

# The Optimization Production of Small Enterprise Based on Ergonomics Perspective

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## ABSTRACT

The application of ergonomics has been proven to be able to increase productivity in micro and medium enterprises. This can be seen in several studies that discuss the implementation of ergonomics in micro and medium industries. However, the implementation of ergonomics has not been maximized on a micro-business scale. The purpose of this study is to review the problem of ergonomics at the micro-enterprise scale and to analyze advanced strategies for improving ergonomics implementation. The study was conducted using a qualitative phenomenological method to reveal the problems of ergonomic implementation on the business scale of micro from the worker's point of view. The results of the study indicate that problems that arise in the implementation of ergonomics include disturbances in movement tools, comfort, body position, excessive production quantity, and repetition of disturbances due to body position. Another problem is that the motives of the workers to improve the implementation of ergonomics are still low.

**Keywords :** *Micro And Medium Enterprises, Ergonomics, Productive*

## 1. INTRODUCTION

The presence of micro-scale industry is a factor that supports the wheels of the Indonesian economy. The existence of micro-scale industry brings many changes, especially for economic development both on a macro and micro scale [1]. The milestone has also been carved out that economic development is also made by humans through micro and medium scale industries.

The existence of micro and medium scale businesses in terms of their operations can also be said to be more flexible than large companies. In fact, the operation process, both in terms of production in micro and medium enterprises, is carried out in a simple manner, but also uses technology assistance in practice. The production process that occurs in the micro-scale industry is one of the activities that play an important role in the supply of goods. The production process is generally still relatively simple. With the implementation of a production system that combines the conventional side and modernity.

In production activities, ergonomics plays a very crucial role. Ergonomics will indirectly direct employee performance in order to achieve productivity and satisfaction [4]. The role of ergonomics is also

inseparable in directing the workforce, in achieving prosperity and aligning mentally so that they can work better [5]. The application of ergonomics is an important thing that needs to be considered for the performance of employees. The application of ergonomics will indirectly provide benefits for the continuity of production. In its application, resistance engineering is also required. None other than the function of this engineering is as a symbolic form of management in paying attention to risk, effectiveness, flexibility in different situations [6] In practice, the application of ergonomics is rarely realized by novice business people. One of them happened in Easy Cook. This startup is engaged in the provision of cooking spices. Problems related to ergonomics applications are often felt during production, most of which are cooking activities. Several stages are carried out during production including cooking activities, namely the purchasing process, the sorting process, the process of stripping raw materials and gramation, the process of washing raw materials and draining, gramation for each menu, the cooking process, the stages of packaging and inventory as well as updating data and cleaning the environment work.

Activities such as washing, cutting, frying and packaging are often complained by members of Easy

Cooking after production activities end. The emergence of fatigue which means giving an impact, especially in carrying out the production process on the following days. Therefore, it is necessary to observe and analyze the problem, so that it is beneficial for the performance of Easy Cook in the production process. With future research, micro business actors can pay attention to the importance of ergonomics and facilities in production efforts both in all industrial sectors, so that employee performance will be maximized and can produce better products and in greater quantity. Besides, in the future this research can be used as a reference and reference for further research or research related to this research.

## **2. LITERATURE REVIEW**

### ***2.1 Dimensions of ergonomics and demotivation***

Ergonomic dimension is an integrated dimension. Through the dimensions created, all dimensions are translated into some of the most important things which include physical, organizational, cognitive and psychosocial aspects. The results of the study also describe that psychosocial also has an influence on demotivation which has a fairly influential effect on the sustainability of ergonomics [7].

### ***2.2 Repetition of musculoskeletal disorders***

The sustainability of production is determined by the factors that support the implementation of production activities. The continuity of these activities also does not prevent the emergence of phenomena that become problems to be solved. One of the phenomena that often appears is related to musculoskeletal disorders. Disturbance factors especially in musculoskeletal can be avoided by combining a combination of ergonomic elements [7].

The main focus of micro-scale industry is only on the production aspect. In practice, musculoskeletal disorders are often experienced by workers. Musculoskeletal disorders are part of injuries or disorders of muscles, nerves, tendons, joints, bones, cartilage, and other structures that attack the legs, neck, and back as a result of, or are aggravated by conditions of sudden exertion or through prolonged exposure. quite too long with the support of various physical risk factors in terms of work [8].

### ***2.3 Improved operational activities through ergonomics***

Ergonomics is very functional and supports especially for increasing productivity. Therefore, in order to support effectiveness in terms of work and

optimization in production, research related to ergonomics is needed. In assisting in increasing productivity. Given the need for research related to ergonomics in micro-medium scale industries, this study aims to find out how ergonomic problems are currently, especially in the scope of micro- enterprises and how are strategies and efforts to improve ergonomics implementation. [9]

## **3. METHOD**

This study fully uses phenomenological qualitative methods. By conducting semi-structured interviews. Semi- structured interviews were conducted to dig up information related to the application of ergonomics to two main sources, namely business owners and workers. Semi-structured interviews were conducted with 3 business owners with the aim of finding out the reasons for implementing ergonomics, as well as the perceived benefits associated with the implementation.

