job related to the human factor grew at the same time, and it made a big difference in both psychology and engineering. In Germany, the Netherlands, and Scandinavia, ergonomics grew out of work in medicine and functional anatomy. In eastern Europe, however, industrial technology was the main source of growth (Wilson, 2000).

In its long history, ergonomics has seen many changes. Some of them, like cognitive ergonomics in the 1960s, organizational ergonomics in the 1970s, positive ergonomics in the 1980s, emotional ergonomics in the 1990s, and spiritual ergonomics in the new millennium, were at the level of an argument. Positive ergonomics is mostly about making the human-machine system enjoyable so that people feel good at work. Emotional ergonomics looks at how the emotions of the person and the machine work together. Spiritual ergonomics is based on the idea that employees' passions have a big impact on their success and health (Mokdad & Abdel-Moniem, 2017).

Development of Ergonomics in Workplace

In the design stages of new processes, tools, frameworks, and products, it is common for advanced organizations to always keep ergonomics in mind. This level is reached by about 5% of all organizations. They are able to do this by using a general and continuous phase gate review process, standard design guidelines for ergonomics (accessibility, force, height of work, weight limit, etc.), and engineers who are responsible for quality. A new trend in managing workplace ergonomics is for employees to take part in assessing and designing the safe workplace-ergonomics standard workplace. Employers give their workers online training and self-assessments to help them take the first steps toward making their workstations fit them. In the last two years, the number of people using online software and solutions for office ergonomics has gone from 27% to more than 50%. (Kim, 2014).

Table 1 Evolution of Ergonomics in Workplace

Period	Event
400 BC	Archaeologists discovered sketches and paintings of Ancient Greek civilizations depicting chairs with back contouring.1
1700s	Bernardino Ramazzini (1633–1714), an Italian physician, produced an article titled "De MorbisArtificum."1
1890s	Frederick Winslow Taylor started out on a mission to make the workplace more efficient.1
1900s	Lillian and Frank Gilbreth started looking into 'Time and Motion Studies.1
1914-1918s	During WWI, ergonomic innovations for screens, controls, and seats were integrated into airplanes.1
1939-1945s	Ergonomic ideas found their way into armament and machinery throughout WWII.1
1949	The term 'ergonomics' was coined by physiologists and psychologists at the Admiralty in the United Kingdom.1
1950 s	Military Ergonomics2
1960s	Industrial ergonomics2
1970s	Consumer products ergonomics2
1980s	Human-computer interaction and software ergonomics. As computers were more widely used, ergonomic research changed once again to try to understand the human issues involved.2

Period	Event
1990s	Cognitive ergonomics and organizational ergonomics2
2000	Ergonomics has progressed in leaps and bounds as technology has improved.2
2001	OSHA Ergonomic Standard. Renewed efforts underway to re-invent a version2

Source: 1= Kuorinka, (2000), 2= Helander, (1997)

Archaeologists have found drawings and paintings from 400 B.C. that show chairs with what look like curved backs. Hippocrates was a well-known Greek philosopher who wrote about how work should "flow." He talked about how the surgeon's room should be set up and where the tools should go. In the 1700s, an Italian doctor named Bernardo Ramazzini wrote an article called "De MorbisArtificum." In the 1890s, Winslow Frederick Taylor began looking for ways to make work more efficient. He used both work and time units and techniques for measuring the flow of work. In the early 1900s, Lillian and Frank Gilbreth began to study "Time and Motion Studies." This study looked at how many steps are needed to get a job done. In 1914-1918 During World War I, airplanes got new screens, controls, and seats that were easier to use.

The environment and how it affected the pilots was also thought about. In 1939-1945 Ergonomic ideas were used to make weapons and machines. Not only were physical things like the shape of the hand when using a machine gun taken into account, but also mental things like attentiveness, noise, and tiredness. In 1949, physiologists and psychologists at The Admiralty in the UK came up with the word "ergonomics." It comes from the Greek words ergon, which means "work" or "function," and names, which means "function" (meaning law). The same group of experts also started the Ergonomics Research Society (ERS), which was the first organization of its kind in the world. At the moment, it is called the Chartered Institute of Ergonomics and Human Factors. In the 1970s, two books came out: Measure of Man by Henry Dreyfuss and Humanscale by Niels Diffrient.

