An Initial Study into Indonesian Consumer Awareness of the Ergonomic Product

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Abstract. Ergonomic product refers to a product which is designed based on the principle of human centered design in order to accommodate user’s characteristics and capacities. Despite the benefits of an ergonomic design, there are not many industrial products labeled as an ergonomic one. This indicates the consumers are still unfamiliar with the existence of the ergonomic products and its utilization. The aim of this study was to investigate the consumers’ awareness toward an ergonomic product. A survey to 16 Indonesian university students and 24 employees was done utilizing a set of questionnaire representing six parameters comprising consumer awareness of ergonomic product, perceived of design, perceived of comfortability, perceived of social image, perceived ease of use, and perceived usefulness. The results revealed that only 55% of respondents were aware of ergonomic product. There were indications of positive appeal from ergonomic product for its consumer in term of its design, comfortability, social image, and usefulness.

Keywords: ergonomic-labeled, design, product, perception

1. Introduction

Ergonomic product is an entity designed with respect to the principle of human centered design so that it focuses on the use of natural movements and characteristics of the user in order to minimize the risk of product using [1]. The other study defined ergonomic product as a form of product differentiation which is developed through an affective design oriented to the new user which does not have any prior experience of using the product [2]. This concept used in order to increase comfort and reduce the risk of workplace accidents or diseases that can reduce work productivity. Not only from consumers’ point of view, ergonomics aspects are also beneficial if applied to the work system design [3]. Some studies were also attempted to develop objective criteria to assess the ergonomic aspect of a product. For instance, to be labelled as ergonomics product, a design must fit the user, be usable in a neutral posture, be easy to use and appropriate for the task, and improve health and safety must be fulfilled. However, there are still many others who say that ergonomics is a subjective entity.

In fact, today there are not many household and industrial products produced by including the label "Ergonomic Brand". The company is reluctant to include the label "Ergonomic Brand" or more information which explains the product from the ergonomic side because they does not know the further impact caused by the use of "Ergonomic Brand" on their products. This indicates that the Indonesian consumers are still unfamiliar with the existence of "Ergonomic Brand" and its benefit. A further impact felt by producers of "Ergonomic Brand" is the difficulty of marketing their products in the market.
segment of consumers in Indonesia. Furthermore, Sutarjo [4] mentioned that stakeholders’ awareness is one of critical problems which Indonesia have regarding the application of ergonomics. Nevertheless, it should be noted that ergonomic claim of a product does not always mean that it actually is.

The good news is that some companies have an interest in improving the public's understanding of ergonomics, and therefore constantly on the lookout for ergonomic claims in the marketplace, doing the best to help customers separate fact from fiction. While finding an ergonomic product may not be as simple as just reading a label, consumers can follow a few simple guidelines to determine if the product they are interested in has ergonomic features that work for them. In short, ergonomic label is often included in a product brand and plays an important role in success of product.

The objective of the present study was to investigate the awareness of consumer toward an ergonomic product. This research also aimed at examining the consumer perception of the ergonomic-labeled product. Eventually, the results of this study is expected to be a basis for a larger study of consumers’ acceptance and for companies’ consideration to decide “what to do” for their user-centered based product.

2. Methods
Forty Indonesian people (mean age = 28.24 year, SD = 8.99) consists of twenty males and twenty females, participated in this study voluntarily by filling out a set of questionnaire. The survey included four questions of demographic data and 26 questions regarding consumers’ perception and willingness to buy of ergonomic-labeled product. Overall, 15 minutes were needed to complete the whole questionnaire.

A set of questionnaire comprised of five constructs from varied literature was used in this study. The set of questions was adapted into Indonesian, following a standard back translate procedure by International Commision Test (ICT, see [5]; [6]; [7] for examples). The variables’ constructs and the associated source utilized in this research were specified in Table 1. Before, answering the questionnaire items, the participants were shown three examples of ergonomic products (mouse, keyboard, and chair).

| No. | Construct                  | Definition                                                                 | Literature Source                  |
|-----|----------------------------|---------------------------------------------------------------------------|-----------------------------------|
| 1   | Perceived design           | Utilization of design elements in order to create a pleasing appearance of a product | Hwang [8]                          |
| 2   | Perceived comfortability   | A pleasing state of physiological, psychological and physical harmony between a user and its environment | Pijls et al. [9]                  |
| 3   | Perceived of social image | The extent to which users may derive respect and admiration from peers in their social network as a result of their product usage | Moore and Benbasat [10]           |
Table 1. Constructs and Sources (cont.)

| No. | Construct                | Definition                                                                                                                                                                                                 | Literature Source |
|-----|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 4   | Perceived ease of use    | The difficulty of understanding the feature of product, and in such way lead to less confidence in usability, it is expected that products which have high complexity are likely to be low on perceived functionality and this will translate into lower levels of utilitarian attitude | Gima [11]         |
| 5   | Perceived usefulness     | The degree that a technology increases consumer’s job performance                                                                                                                                              | Davis [12]; Shin [13] |

3. Results

Socio-demographic of participants and people’s awareness of ergonomic product among Indonesian can be seen in Table 2. In this initial study we conduct the survey to 16 students and 24 employee and most of them (70%) had received knowledge of ergonomics beforehand. However, it is interesting that the percentage is lower (55%) on the consumer awareness of the ergonomic brands.

