

Ergonomics And Human Resource Management: An Independent Conceptual Study Paper

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Abstract

The focus of this independent study paper is to critically review literature on ergonomics and human resource management with an aim to establish gaps in knowledge. The study also aims to review literature on the meaning of ergonomics and the related concept of employee comfort safety, theories of ergonomics and other factors influencing ergonomics. This involves the description of various concepts, principles and methods that are linked to ergonomics and are applied in organizations to ensure optimal performance in human resource management are provided in the study. This shall include design and comfort that establishes design as the central preoccupation for ergonomists, the concept of utility which focuses on the satisfaction, actual or expected, derived from the ergonomic when working. Fitness emphasizes the information needed to implement preventative health management, including workplace ergonomics and ergonomic assessment, which measures risk factors that may cause musculoskeletal problems or injuries in workers. The description of several theories that support the study were reviewed. The theories included, adaptive structural theory, theory of reinforcement and structural functionalism. The linking from literature with ergonomics and human resource management has sought to establish the factors that influence ergonomics. These factors were classified in three broad categories which are job, the individuals and the organization. Some studies have concluded that training and development may be defined as any educational activity whose primary aim is the acquisition of knowledge and skills necessary for the performance of a profession or employment. Moreover, some studies have revealed that ability and motivation are the two characteristics that determine the levels of productivity obtained by workers, prompting attempts on the side of academics to gather information on employees' abilities and motivations to work. Employee turnover is a process of individual terminating his services from an employer. This may result due none satisfaction in the organization. The study evaluated different principles of ergonomics and the different practices that help improve ergonomics. The author made synthesis, conclusions and recommendations based on review of literature on previous studies of the variables under study.

Keywords: Ergonomics, Ergonomics Principles, Ergonomics Methods, Human Resource Management

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I. Introduction

Christensen (1987) notes that the significance of a "good fit" between people and their tools was most likely recognized quite early on in the evolution of the species. The learned individual was of the opinion that appropriate equipment was necessary in order to carry out responsibilities in an efficient manner. In a blatant demonstration of picking and fashioning implements to facilitate the completion of difficult tasks, Australopithecus Prometheus chose to use tools composed of pebbles and fashioned scoops from the bones of antelope (Dul & Neumann, 2009). This was a means for humans to have their work simplified in some manner. There is evidence that ergonomics has been practiced for as long as humans have existed (Wissemann, Pit, Serafin & Gebhardt, 2022).

Ergonomics is the study of how people interact with other parts of a system and the profession that uses this knowledge to inform design decisions that improve both individual and societal outcomes (Chintada, 2022). This definition suggests that ergonomics seeks design solutions in both the technical and organizational contexts, that it takes into account both the physical and psychological components of humans, and that it prioritizes social as well as economic outcomes (Dul & Patrick, 2008). Tools like hammers, axes, and ploughs have become more efficient throughout the years. Machines like the spinning jenny (which made yarn to manufacture textiles) and rolling mills (which flattened iron ore into flat sheets) were invented during the industrial revolution to streamline production (Kuper, 2013). This is essentially the driving force behind modern ergonomics.

From the beginning of recorded history, there has been a correlation between one's line of work and musculoskeletal ailments. In order to enhance the work that he had originally done in 1700 entitled "De Morbis

Artificum (Diseases of Workers)," Bernardino Ramazzini (1713) wrote about labor-related ailments that he had seen in his medical practice. In a philosophical tale written in 1857 by Wojciech Jastrzebowski, the term "ergonomics" was first used. The narrative was "based upon the facts acquired from the Science of Nature" (Jastrzebowski, 1857). Around the beginning of the 20th century, ergonomic ideas were being developed to boost worker productivity. At that time, the output of industry was still heavily reliant on the force and mobility of humans. The practice of Scientific Management, which aimed to boost worker productivity by enhancing the operations of their jobs, became more widespread. Frederick W. Taylor was an early proponent of this method, which included analyzing work tasks to establish "One Best Way" approaches to doing such tasks. When workers at Bethlehem Steel were assigned the chore of shoveling, Taylor drastically enhanced worker output and pay by adjusting the kind of shovel used in accordance with the material that was being transported (ashes, coal or ore). This unmistakably pointed to the beginning of a new era in tool development (Kennedy, 2021).