As computers became more popular in the 1980s, ergonomic science changed again to try to figure out how people worked with them. During this time, it was looked at how far away you sit from the computer, how bright the screen is, and how you hold your body while you type. With the progress of technology after 2000, ergonomics has made huge leaps and bounds. In almost every respectable office, ergonomics is seen as an important part of a person's job. As the number of people who work from home and use digital technologies grows, companies need to think about how to apply ergonomics to remote workers.

From this discussion, we can all agree that ergonomics has become a bigger issue for the organization since the rise of occupational safety and health. Every business in the world has paid more attention to making sure their workplaces are safe. When a job environment isn't well thought out, it leads to low productivity, low job satisfaction, low levels of commitment, and a number of health problems. Today, organizations are focusing more on adopting ergonomics standards for the workplace and following the law put in place by the government to make sure workers have a safe and healthy place to work. In the world we live in now, organizations believe that a healthy workplace can foster a culture of innovation and creativity. Ergonomics in the workplace adds value to the business and makes employees more interested in their jobs.

Ergonomic Practices in Workplace: Global Context

As the global environment becomes more dynamic, organizations and businesses are forced to keep looking for the best ways to plan and manage innovation through new methods and paradigms that efficiently serve both new and existing markets with new and/or changed products and services (Liem & Brangier, 2012). Organizations' operations create a link between macro-level and micro-level data, where different communities and stakeholders are involved, and between ergonomic thinking and

radical innovation, creating value, and their processes. Ergonomics' uses have changed over time as ergonomics research and knowledge has grown and as new human concerns have come up around the world (Wilder & Sigurdsson, 2015).

Human health and safety are the main goals of ergonomics research and advice. This includes preventing musculoskeletal diseases and other health and safety goals in the workplace. Also, workplace health and safety laws in many countries have a strong connection to ergonomics (Baril et al., 2003). In these situations, companies may not see ergonomics as an important part of their strategy, corporate goals, planning, and control cycles, but rather as an outside factor. In terms of health and safety, the current trend in western government policies, which is to reduce command-control legislation while increasing support for voluntary initiatives, is a threat to ergonomics because organizations won't start ergonomic initiatives on their own (Dul et al., 2012).

In the office, the idea of an occupational or workplace injury has been around for decades. Occupational safety practices are used in organizations in developed countries, but most organizations in developing countries haven't done anything yet with occupational safety, cognitive ergonomics, or organizational ergonomics (Hofmann et al., 2017). Most of the health care fields in the United Kingdom are using ergonomics interventions to create training programs for robotic surgeons. Because of ergonomics training, more than 81% of surgeons change how they do their jobs (Koshy et al., 2020). In the United Kingdom, ergonomics are used in the health care sector. For example, the chair height can be changed to fix knee flexion, the armrest can be moved so that the forearms are parallel to the floor, and the head position can be changed. In the past few years, there has been more research into how to make workplaces more ergonomic so that workers are less likely to get musculoskeletal diseases. Even so, the use of ergonomic interventions in the workplace is still in its early stages.

A study done in Denmark showed that both workers and people who work in occupational health and safety (OHS) know very little about how OHS practices at work can help prevent and treat MSDs. OHS professionals have asked for guidelines on how to prevent and treat MSDs that are caused by work, and they have said that the guidelines should focus on a number of OHS issues and the ergonomics of the human body to reduce injuries in the workplace. Organizations are making progress on creating a guideline on ergonomics and safety practices for preventing and treating MSDs at work (Svendsen et al., 2020).

Ergonomics means taking steps to make manual handling tasks, activities, objects, and tools, as well as the design of the work environment, better fit the needs of the worker. It has been used a lot in Italy's business sector (Capodaglio, 2022). Interventions include making changes to the equipment that is already there, changing the way work is done, buying new tools or other devices to help with the work, and making other changes that are common in the industry. Industries are putting more effort into giving workers who are exposed to dangerous conditions training that helps them learn more about working methods and techniques, as well as how to move, stand, and carry loads. Participatory ergonomics is becoming more common in organizations because it is a good way to implement a program to prevent MSDs.