Table 2. Socio-Demographic and Ergonomic Product Awareness Data.

| Demographic data                              | All (N=40) |
|-----------------------------------------------|------------|
| Age (mean, SD)                                | 27.70 (8.40) |
| Employment status                             |            |
| - Student                                     | 16 (40%)   |
| - Employee                                    | 24 (60%)   |
| Having knowledge of ergonomics (Yes)          | 28 (70%)   |
| Consumer awareness of ergonomic brands        |            |
| (Percentage of people know about ergonomic product) | 22 (55%) |

This study used five constructs adapted from several literature mentioned in previous section which include perceived design, perceived of comfortability, perceived of social image, perceived ease of use, and perceived usefulness. These constructs were expected as the objective representation of the reported consumer perception toward the ergonomic product can be seen in Table 3.
Table 3. Consumer perception toward the ergonomic product

| No | Questionnaire Item       | 1   | 2   | 3   | 4   | 5   | 6   | 7   |
|----|--------------------------|-----|-----|-----|-----|-----|-----|-----|
| 1  | Perceived Design         | 0%  | 1%  | 0%  | 4%  | 24% | 61% | 12% |
| 2  | Perceived of Comfortability | 0%  | 0%  | 2%  | 8%  | 13% | 61% | 18% |
| 3  | Perceived of Social Image | 1%  | 0%  | 10% | 29% | 15% | 40% | 5%  |
| 4  | Perceived Ease of Use    | 2%  | 17% | 17% | 30% | 17% | 21% | 0%  |
| 5  | Perceived Usefulness     | 0%  | 0%  | 2%  | 15% | 31% | 42% | 12% |

Note.
1: Strongly disagree
2: Disagree
3: Slightly disagree
4: Neutral
5: Slightly agree
6: Agree
7: Strongly agree

4. Discussion
Aim of this study is to investigate the consumer awareness of an ergonomic product. There are several points which are interesting to discuss. Firstly, the result showed that 70% of respondents had received knowledge about ergonomics either from a formal academic program or a non-formal source. This fact supports a presumption that most of respondents already had a basic definition of ergonomics in their mind. It is logical, because all of the respondents in this initial case were university students and employees which assumed had received a high education level, at least diploma or bachelor degree. However, we did not verify the eligibility of their understanding of ergonomics.

Second, there were indication that the ergonomic products are still unfamiliar among a group of consumers. There were only 55% of participants responded that they knew about the ergonomic product. The percentage could mean that there is only a small number of the ergonomic-labeled product play in the current market, with the result that the ergonomic-labeled products are quite difficult to find by the consumer. The other logical explanation is that the existing consumers are not really care or interested in using an ergonomic product. It is possible that the ergonomic label of a product does not have a significant effect to be appealing enough for the user candidate, because not every ergonomic-labeled product felt positively different to the general product or actually ergonomic afterall.

Furthermore, a set of questionnaire items were utilized to investigate the consumer perception of an ergonomic product. Among five constructs, there are indication of positive appeal of ergonomic-labeled products for its user in term of design, comfort, social image, and usefulness. It was indicated that majority of respondent agree (6) with these constructs. However, the result showed that most of participant responded a neutral answer on perceived ease of use. This may indicates that a number of consumers are still not sure about how easy the product functions or feature to be understood, in spite of its advantages.
5. Conclusion
In summary, this study shows that there are a number of consumer which are not familiar with the ergonomic-labeled product. In parallel, most of survey participants agreed that ergonomic product has some particular appeals in term of its design, comfort, effect to users’ social image, and usefulness. Result of this study is fruitful as a step in advanced understanding about the effect of consumer awareness to the willingness to buy an ergonomic product. Further study is expected to be a basis for a larger study of consumers’ acceptance and for companies’ consideration to decide “what to do” for their user-centered based products.

This study has two limitations. First, there is a possibility of response bias of the paper-based questionnaire. However, the paper-based questionnaire gave advantage in its easy of use and practicability in assessing a large number of respondent. Second, assessment of consumer awareness was only conducted in a small number of participants, this is the reason that this study was only named as an initial study. Moreover, this study only investigated how the consumers perceive the ergonomic aspect of a certain product using the tendency on several parameters. Further study is expected to examine the relationship among those parameters so that it is possible to define a conceptual model which describe how the user candidate thinks about an ergonomic product.

Ultimately, this research was expected to play role as a part of bigger study in the future, both in term of the number of respondents, as well as how deep each of construct is investigated. As future study, it is possible to explore the relation among the investigated constructs. In such wise, there would be a conceptual model which can describe the relevancy among used constructs. It would be also interesting if the relation among variable can also be compared by conducting a simple experiment to investigate the ergonomic products and non-ergonomic products.

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