Meanwhile, interviews conducted to 15 workers in the

micro and medium industry sector aimed to investigate the work process, complaints that occurred during the last few months related to ergonomics and track records of injuries experienced during work activities. To support the research, an assessment using the REBA Assessment is also carried out which serves to indicate the current level of ergonomics applied by workers whether they require positioning and further handling.

## **4. DISCUSSION**

### ***4.1 Indicator of duration and work comfort***

In carrying out work activities, the comfort of the position and the work environment can affect productivity and the results of the work done. The results of the study indicate that work comfort is determined by the movements made by employees. With a long enough time span, the movements carried out then give the potential for complaints that result in fatigue. Every movement is carried out freely without having to pay attention to the rules that limit the flexibility of movement. This kind of thing is something that is usually done, considering that a flexible body position at work can support the comfort of working.

In addition to these factors, the availability of facilities

also has an influence related to work comfort. The availability of adequate work facilities can support work activities and provide convenience in completing various work activities. Through the fulfillment of facilities, employees can improve work performance [10].

#### **4.2 Indications of musculoskeletal disorders and limbs in work activities**

Along with work activities, potential complaints related to limbs as a result of work activities are also often complained of by workers. Musculoskeletal disorders are closely related to the limbs of the human body. emerged as part of the work factor, biomechanical activity and psychosocial factors [11]. These recurring disturbances often appear and are felt by workers. Movement disorders that are felt include several vital parts including the neck, back, legs, and wrists.

A work position that is felt to be uncomfortable will have an effect in the form of disturbances that can affect the comfort of the workers themselves. Based on the results of interviews conducted, workers complained that the disturbance occurred repeatedly. So that adaptive abilities are needed by workers to deal with various complaints that arise. Findings related to musculoskeletal disorders are also in line with the amount of workload performed. The greater the number of workloads and the quantity of production produced, the greater the risk of musculoskeletal disorders. So it is necessary to take preventive measures to avoid the occurrence of musculoskeletal disorders.

#### **4.3 Work productivity**

In terms of work productivity, the work target is a factor that determines the productivity aspect in terms of workers. Work targets that are adjusted to the conditions and abilities of workers can support especially in maintaining the quality of the goods produced, as well as avoiding the risk of significant fatigue from the workers' side. Such a high workload also triggers fatigue and stress and leads to low levels of employee satisfaction [13].

Consideration of fatigue is of course an absolute thing to pay attention to. Because fatigue has a big impact on work productivity. However, efforts are being made to keep away from the risk of fatigue, which means it has become a natural thing to pay attention to. The fatigue felt by workers will also have a direct impact, especially on the work atmosphere. Thus, consideration in paying attention to work targets and the ability of workers is always something to be considered.

#### **4.4 Consistency of implementing employee work behavior based on ergonomics**

Work application behavior is influenced by factors such as tasks and roles, work systems and persuasive invitations to perform in accordance with ergonomic

principles. Clear duties and roles determine how workers adapt to complete the workload and targets. The current work system applied to micro-enterprises is also considered quite good as part of human resource management efforts. Through the applicable work system, workers have guaranteed rights and obligations to work. Not infrequently business owners also take casual daily laborers in certain situations. Thus, the work target can be achieved.

#### **4.5 Implementation of layout design as a supporter of ergonomics implementation**

The implementation of ergonomics in micro-scale businesses will certainly not run optimally without continuous supervision and improvement. In the current condition, several business owners have implemented ergonomic-based work behavior which aims to facilitate and avoid the risk of disturbance. One of them is through the provision of facilities that support both the equipment and the workplace.

The motives of business actors to encourage the application of ergonomic work behavior in terms of providing facilities also automatically affect the layout design used. The underlying thing related to the layout design arrangement is comfort as well as a form of facility that will provide convenience in work activities. So a redesign is needed for work activities. Modification and design of a workplace can improve employee welfare and encourage increased work in the operational area [12].

#### **4.6 Optimization of production as the application of ergonomics in the scope of micro-scale industry.**

The application of ergonomics in the micro-scale industry certainly has a significant influence on the sustainability of the business. One of the influential things is related to production optimization. In general, the practice of micro and medium enterprises that implement ergonomics is not fully realized, but the implementation is based on experience and motives to provide work comfort. Factors such as work targets, availability of facilities and persuasive invitations are the three main keys that must be implemented. [14]

### **5. CONCLUSION**

The application of ergonomics in micro and medium enterprises still has problems in terms of ergonomics implementation. Some of the problems that arise include movement disorders, comfort, body position, quantity of existing production and repetition of disturbances due to body position. In general, micro and medium enterprises are currently paying attention to the application of

ergonomics in carrying out production activities. The application of ergonomics in micro-enterprises still takes place unconsciously based on experience. However, in practice there is still a need for continuous improvement and improvement.

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