Work-related musculoskeletal diseases (WMSDs) are a major public health issue in Brazil that cost businesses, employees, and health-care systems a lot of money. Brazil has one of the highest rates in Latin America of diseases and accidents that happen at work. These diseases and accidents have a big effect on society and cause less work to get done. The Brazilian government says that WMSDs are the most common reason why people get sick at work. It also says that over the last six years, the number of WMSDs reported in the industrial sector has steadily gone up. Participatory ergonomic intervention strategy, which is mostly used in Brazilian organizations, shows how it was used to find ergonomic flaws, come up with a solution that everyone thought was possible, and put this solution into place in a Brazilian company, which reduced workers' exposure to musculoskeletal risk factors (Bernardes et al., 2021)

In Argentina, improving the quality of life at work has been put off because of problems like industrial reconversion, privatization, and controlling inflation. Not paying attention to these places has made them more likely to be a health risk. Different workplace safety measures are put in place to reduce the health risks. More attention is being paid to how well a job fits the employee these days. Workplaces are made based on the skills or personalities of the employees to help them do their jobs best (Soares, 2006)

In South America, the study found that repetitive movements were the most common exposures for both men and women in terms of physical, chemical, biological, and ergonomic working conditions. For women, this ranged from 50.8% in Argentina to 84.4% in Colombia, and for men, it was from 58.6% in Uruguay to 77.3 % in Central America (Merino-Salazar et al., 2017)

In their study, Mokdad et al. (2019) found that few ergonomic studies have been done in Africa, even though there have been calls for them to be used in developing countries. Basically, working with date palms in the agriculture industry is dangerous and has a lot of bad connotations because it causes more musculoskeletal diseases. The trend is that most workers are stuck in old ways of climbing, like free climbing and climbing with a belt. Some workers have started to use modern ergonomic tools like ladders, climbing devices, and hydraulic lifts. According to the workers, the worker who used the traditional method had work-related musculoskeletal disorders (WRMSD) in the shoulders, hands, wrists, lower back, hips, knees, and feet.

In the global trend, the principles of ergonomics are being adopted and used in different areas. Ergonomic design is being used in the health sector, industry, agriculture, service sector, and manufacturing to help solve health problems. More people in developed countries use ergonomics than people in developing countries.

Ergonomics Practices at Workplace in Asia

In developed countries, ergonomics is used in many fields, such as health care, education, the service sector, industry and production, and agriculture. However, developing countries are still a long way behind when it comes to using ergonomics in the workplace (Jilcha & Kitaw, 2016). Using ergonomics has cost the organization money because the office has to be more complex to fit the employees. Because organizations in developing countries don't have a lot of money, it's been hard to make ergonomic designs (Sirat et al., 2018). But the banking sector is ahead of the curve when it comes to using ergonomics at work, even in developing countries.

In their study, Mokdad et al. (2019) found that traditional methods are used and equipment that is better for workers' health isn't used because of cost and structure. Important factors for implementing office ergonomics include organizational culture, information and specialist support, financial, operational, and management support, attitudes toward change, general organizational awareness, individual ergonomics knowledge, and support from colleagues (Koma et al., 2019). Another study, by Sout et al. (2015), found that Malaysia's mining industry had the fewest ergonomic practices and the most ergonomic risks.

Ergonomics practices have a big impact on how top-level managers think about employee health and reducing risks in the workplace. Organizational ergonomics are supported by the way people in the organization share resources, work together, and talk to each other, as well as by the way top management and employees talk to each other.

In India, small businesses and the unorganized sector know very little about ergonomics, a good work environment, and the right way to stand and sit at work. Musculoskeletal disorders (MSDs) are always present in small industries where manual work is done (Dded & Uide, 2014). Due to how poorly designed workplaces are in India, the number of people who get sick from their jobs is growing at an alarming rate. According to this study, people who know everything there is to know about ergonomics

at work don't always use the ergonomics built into their workstations (Chowdhury & Chakraborty, 2017).

Industrial design has replaced the old way of making things. China's manufacturing business is moving away from mass production and toward competition based on brand and design. In industrial design, the industries are slowly coming to agree on how important it is to include user-friendly design ideas and apply ergonomic design ideas to sustainable design. The idea of "green design" is one of the ways that ergonomics is changing. In China, more and more companies are putting an emphasis on "people-oriented" and "ergonomic design" as selling points for their products, especially those that need to be touched or used by hand. In fact, ergonomics is the study of how machines and working and living environments can be made to fit people's bodies and minds. This way, people can work and live in places that are comfortable and easy to use (Cheng, 2011).

Researchers in the Indonesian city of Denpasar City, Bali, have used the idea of ergonomics to study how to save groundwater (Sudiajeng et al., 2018). Ergonomics is important for the long-term success of groundwater conservation programs, which Indonesia has taken up in large numbers. When ergonomics was used, it was more about how people do things. The ergonomics approach is combined with the hydrogeological approach to make designs that fit the needs, abilities, and constraints of the local social and cultural community. This will make it possible for the program to continue for the foreseeable future (Lawson et al., 2021).