Using time motion analysis and standardizing equipment, materials, and the job process, Frank and Lillian Gilbreth (1952), as stated by Kennedy, (2021), made work more efficient and less fatiguing. This was accomplished by making the occupations more standardized. Because to the implementation of this strategy, the number of movements involved in bricklaying was decreased from 18 to 4.5, which enabled bricklayers to raise the rate at which they laid bricks from 120 to 350 per hour. During World War II, there was a surge in interest in human-machine interaction due to the fact that the effectiveness of highly advanced military equipment (such as aircraft) may be hindered by poor or muddled design. The evolution of design ideas that included making the machine proportionate to the size of the soldier and having control buttons that were reasonable and comprehensible (Kuper, 2013). As a result of this ongoing process of progress, modern machinery has come into being.

The field of human resources may trace its origins back to Europe in the 19th century. The concept of human resources was first proposed by Robert (1858) and Charles Babbage (1871) at the period of the industrial revolution. People, they reasoned and concluded, were the single most crucial element to a company's success. They claimed that the company's survival depended on its workers' well-being since a healthy and happy workforce would result in higher quality output (Merkle, 1980). Hence, it was crucial for businesses to put their employees' wellbeing first.

Human resource management owes much to the work of Frederick Winslow Taylor, who did groundbreaking work at the turn of the 20th century (1856–1915). To improve the economic efficiency of industrial employment, Taylor studied what he called "scientific management" (also known as "Taylorism"). The term "scientific management" is often used to describe Taylor's contributions. Labor is one of the key inputs in the manufacturing process, and this realization led him to investigate worker productivity (Kennedy 2021). According to Chelladurai and Kim (2022), human resources are the accumulated skills and knowledge about humans that arise through their preparation and education. They are the factors of creation that are referred to as assets or capitals.

In light of what has been said, it should come as no surprise that ergonomics and human resources are concerned with learning about the many ways in which people interact with technologies both within and outside of the workplace (Karwowski, 2005). Human resource management and ergonomics use such data to improve working conditions for employees while also boosting productivity (karwowski, 2005).

Concept of Ergonomics

Ergonomics may be considered a social aspect in the study of the interaction that occurs between work and individuals in their respective working environments (Wignjosoebroto, 2007). The International Ergonomic Association (IEA) definition of ergonomics was cited by Dul and Neumann (2009, page 1), and it states that ergonomics is the study of how people interact with machines and other elements of a system, with the goal of improving both people's health and the system's efficiency. According to Vimalanatha and Babu (2013), ensuring that all employees have access to an effective working environment in order to achieve maximum productivity is contingent on providing them with the resources that are necessary to complete the task at hand.

Ergonomics, by definition, is the study of human interaction with the built environment with the purpose of optimizing efficiency and comfort. One definition that is more specific but not as widely accepted is that it is the study of the factors that determine how easy or difficult a certain task is. The process of monitoring and directing personnel in order to improve overall performance is known as human resource management, or HRM. For instance, while searching to fill open positions in an organization, management should prioritize identifying candidates who will contribute positively to the company's culture. Workers who are a good match for the business's culture are more likely to be happy in their positions, stay with the firm for longer, and make greater contributions to its success. According to the International Ergonomics Association, "ergonomists" work to ensure that jobs, products, environments, and systems are designed with people's needs, skills, and limitations in mind (Draghici, Izvercianu & Draghici, 2007). For this reason, the management of human resources and ergonomics are two areas that need to get attention for every firm that wants to be successful.

Concept of Human Resource Management

Human resource management refers to the strategic approach to managing the people who work for a business or organization so that they contribute to its success in the marketplace (HRM). Its aim is to maximize worker productivity in service of an organization's long-term objectives (Johnason, 2009). Human resource management focuses on the administration of employees within a business, paying special attention to policies and procedures (Collings & Wood, 2009). Human resources oversee the organization's compensation and benefit structures, as well as recruitment, training, development, performance evaluation, and appraisal of employees' work. Additional duties consist of: (Paauwe & Boon, 2009). Human resource management also worries about industrial relations, or the harmony between company policy and the rules that arise through collective bargaining and government law (Klerck, 2009).

