

# Ergonomics Design Issues: Innovation and Ethics

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## ABSTRACT

Ergonomics has extended its application to look into Issues of universality and value-added design development. Design is an innovative, practical, reproducible problem-solving process that converts ideas into reality, keeping in mind the user's characteristics and limitations, aesthetic perception, material and process, and new technology to conceive various aids to human needs. Pleasure beyond functionality is an immersing issue; design features are not only to divulge ease of use and safety but the pleasure of use and enjoyment of the experience. Emphasis must be on trustworthy-look and feel for functional reliability. The innovation aims at newness. Users' acceptance of a design depends on how it matches the perception of need with the product features. If it could provide a mental image of total trust embedded in its appearance, were not only the functional reliability, several humane issues play respective roles. Inclusiveness elements implanted in a design widen the users' acceptance of varied requirements and confirm the benefit of proper utilization of context-specific user information while conceiving design ideas. It has become an integral part of the ergonomic design process. This deliberation focuses on applying ergonomics in design to support productive living, health, and well-being and creating context-specific user-friendly living environments.

**Keywords:** Ergonomic design process, Multiple risk factors, Trust issues in design ideation.

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## INTRODUCTION

Competitive efforts to explore what makes customers draw specific attention while choosing something from numerous presence of similar nature objects depends on a set of humane issues that includes meeting certain needs, the pleasure of possessing, and comfort of use. These issues are judged by their function value, rich look, and feel-good factors. When these are satisfied in a single embodiment, acceptance by intended target users ensures. It remains a constant search for means and methods; what people prefer to be incorporated in the design as preferred elements that, when applied, people would be attracted. Continuous attempts are there to develop newer designs of commodities to meet needs for the time and perceived needs for future requirements. It demands uniqueness for sustainable existence among varied desirable alternates; how common facilities and difficulties can be made clever matching while conceiving design ideation remains a challenge and scope for creative excellence.

Design features should relate to the process of acquiring knowledge by the use of reasoning, intuition, and perception. Thus the ergonomics issues that focus on human compatibility parameters in terms of physical dimensioning, physiological tolerance, and cognitive-behavioral aspects need to be looked into while conceiving a user's need and have come up as a domain of specialized study.

### Ergonomics and Physiology

Physiology being one of the basic constituent subject areas of Ergonomics, its contribution confirms the target users' health and function relevant well being of any interaction with a product or a system interaction with varied items in space and time. In this effort of continuous cross-check of human physiological tolerance compatibility, ergonomics

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has extended its application from the initial man-machine-environment system where a man was the 'worker' to users-commodities-environment context-specific compatibility where man is 'user' and machine has expanded to commodities and task/system.

The applications look into issues of universality and value-added design development where not only direct physical interaction, the feel-good effects also matters. Thus the role of physiology involvement in this faces challenges to ensure design usage within health tolerance limits that, in a common understanding, appear to extend the study area and promise further application exploration scope. Among such extended explorations, a multi-disciplinary application field of ergonomics relevant to design issues scopes as design ergonomics. Physiology plays an important role in innovating various design ideas and evaluating the design utility efficacy.

### Design an Innovative Issue

Design is an innovative, practical, reproducible problem-solving process with the conversion of ideas into reality, keeping in mind the user's characteristics and limitations, aesthetic perception, material and process, and new technology to conceive various aids to human needs. The

application of the best scientific principles and appropriate technologies may generate a design best to deliver its intended function (satisfying function reliability). Its user, man (worker/user), the prime system component, ultimately has to feel comfortable and feel good while using it to qualify the same to be an excellent design-thus design innovation must meet trust both function and feel good criteria.

Ergonomics is a subject domain devoted to a man-product-environment interaction system that balances task characteristics and users' capabilities. Pleasure beyond functionality is an emerging issue. Design features are not only to divulge ease of use and safety while satisfying the functional needs but also to ensure the pleasure of use and enjoyment of the experience. Emphasis must be on trustworthy-look and feel for functional reliability. Ergonomics-based ideation and marketing policies are well adopted in product development.