Based on the synergy of ergonomics and hydrogeological approach, it has been shown that the community is involved in both making and carrying out the water conservation program. Small and medium-sized businesses (SMEs) are a big part of Indonesia's economic growth, but their productivity is still low. One reason why SMEs in Indonesia aren't very productive is that ergonomics analysis, especially environmental ergonomics, has not yet been put into place. Often, the owner or management of the company doesn't care about how the workers are treated. Also, there isn't much research being done in this area right now (Herwanto & Suzianti, 2020).

The industrial design of Asian countries is becoming more and more aware of how important it is to combine user-friendly design principles with ergonomic ideas for sustainable design. In the Asian context, small businesses can't afford to use ergonomics in the workplace, so they don't. Since 2000, the international ergonomics community has been fascinated by the fast growth of ergonomics disciplines and the strong growth of the Asian economy. Even though Asia has changed from a traditional farming society to a modern industrial one, knowledge and practice of ergonomics are still in their early stages.

Ergonomics Practice in Nepal: Where are We?

Most organizations in Nepal are just starting to use the term "ergonomics" in their work. Most organizations don't know how to design workstations with ergonomics in mind. But in Nepalese organizations, terms like "healthy workplace" and "occupational health and safety" are used to talk about ergonomics. In Nepal, the idea of a healthy workplace is fairly new. The Nepalese government has started to pay attention by enforcing the Labor Act (1992), the Trade Union Act, and other laws and rules (1993). Most workers say that their workplace isn't good on average, and most owners admit that they weren't able to make the changes that were needed. Some businesses, like those in the construction and transportation industries, are open all the time. This means that employees have to work in the sun, rain, noise, and wind, and adapt to them. Large companies usually try to design and run their workplaces in accordance with the Labor Act, but there is still a lot of room to improve (Ranabhat, 2015). But the Occupational Safety and Health Act doesn't apply to small businesses. In Nepal, no workplace has been built with sun, rain, sound, and wind in mind.

In Nepal, most business owners see safety at work or following ergonomics principles as a cost, not as their responsibility to make a healthy, creative place of work. How much workers know about

ergonomics and health and safety at work depends on the type of work they do. The study shows that people who work in the formal sector know more about occupational health (Pun, 2011). Workspaces in the private service sector are becoming more ergonomic, but the government service sector hasn't been able to do the same. In government offices, it's common for tables and chairs to be the wrong height, for knees to hit keyboard trays, for space to be too small, for the back and elbows to have no support, and for elbows to rest on hard surfaces. The employee's productivity goes down because of these things. In the private service sector, especially in the banking sector, workers' jobs are made to fit their skills. Ergonomic design is used by the banking sector in Nepal to make sure there is enough air flow, enough light, employees can adjust their chair and desk to make them more comfortable, and the noise level is kept low (Sherstha, 2019). The idea of ergonomics has not yet been fully established and put into practice in Nepalese organizations. When it comes to safety in the workplace or following ergonomics principles when building a workplace, most business owners in Nepal see it as a cost instead of a responsibility to create a healthy and creative environment.

Ergonomic Practices and Employee Performance: Empirical Evidences

The performance of employees can be improved if the workplace is designed with ergonomics in mind. Better education is needed in the business world so that people can understand how improving the work environment can help increase productivity. When a company gives its employees a better place to work, their health improves. This makes them more productive and reduces the company's healthcare costs (Al-Omari & Okasheh, 2017).

Table 2: Empirical Review of Ergonomics and Employee Performance

Authors (years), Location	Key Findings	Conclusion / Recommendation
(Ravindran, 2020)	room temperature, furnishing and repeating tasks are the most critical variables determining the work performance of the responders.	suggest the following recommendation: (i) Improving the relaxation provision during the leisure time enhances the efficiency. (ii) For better work performance of the personnel, the layout of tools, equipment and machinery can be improved. (iii) Since most of the staff are regular, the staff can receive regular training for improved work positions and manage machinery and equipment without health risks.
(Raja et al., 2019) Pakistan	employees believe that good workspace design will boost their productivity ergonomically designed furniture fit the physical abilities of the employee and provide sophisticated environment to work	business community should be well educated in order to understand the benefits of providing a better work environment in order to boost productivity A corporation that provides a better work environment enhances its employees' well-being, increasing productivity while lowering healthcare expenditures