Success in business is ultimately dependent on the efforts of its employees, thus optimizing these efforts is essential to human resource management (Michael, 2009). Human resource management professionals are tasked with overseeing the administration of an organization's policies and processes, as well as the management of its human resources. Human resource specialists often specialize in one area of HRM, including training and development, benefits administration, or employee relations. Professionals in the area of training and development make sure that workers have access to courses and programs that will help them improve their abilities and grow in their existing roles. Training, performance evaluations, and rewards all play a role in achieving this goal. Employee relations handles worker complaints when policies are broken, such as when discrimination or harassment occur (Klerck, 2009).

Purpose of the Study

The purpose of this independent study paper is to critically review literature on ergonomics and establish gaps in knowledge. The paper reviews literature on conceptual definitions, meaning of ergonomics and the related concept on human resource management. From this literature review relationship between training and development, humans as assets, technology and employee productivity will be established, (Karwowski, 2005). From the study, conclusion will be made and knowledge gap in terms of methodology, context and constructs will be identified. The research will identify an area of research to fill the identified knowledge gap.

II. Ergonomics: Principles and Methods

the description of various concepts, principles and methods that are linked to ergonomics and are applied in organizations to ensure optimal performance in human resource management are discussed. The principles and methods are used to assess the direction and level of influence on human resource management. The section further discusses the ergonomic methods, specifically; design and comfort; the concept of utility; the concept of fit and; ergonomic assessment.

Principles of Ergonomics

According to Ceccacci et al. (2019).) definition, ergonomic principles are the fundamental concepts that form the basis of the behaviors that employees should engage in in order to reduce their risk of developing ergonomic illnesses, such as musculoskeletal diseases (MSDs). It is not a standardized phrase, but it generally refers to the practice of making sure that the equipment and procedures that a worker employs are safe and appropriate for their level of physical ability (Rani, 2020). The use of appropriate ergonomics in the workplace helps to maintain both the comfort and safety of the workforce. As a result, companies have to undertake ergonomic safety inspections on a regular basis in order to cut down on injuries and enhance the quality of life of their workforce (Boff, 2006). The principles discussed herein include work in a neutral position, reduce excessive force, keep materials within easy reach, work at proper heights and reduce excessive motions.

MacLeod (1995) defines neutral posture as the position in which each joint is at rest. This is the position in which there is the least amount of stress or strain on nerves, tendons, muscles, and bones. At this length, muscles are able to create maximal force in the most effective manner. The redesigning of equipment, workstations, and procedures is one component of ergonomic redesign. The goal of this element is to provide the worker with the ability to keep their joints in a neutral posture as much as possible. The position that workers are in is a useful point of departure for determining the activities that should be carried out. The most effective ways to work are in postures that maintain what's known as "neutral posture" for the body (Tayyari, & Smith, 1997).

Applying an excessive amount of stress to their joints increases the risk of both tiredness and damage. As recommended by Bongers, Kremer and Laak (2002), the next step for employees is to reflect on specific instances of excessive force and consider how to make modifications. Imagine a situation in which employee had to move something that required them to utilize the complete weight of their body. That is the point that this general concept is trying to make. The act of pushing, tugging, or lifting large objects may put pressure on their joints, which can lead to tiredness as well as the possibility of damage. It may be as easy as moving heavy objects

with a cart or hoist, or they may need to make adjustments to their workflow in order to reduce the amount of distance they need to travel or the number of items they need to transfer (Hagberg, & Silverstein, 1995).

Keeping items where they may be easily accessed is the focus of this approach. It is helpful to analyze a work from this particular viewpoint, despite the fact that this idea is, in many respects, redundant with posture. This idea sees widespread implementation in the digital as well as the physical realms. According to the findings of Bongers, Kremer, and Laak (2002), the process of interacting with a particular product need to be simplified. The product should be within easy reach of the employees, and they should be encouraged to engage with it. For instance, the control panel for dish washers has to be within an arm's reach with the least amount of time and effort required. Users of digital designs like websites and mobile applications should have an easy time accessing functionalities and navigation links thanks to a usable execution of the layout (Gášová, Gašo & Štefánik, 2017).