It is a constant search for means and methods, what people prefer to be incorporated in the design as preserved elements that people would be attracted to when applied. The product should say itself at its sight what it is expected to do and how it should be used. It is not easy to answer; trial applications and error-success result in identifying influencing elements/ factors. Many times buyers are not comfortable to mention about what they need to specify. When something comes into the market, they feel that it is good according to their perceived "I like it" utility and overall appearance. It can be said it should be unique and have new elements. The question is how the newness is appreciated and accepted; if the design dimensions and specifications match human capability aspects. How do identify the elements that commonly facilitate acceptance; what are the common people's perceptions of a good design. This deliberation points to some of such issues of an ergonomics point of view.

### **Innovation and Newness**

Innovation aims at newness. Users' acceptance of a design depends on how it matches the perception of need with the product features and if it could provide a mental image of total trust embedded in its appearance. Several humane issues are in play to achieve trust-worthiness in a design, not only the functional reliability.

Inclusiveness elements implanted in a design widen the users' acceptance of varied requirements. This raises concerns about imparting course input of design ergonomics in various technology curriculums. A design spine structure may be taken where learning a discipline leads to conceiving a tangible, usable design as a final outcome. The benefit of proper utilization of context-specific user information (psycho-physiological and social interaction) while conceiving design ideas would be an integral part of an ergonomic design process.

### **Ethics and Design Ideation**

Conversion of ideas into a usable product or a functional system suitable for humane use requires context-specific

perception ensuring good design experiences that go with common ethics in life. Users analyze a product's attributes through knowing, doing, and feeling perceptual-motor skills and emotions that many times evaluate the efficacy of the design through varied physiological parameters. Thus, the design also scopes physiology to explore its application horizon. Work performance depends on three issues, i.e., applied force, duration of application of force, and frequency of use. Without having any other option in many contexts of work, people adopt certain work behavior and posture that is under compulsion (with others' decision); whereas in many cases, self-control of use methods is practiced.

The present discussion focuses on some issues that assist the creative vision of conceiving design and would like to explore with care. Design ideation should balance with the characteristics of the product and the context of use it is associated with. It demands uniqueness for sustainable existence among varied desirable alternates; how common facilities and different-ness can be made clever matching while conceiving design ideation remains a challenge and scope for creative excellence. Design features should relate to the process of acquiring knowledge using reasoning, intuition, and perception.

### **Working, Quality Life, and Ethics**

If a conflict occurs while operating/using any design made for up gradation of living, it can never be considered trustworthy creativity, and the outcome does not get acceptance. Productivity and risk of operation also demand satisfaction, pleasure, and feeling good. Applying ergonomics principles and Physiological limits are expected to be strictly followed to ensure the safety and well-being of working; to create a specific context of newness and pleasure, several inputs in design thinking may be relaxed. How much allowance can be given, the scope for identifying the limits and application specificity relaxation, how much deviation can be allowed be studied, all working is not industrial productivity oriented, thus creativity and requirement may be balanced where man is free to adopt the task.

An ergonomic design creates a context for the experience; it must conform to the functional reliability that includes containment, protection, convenience to use, information communication, and facility for reuse or recycling. Geometric form, structural design, and graphic applications provide clues to the usability that influences acceptance by the users. Acceptance of design depends on the creative application of these issues in tune with to comfort perception of buyers. Humane several problems are in play to achieve trust-worthiness in a design not only the functional reliability. To look into issues on how people interact with the commodities, a set of mental processes of attraction, e.g., perception, cognition, memory, reasoning, and emotion, is relevant that needs to be articulated. Symbolic representation of theme and essence should go closer to the original thoughts when abstraction elements are filtered out for use, and here ethics plays a role. Elements of design through different treatments

and applications create the specific identity of a usable item; thus, creative application for contemporary need satisfaction through an innovative presentation of form and graphics are to be considered in tune with a common understanding of the intended users.