Authors (years), Location	Key Findings	Conclusion / Recommendation
(Pickson et al., 2017) Ghana	revealed that all indicators explaining work ergonomics from the perspective of PFC employees were satisfactory. It was discovered that all work ergonomics parameters have a considerable positive correlation with PFC employee productivity	employees must be trained for regular workplace ergonomic training difficulties, such as the right position for rainy and slippery flooring, correct posture, how tension and stress may be reduced in repetitive work and how injury and disorder in their workplace may be avoided
(Akinbola & Popoola, 2019)	Organizational culture, organizational structure, desk heights in relation to monitor and keyboard, inappropriate sitting, lighting, workflows, space in the workspace, design, and temperature can influence organizational effectiveness	that workplace design and appropriate ergonomics practices have a substantial effect on the productivity, profitability and organizational performance of employees
(Sarder & Mandahawi, 2006)	conditions of the plant were stressful and that the working hours were lengthy, with inadequate working safety and working conditions and the physical design and ergonomic practices were adequate	Implementation of low cost ergonomics solution must be done to improve employee performance. Working condition , working habit and equipment design fit to employee increase the productivity and enhance safe working environment
(Deshpande, 2013)	Environment and equipment around the working environment affect the performance of the employee. study finds that ergonomics factor work area design, body posture, working chair, acoustics and lighting affect the job performance and satisfaction	that ergonomics has a significant influence on stress. Regular breaks are suggested by working on a computer, leaving the workstation for a couple of minutes every hour and taking part briefly in another working activity, stretching workouts, foot-and-conscious workouts, refreshing all muscles of the body, promoting personal health and safe learning environment and thereby leads to reinforce the importance of human workplace interaction
(Zakerian et al., 2016)	clear impact of temperature, furniture and the noise on the productivity and performance of the employee Environment of workspace and good design of work place also play the greater role in the commitment level of employee	comfortable and ergonomic design of the working environment and by taking their demands into account, employee productivity can be increased.

Authors (years), Location	Key Findings	Conclusion / Recommendation
(Lan et al., 2010)	has been discovered that heated discomfort negatively affects the well-being of participants, the workload imposed by tasks in this moderately uncomfortable environment rose and participants were forced to make more efforts to sustain their performance.	thermal discomfort due to high or low air temperatures had a negative impact on the productivity of office workers

The Raja et al. (2019) study showed that employees think that a well-designed workspace will help them be more productive. Ergonomic furniture is made to fit the physical needs and abilities of the people who use it. Ravindran (2020) showed how room temperature, furniture, and repeating tasks are some of the most important ergonomics factors that affect how well people do their jobs. To improve how well employees do their jobs, low-cost ergonomics solutions must be put in place. (Sarder & Mandahawi, 2006) found that employees are more productive and safer at work when their working conditions, habits, and equipment are designed to fit their needs. Lan et al(2010) .'s study showed that high or low air temperatures made office workers less productive. In the past few decades, the main things that determined how motivated and productive an employee was were training and development, employee engagement, company culture, and recognition. But as the organization has changed, a new factor has been added: ergonomics. This is also a key part of meeting the performance level set by the organization.

Ergonomics and Employee Performance: Key Observation and Lesson Learn

Ergonomics is a strategy that helps companies find and keep their best workers. Its goal is to improve workplace ergonomics in order to get the most work done for the least amount of money. When ergonomics at work are improved, employees work better and are less likely to miss work or quit (Kahare, 2014). Risk factors in ergonomics include lighting, noise, temperature, vibration, heavy lifting, repetitive motion, workstation design, tool design, machine design, chair design, and shoe design (Merino-Salazar et al., 2017). Ergonomics takes into account employees' physical, mental, social, organizational, and environmental factors when designing the workplace, jobs, products, environment, and systems to make sure they fit their needs, abilities, and limitations (Akinbola & Popoola, 2019). Ergonomics tries to improve both human health and the overall performance of a system by using theory, principles, data, and techniques. It is a scientific system that focuses on how people interact with other parts of a system (Ahmadi et al., 2015). So, ergonomics is a way to organize work so that tools are easy for employees to get to and the work environment is good for them. This leads to more work getting done (Mihartescu et al., 2021).