Working at the appropriate height is another technique to make things simpler, as suggested by Rani (2020). Having a work surface that is either too high or too low may cause pressure on the back, neck, and shoulders. Whether seated or standing, employees should accomplish the most of their usual job at an elbow's height. If, on the other hand, they operate with heavy tools, they may want to change their posture so that they are working at a height that is lower than elbow height. On the other hand, some precise jobs may demand them to perform their duties at heights that are higher than the elbow (Jung & Jung, 2008). Working at proper heights is important because it helps to reduce the risk of developing musculoskeletal disorders (MSDs), such as carpal tunnel syndrome, tendinitis, and back pain (Kirkhorn, Earle-Richardson & Banks, 2010).

Das, Motghare and Singh (2018) asserted that reducing excessive motions is one of the key principles of ergonomics. It is important for employees to reduce excessive motions because they can lead to muscle fatigue, pain, and injuries, especially when they are repetitive. There are a number of ways to reduce excessive motions, including; improve the layout of the workstation and work area. This may involve rearranging materials and equipment so that they are within easy reach, or changing the sequence of tasks to eliminate unnecessary movements. Use ergonomic tools and equipment. Ergonomic tools and equipment are designed to reduce the amount of force and awkward postures required to perform a task (Haile, Taye & Hussien, 2012).

Ergonomics Methods

For the better ergonomics at work place, there are various methods that can be employed to achieve desired ergonomics status. The methods discussed are design and comfort, the concept of utility, the concept of fit and ergonomic assessment.

Ergonomic design and comfort concepts are integral aspects of product and environment design aimed at enhancing user well-being and performance. Ergonomic design is the science of designing products, processes, and systems to fit the physical and cognitive needs of humans. Comfort is a key consideration in ergonomic design. Ergonomists focus a lot of their attention on design because they know that ergonomics will follow suit if the design is solid. From the conceptualization of a new system, technique, machine, or product all the way through to its implementation, ergonomists keep a close eye on everything that may affect human beings (Boff, 2006). Designing is primarily concerned with how a system is imagined, what criteria are considered crucial to the system's proper operation, and how those factors influence the decisions that are made. On the other hand, ergonomics is what makes sure that the features of the system are tailored to the specifics and requirements of the people who will be using it (Coelho, 2011). Ergonomists investigate, in general, how humans create a system, as well as how that system interacts with and affects the people who use it (Velichkovsky, 2011).

In ergonomics, the term "utility" refers to the assessment of how effectively a system or product satisfies the requirements and preferences of its users. Utility in the context of ergonomics is often linked to how well and effectively a design supports human performance and well-being. A well-designed, ergonomic product is more likely to provide a higher level of utility by meeting the physical and psychological needs of its users. Mital, Nicholson, and Ayoub (1993) estimate that 95 percent of office time is spent in front of some kind of electronic gadget. By doing so, employee's bodies are exposed to massive quantities of physical, mental, and repeated stress, which has been linked to the onset of several health issues, including obesity, diabetes, musculoskeletal illnesses, and many more. Having a sedentary lifestyle may have devastating implications on employees' health. Further, Asensio-Cuesta, Diego-Mas and Andrés-Romano (2012) indicated that ergonomic designs often incorporate adjustable features that allow users to customize their workspace or equipment to their individual needs. This can include adjustable chairs, desks, and computer monitor heights. It is an important aspect of designing products and environments that promote human health and efficiency.

In ergonomics, the concept of fit refers to the compatibility between a product, system, or environment and the user. A good fit means that the product, system, or environment is tailored to the user's individual needs and abilities. Despite preventative health management being an effective tool in businesses for reducing high healthcare expenditures, many companies have ignored this crucial area (Schultz, Chen & Edington, 2009). The idea that businesses are sluggish to grasp that preventative measures might truly pay rewards within a short amount of time is problematic. When it comes to preventative health management, including ergonomics in the

workplace, many companies, no matter how big or how little, lack the required know-how to put it into action. This is true for both small firms and large multinational corporations. This negligence is sometimes ascribed to firms being busy "doing business," which is a common excuse (Dann & Haddow, 2008). It's true that a lot of businesses consider buying ergonomic equipment and accessories for computer workstations, but they don't care about their employees' health. This similar point is often brought up in discussions on the difficulty of enhancing safety measures in order to reduce the number of incidents involving machines or the acquisition of personal protective equipment (Choudhry & Fang, 2008).