Thus the question of universality comes to the fore, including human security, safety, and sentiments of liking. Design is a creative field that demands balance in technicality and aesthetics to develop utility items to be used by many people. Creativity has no bounds, and at the same time, for design utility, it would be innovative towards newness and to be useful. While taking the need for newness as a significant input to ideate in tune with usability aspects, human ethics and values relevant to its intended use must be looked into. Creativity balances between being satisfied and yet being satisfied, and we need to honor that everybody is creative; thus, some multiple uses of design may require considering and exploring further.

### **Productive living and Design Ergonomics**

Various finer aspects of humane experience that go along with socio-cultural relevances influence design. It requires balancing task characteristics and human capabilities. The design looks into aiding and facilitating the natural human ability, and the means and methods of exploring human compatibility information and application in such endeavor is the area of Ergonomics.

An ergonomic design creates a context for the experience. When design dimensions match users' characteristics of feeling to admire and possess, a design selection gets preference, people feel trust, the design becomes inviting to use without hesitation, and the experience becomes pleasurable. Ergonomics concerns with the system approach to an issue that establishes content for a design application to satisfy a need, affordability, resource availability, and pleasure feeling are issues relating to trust and sustainability. The human compatibility issues make us differentiate between a single-time development of an appropriate solution to a problem and conscious ideation to make a design that can be used by many.

Designing a product, a system, or task must give users maximum comfort, efficiency, and safety, taking into account differences in human performance and limitations. Application of best scientific principles and appropriate technologies may generate a design best to deliver the intended function; still, its user (man the prime system component), ultimately has to feel comfortable using it to qualify the same as a good design. At first sight, prospective buyers get a trust-worthy feeling that matches the overall appearance with the mental measure of a task, demanding physical and emotional responses of self capabilities and other needs of the users to the context of use.

When the above are considered in design through the manipulation of different shapes and other direct and abstract information features in accordance to common

people's perception of similar issues might weaken (with inappropriate applications) or strengthen (along with human comparibility aspects of physical and psycho-physiological tolerances) its desirable action and preference thereby gets influenced. Several issues are to be considered for studies by academicians, and practitioners may experiment with direct applications.

There is a constant struggle to adapt to changing environments with newer ambitions and lifestyle aids with limitations of human capabilities that lead to hazards, stress, and errors. Proper design should be looked into as (1) human aid to lifestyle and (2) consequences of proper use, misuse, and trouble makers thereby. When peoples' basic need is met with crude applications of functionality comes the fineness of abstracts. Emphasis may be trustworthy-look and feel for functional reliability to satisfy a perceived need, the pleasure of use and sustainability to continue, deliberate to the short duration for a single purpose or long and multipurpose.

### **CONCLUDING REMARK**

This deliberation focuses on the application of Ergonomics in Design to support productive living, health, and well-being and create context-specific user-friendly environments. It looks into possible ways to achieve trust-worthiness in a design that provides functional reliability following task characteristics and considers several humane issues towards appreciating newness and creating a pleasure context. Physiology, an integral component of ergonomics and design, is one of the application areas; such issues prevail in our surroundings and must be addressed to check conflict of interest of ethics and forcefully practice.

Let go of some of our thoughts, taking a clue from our surroundings and needs to know more about what our people commonly feel, good design when they are offered a choice over many similar natural products, and what elements they perceive as good references that make a design good; applying these in context-specific manner design would get an attractive edge in the market. When a design satisfies target users' perceived values of satisfaction, it gives business from the producer's point of view and from buyers' point of view, it is a good design to use and feel proud of possession; commodity of preference that expresses a combined image of both beautiful and useful.

It can summarily be said that when human compatibility issues and design elements are applied in a proper combination in accordance with a specific product's image building, the design thus conceived would get preference by the intended users and become successful. There is need to re-look into the issues through (a) design ideation for newness and trust-worthiness; it is a creative field which demands balance in technicality and aesthetics, question of universality comes in fore, and (b) it scopes beyond function delivery and several humane issues are in play to achieve trust and sustainability.