In the same way, workplace ergonomics is a broad science that looks at many things that can affect a worker's comfort and health, such as lighting, noise, temperature, vibration, heavy lifting, repetitive motion, workstation design, tool design, machine design, chair design, and shoe design, among others (Merino-Salazar et al., 2017). When we talk about performance, we mean both what needs to be done and how it can be done. When building work environments, it's important to think about physical factors, people, work design, and social issues. Improving task conditions, lowering physical exhaustion, and reducing stress caused by activities all improve people's well-being and quality of life at work (Hoff & Oberg, 2015). Poorly designed work environments can have a big effect on how well workers do their jobs and how happy they are, which in turn affects how much they produce. The idea

of environmental comfort goes beyond just recognizing the need for a safe and healthy place to work. Environmental comfort, which includes physical, psychological, and functional comfort, should be used to see if employees have the tools they need to do their jobs. This is based on the idea that ambient is a tool for doing work (Al Horr et al., 2016).

The physical working environment has a big impact on how well and happy employees do their jobs. Most companies try to make their workplaces more comfortable, and the number of companies using ergonomics to do so has been growing (Soewardi et al., 2016). By using good ergonomics, workers' health and safety could be improved, which would lead to more work being done (Ahmadi et al., 2015). Ergonomics is used to cut costs, boost productivity, increase employee engagement, and spread a safety culture, among other things (Socacio, 2012). Better lighting in the workplace can help workers avoid accidents, improve eye-hand coordination, and increase productivity while lowering reject/ defective rates (Ajala, 2012). Organizational culture, organizational structure, desk heights in relation to the monitor and keyboard, improper sitting, lighting, workflows, space in the workspace, design, and temperature can all affect how productive and committed employees are. Taking these things into account when it comes to ergonomics practices in an organization helps employees do their jobs better, improves the overall performance of the organization, and makes the business more profitable (Akinbola & Popoola, 2019).

Rapid changes in technology have changed the role of ergonomics. To adapt to this change, management must include direct worker participation and awareness in designing workplaces (Dimberg et al., 2015). Participatory ergonomics programs are the best way to get rid of, rethink, or redesign manual jobs in order to reduce the number of occupational musculoskeletal illnesses (Burgess-Limerick, 2018). A study of 350 professional and small companies found that 82.5% believe that good ergonomics make workers more productive (Akinbola & Popoola, 2019). 88% of the 103 people who answered the survey from the banking sector said that their work was affected by ergonomics factors like the environment and equipment around them. They also said that making sure employees were comfortable at work increased their productivity and satisfaction (Deshpande, 2013). With ergonomic principles in the manual component insertion (MCI) lines of the printed circuit manufacturing plant, workers have been able to do their jobs 50.1% better (Dded & Uide, 2014). Even with these benefits, adopting ergonomic standards for the workplace and getting equipment that fits employee comfort is expensive (Mokdad et al., 2019).

For an office to meet ergonomics standards, it needs to use the most up-to-date technology to make sure employees are comfortable. Replacing this technology costs a lot of money for the company (Dimberg et al., 2015). Regular training in the workplace can help employees learn how they can make a big difference in ergonomics (Pickson et al., 2017). Use of population samples and experiments on the relationship between spectrum and sound productivity levels should be part of future research in this area (Mak & Lui, 2012). Most research is done on physical and organizational ergonomics, but cognitive ergonomics can also be studied. When people do research on ergonomics, they don't pay much attention to behavioral and cognitive factors (Mokdad & Abdel-Moniem, 2017). Several reviews show that most research on ergonomics is done in industrial and developed countries. When it comes to research and use of ergonomics, developing countries are a long way behind. Most small businesses in developing countries don't care about ergonomics in the workplace.

Conclusion and Way Forward

Businesses and corporations have been trying to figure out how to reorganize their workplaces in new ways for decades. Reorganizing the workplace means making sure that all of the tools and equipment in the office are set up or organized in a way that works for each employee. Over the years, many companies have tried out new designs and ways of doing things in office buildings to make them more efficient and attract more workers. Together with good management practices, the ergonomic design of the

workplace is a key factor in making employees more productive and helping the organization succeed. The performance of employees is affected more by physical ergonomics, cognitive ergonomics, and organizational ergonomics. Accessing and improving workplace ergonomics could boost employee performance and productivity while reducing burnout, absenteeism, and turnover rates. So, it's important to study ergonomics more, especially for places like Nepal.

Conflict of interest

There is no conflict of interest while preparing this paper.

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