An ergonomic assessment, also known as an ergonomic risk assessment, provides an objective measurement of the risk factors in a workplace that may lead to musculoskeletal diseases or injuries among personnel (Pavlovic-Veselinovic, Hedge & Veselinovic, 2016). Workplace ergonomics risk assessments are another name for ergonomic evaluations. An ergonomic evaluation is conducted to determine the extent of the risks in a workplace and to make measurable improvements. An in-depth ergonomic analysis lays the groundwork for a more comfortable, less hazardous, and more productive workplace. As soon as the results of an ergonomic assessment are in, HR may implement data-driven measures to improve workers' safety and well-being (Gander, Mills & Popkin, 2011). Adjustable desks, seats, and workstations, as well as footstools, ergonomic keyboards, and lumbar supports, might all be added to the office to improve workers' comfort. Anti-fatigue standing mats, adjustable workstations, occupational therapy, and training to enhance neck and shoulder posture are some ways manufacturers and industrial businesses may improve their ergonomics (Tayyari & Smith, 1997).

III. Theories of Ergonomics

There are several theories in the literature that explain the origin and foundation of ergonomics. The most dominant theories include the following Adaptive Structuration Theory, Theory of Reinforcement and Structural functionalism.

Adaptive Structuration Theory

Group communication is the focus of Adaptive Structural Theory. It was created DeSanctis and Poole (1994) and examines linear models of communication critically. When it comes to the study of how businesses adapt to new technology, adaptive structural theory has emerged as a leading framework (DeSanctis & Poole, 1994). As the theory of adaptive structuring explains, there are two ways to evaluate the impact of technology on an organization: the structures that arise from human activity and the structures made possible by technological advancements. This theory has gained acceptance due to a number of strengths. The ability of this theory to assist in the facilitation of group interactions across potential differences is the fundamental strength of the theory (Ali, Hameed, Moin & Khan, 2023). Second, according to this idea, the structural potential that may be provided by contemporary technology is taken into consideration. At the same time, it enables each level to have an understanding of the repercussions that will be caused by the technology in question, which enables communication to remain accurate. Also, the theory enables groups to get an understanding of how they organize themselves, therefore laying the groundwork that may be necessary for a certain result or a shift in organizational culture (Olowa, Morganti, Teittinen & Lill, 2022).

Theory of Reinforcement

Skinner (1957) better known by his initials as B.F. Skinner, was an American psychologist who is most recognized for his ground-breaking views on behavior. Reinforcement theory of motivation was Skinner's idea, and he developed it together with his colleagues. It asserts that conduct is a function of its consequences, which means that a person will engage in the activity that led to favorable outcomes and will steer clear of the behavior that has resulted in unfavorable outcomes. Another name for this kind of occurrence is the law effect (Dayan & Daw, 2008). The theory of reinforcement proposes that humans may pick one of many possible reactions to a given stimulus, and that they would, in most cases, choose the response that has historically been linked to the achievement of desirable results. Thorndike (1911) initially proposed this concept which nowadays it is often known as the "law of effect." If everything else is equal, the law of effect states that one's response to a stimulus that is followed by pleasure will be enhanced, whereas one's response to a stimulus that is followed by pain will be diminished (Vlaev & Dolan, 2015).

Structural Functionalism

Structural functionalism is often seen as a more recent attempt to combine sociological data into a theoretical framework in the discipline of sociology. With Talcott, Robert, and Kingsley (2004) as its primary advocates, this view seeks to address the issue of how social phenomena may be seen as a set of interacting, dynamic factors. Any organization or community is able to serve its purpose and so continues to exist (Horton & Hunt, 1984). Functional analysis, as defined by Isajiw (2000) examined the structural elements of a social system in an attempt to show how these elements contribute to the integration or disintegration of the system by fulfilling

or failing to satisfy particular demands of the system. It is also hoped that this research will provide light on the significance of these contributions to the component's continued existence within the societal system. Parson (2019) employs a similar line of reasoning in his analysis of the contemporary medical profession. He investigates the prevailing normative frameworks governing the doctor-patient interaction, specifically exploring the potential ramifications that may arise from a hypothetical departure from these established patterns. The system-maintaining consequences are associated with the established norm pattern characterized by functional specialization, emotional neutrality, and group orientation and performance. Conversely, the system disrupting consequences are associated with deviations from this established pattern (Handel, 1993).

Linking Ergonomics and Human Resource Management

Under this section, the characteristics of modern methods that may be used to cope with the observable evidence that ergonomics and human resource management are linked are herein provided. The section discusses the research and practice gaps that exist between the fields of ergonomics and human resource management. These gaps include: rationalizing the relationship between ergonomics and human resource management; ergonomics as a function of training and development; humans as assets in both ergonomics and human resource management; technology as a tool to assist humans in both ergonomics and human resource management; and ergonomics as a function of employee productivity (Recast-why use capital letters and write in full when appropriate).

Rationalizing the Relationship Between Ergonomics and Human Resource Management

The purpose of human resource management, in a nutshell, is to ensure that the organization may advance in some way due to the efforts of its members. Human resource managers oversee an organization's workforce and are responsible for its employees, policies, and procedures. The Asset Based Perspective on the Company, which asserts that the company's seriousness is a result of wasting assets that are substantial and difficult to imitate, is typically compatible with the benefits of the framework shown in the studied literature (Barney, 1991; Barney & Wright, 1998) (For the sake of clarity and meaning, the whole statement has to be rewritten. Assuming that the user should be in command of the work cycle and the innovation, opening up for the use of human talents, and guaranteeing a healthy and socially intuitive workplace are all hallmarks of a human-focused production system that allows for a unification of planning and doing (Charles et al.,1990). According to Perrow (1983), the main problem is not the incapacity of creators and organizers to include human, consider information in their actions, nor is it the difficulty of human element masters to bring adequate and beneficial information. The authoritarian context, which minimizes the influence that human factor experts may have and restricts the perspectives they can provide, is the root cause of the problems that have arisen (Perrow, 2004).

Ergonomics as a Function of Training and Development

According to Piekarz (2012), the main goal of ergonomics is to increase the "quality" of human existence by creating settings that are satisfying, comfortable, and safe. Ergonomics aims to maximize the human-technology process, which is influenced by technical advances, human demands, working circumstances, and working surroundings (Fazi, Mohamed & Basri, 2019). The study of ergonomics focuses primarily on the connection between people and technology, as well as the management of many areas of life, as its primary area of inquiry (Boff, 2006). In the process of improving ergonomics, training is an essential component. Training should be offered in a language that can be understood by all employees and should ideally be delivered by personnel who have prior experience addressing ergonomic concerns in the sector in which they operate (Dul & Neumann, 2009). The HR department will make sure that employees are taught about ergonomics and how to apply it to the workplace, as well as how to operate equipment, tools, and machine controls safely, as well as how to engage in good work practices including using suitable lifting methods (Chintada, 2022).

Humans as Assets in Both Ergonomics and Human Resource Management

According to Bridger (2009), people may vary widely in the capabilities they possess as well as the constraints they face. The technique known as ergonomics focuses on how to make advantage of these capabilities by designing jobs and equipment that are beneficial to humans (Recheck language). This not only enhances their health and safety but also often assures a more effectively overseen and managed organization, making it stronger. Human asset management is the division of a corporation responsible for overseeing workers, as per Andrew (2001). Human capital management is the practice of managing a company's workers as an investment by standardizing the many reasonable parts of a representative's lifetime throughout the firm. Human asset management encompasses many different fields of study and practice, including but not limited to enrollment, onboarding, maintenance, advancement, culture, profession and executives, portability, progression planning, board ability, board performance, representative organization, legal issues, and more. Intangible assets like human resources are not tallied up when calculating a company's net worth (Khan, 2020).

The value of a specialist's knowledge and skills may be measured in terms of money. Resources such as education, preparedness, knowledge, abilities, and health are included here, along with other qualities highly valued by businesses. According to Dul and Neumann (2009), the concept of human resources acknowledges the reality that not all types of labor are created equal. But, managers have the ability to increase the quality of that capital by investing resources in their employees (Caruso, & Salovey, 2004). Representatives' education, experience, and talents provide monetary benefits for their businesses and the economy as a whole. The management of human resources is important since it has been shown to increase production and, therefore, efficiency (Manolescu, Lefter, Deaconu & Marinaş, 2009).

Technology as a Tool in Ergonomics and Human Resource Management

According to Huselid (1995), technology is generally seen as either something that is bothersome or something that is beneficial to their common human capabilities. Alternatively, on the other hand, it may be seen as something that employees need to acquire a handle on in order to maintain their awareness of the always shifting environment. On one end of the spectrum, innovation may be seen as a threat to "normal" ways of being and being human, or as a force that is beyond their ability to control (Qamar, Agrawal & Jabbour, 2021). In addition to this, at the opposite end of the spectrum, it very well may be viewed as a guarantee of a different kind of mankind, one that rises above the cutoff points set by their organic bodies and the uncertain human knowledge (Sharma, 2023). This would be the case if it were possible to create a human being with a higher level of intelligence. The person, including his or her capabilities, aptitudes, character, temperament, and capacity to recognize potential dangers.

In order to employ technology in ways that are beneficial to society, it is essential to overcome any barriers that exist between what is conceivable and what is actually produced; this is a big undertaking that involves taking into account the innovation network. According to Buják and Guagliano (2017), the social sector needs more innovation tools, and the barriers that prevent the use of innovation in this sector are decreasing on a daily basis. A disappointing performance in the market is not the end of the story: the fact that something is not profitable enough to warrant doing should not be a reason to avoid doing it (Wissemann, Serafin & Gebhardt, 2022). The ability to easily duplicate innovation is one of the primary reasons why programming organizations are typically so useful. The same kind of influence may be put to work in social applications of technology. The need for skilled social entrepreneurs who can bridge the gaps between plausibility and productivity, between industry and government, and between technologists and hindered networks is at an all-time high. There are a lot of opportunities available, but the requirements are really difficult. The resolution of problems is one of the things that technologists like doing the most; it's their major event best (Chintada, 2022).

The Role of Ergonomics in Employee Productivity

According to Fleming's claims in Allnoch (1997), if they increase a worker's degree of comfort, they will also increase the level of production at the organization. Ergonomics refers to the design of objects to be more user-friendly or the application of improved working procedures, practices, and tools to human beings. Industrial engineers, he argues, have paid insufficient attention to people and how people really function in favor of things like materials, processes, and machinery. According to Mondy (2008), the most evident cause for concern is the steadily increasing expenditures that are linked with injuries or illnesses sustained on the job. Regulation of legal laws and processes is taking place in every sector of the economy across the globe (Dora, Krishna & Reddy, 2022).

Employees are more aware of their rights as a result of the pressure exerted by labor unions and insurance companies. This focuses on creating an atmosphere that is favorable to the activity being done, and there is growing evidence that ergonomics programs may have a good effect on both quality and productivity (Dann & Haddow, 2008). Because of all of these factors, ergonomics has become a very critical topic. Injuries to workers and the associated direct and indirect costs often originate from problems at the point where humans and machines interact. The fastest-growing subset of workplace trauma is cumulative trauma disorders, and they have skyrocketed with the prevalence of other work-related ailments. More and more tasks are being completed by machines as technology improves (Rifai, 2018). Bad or unnatural postures, immobility, excessive force required to execute a task, repetitive motion at a high frequency, lack of recovery time between repetitions, vibration, and low temperature are all possible contributors to this disease (Render & Heizer, 2006).

IV. Conclusions and Recommendations

Synthesis

Based on the literature reviewed, the relationship between variables highlighted was explored and through this exploration various research gaps were identified. Knowledge about different workplaces is advanced via the collection of data on working circumstances, the performance of ergonomic assessments, and the application of the resulting solutions, all of which highlight areas where working conditions may be improved.

According to Ceccacci et al. (2019), ergonomic principles are the core concepts that underpin the behaviors that employees should engage in to prevent ergonomic injuries, such as musculoskeletal illnesses. These behaviors should be practiced by workers in order to avoid ergonomic injuries (Anshel, 2007). Ergonomic interventions, which do not typically produce immediate results, are not exceptions to the rule that management and owners find it difficult to break the tradition of not making changes that they initially consider to be costly. This seems to be a tradition that is still difficult to break. It is thus pragmatic to advise adjustments that are moderate, as done in this research, for the purpose of achieving acceptance to management and controlling staff turnover and separation rates (Efferin & Hartono, 2015).

Training and development programs have a significant effect on worker productivity, according to the majority of reviewed research (Mozael, 2015; Qamar, Agrawal & Jabbour, 2021). Businesses might potentially benefit from having a more dedicated and productive workforce by investing in training for their employees. According to the findings of a number of studies, there is a pressing need to develop and educate personnel in this sector in order to grow and expand operations within the industry (Sahlberg, 2006; Beardwell & Holden, 1993). Given that the vast majority of workers in a society are of working age, the government need to motivate its workforce in some way, particularly taking into account the fact that most workers are young people. Attaining motivation is thought to lessen the negative effects of burnout and, eventually, employee turnover by increasing the likelihood that workers will feel they have decision latitude, freedom, and responsibility; that they are doing something important; that their work is valued; or that they have control over the process of tasks (Yazdani, Novin, Merryweather & Hermans, 2021).

Researches have been conducted across a variety of business sectors to investigate the correlation between high staff turnover and high levels of customer satisfaction (Martin, 1994, Harter, Schmidt & Hayes, 2002; Lee, Lee & Feick, 2001). Martin (1994) made the startling discovery that the level of client satisfaction at one insurance firm plummeted from 75 to 55% when a frontline service worker departed the organization. Estelami and Hurley (2003) examine the accuracy of staff turnover as a predictor of customer satisfaction during research that was conducted by the Marketing Science Institute. Their findings indicate that some staff turnover indicators accurately predict levels of customer satisfaction, and that their capacity to do so is comparable to that of single-item employee satisfaction ratings obtained from employee surveys.

Conclusions

The research analyzed the connection between ergonomics and human resource management while taking into account the differences that exist between the two fields. These differences included the training and development, humans as assets, technology as a tool to assist humans in both ergonomics and HRM, and ergonomics as a function of employee productivity. A growing body of evidence suggests that investing in employees' skill sets has a direct impact on a company's bottom line, even though some companies remain skeptical about the value of training (Chintada, 2022; Qamar, Agrawal, Samad, & Jabbour). The Foundry Association (2003) states that HR departments will implement training programs that teach employees about ergonomics, how to use equipment and tools safely, how to operate machinery with care, and how to lift objects safely.

The spectrum of capabilities and constraints that people possess is quite diverse. The concept of ergonomics focuses on how to make the most of these capabilities by designing jobs and equipment that are conducive to the health and safety of humans (Dora, Krishna & Reddy, 2022). This not only improves their health and safety, but it also increases the likelihood that they will have a stronger connection and better performance overall. In addition, it was determined that work should be structured according to ergonomic norms in order to evaluate both the limitations and characteristics of human beings. According to Huselid (1995), technology is generally seen as either something that is bothersome or something that is beneficial to their general human capabilities. Technology is also seen as something that employees need to have a better understanding of in order to keep up with the ever-changing environment.

On the other hand, it may be seen as a promise of a new sort of human being, one that transcends the limits imposed by their physical make-up and their limited understanding of the world. This would be the case if it were possible to create a human being with a higher level of intelligence. The person in question, including his or her capabilities, aptitudes, character, manner, and capacity to recognize potential threats (Dul & Neumann, 2009). Further findings and conclusions about workers' productivity were obtained, and according to Fleming in Allnoch (1997), increasing a worker's degree of comfort also increases the level of productivity at the organization. According to him, industrial engineers have focused a lot of their attention on the materials, the process, and the equipment side of things, but they haven't given the human and how the human works nearly enough consideration.

Recommendations For Research

This focuses on creating an atmosphere that is favorable to the activity being done, and there is growing evidence that ergonomics programs may have a good effect on both quality and productivity. Nevertheless, this variable has been addressed in other research with a different emphasis. The association between ergonomics and employee turnover rate or separation has not been investigated in any of the previous studies that have been evaluated. In upcoming research, namely those focusing on underdeveloped nations, there is a pressing need to investigate this particular characteristic.

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