

ERGONOMICS, INTERNATIONAL LABOUR ORGANIZATION AND FUTURE OF WORK

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Abstract The International Labor Organization (ILO) is one of the most significant international organizations dealing with workers' problems. In 2019, this organization celebrated its 100th anniversary. On that occasion, the ILO presented programs for work improvement for the coming period. In this regard, the Director-General of this organization has published a document entitled "The Future of Work Centenary Initiative". Based on the analysis of this document, it was noted that the ergonomics and its possibilities of contributing to the improvement of the work and working conditions of workers were not mentioned in this initiative, which presents an omission in terms of the possibility to achieve a complete humanization of work. It was also noted that the contributions of some other scientific disciplines in this direction were also not recognized. One of the main contributions of this paper manifests in the identification and systematization of the main areas that have an impact on work improvement. It has been identified 14 such areas. Only by developing all the identified areas and engaging experts in those areas can a comprehensive and complete improvement of the work and well-being of workers in the future be ensured. Part of the paper is devoted to the role of ergonomics in improving the work and position of workers, as well as the possibility of closer cooperation between the ILO and international ergonomic organizations such as the International Ergonomics Association (IEA) and the Federation of European Ergonomics Societies (FEES).

Keywords: Ergonomics; International Labour Organization (ILO); International Ergonomics Association (IEA); Federation of European Ergonomics Societies (FEES).

1. INTRODUCTION

International Labor Organization (ILO) was founded in 1919. The ILO became the first specialized agency of the United Nations in 1946. The ILO brings together workers, employers and governments of 187 member states. The driving forces for the ILO's creation arose from the humanitarian, security, political and economic considerations. Since its founding until today, this organization has helped to identify many working-class problems around the world, and has made a significant contribution to solving them. This organization (headquartered in Geneva, Switzerland), which deals with work improvement issues, is one of the most important international organizations in the world, in addition to WHO.

The ILO has had its 100th anniversary celebrated in 2019. For that occasion, the ILO outlined plans for the development of work for the time to come. In this regard, the Director-General of this organization has published a report in 2015 entitled "The Future of Work Centenary Initiative". Directions for the improvement of work that was presented in that initiative will be the subject of consideration in this paper.

2. THE GOAL OF THIS RESEARCH

First of all, it should be indicated to the purpose of the report of the Director-General of the ILO, which was, as mentioned, published in 2015. As Director-General of the ILO said in the preface of that report, the main purpose of that document was to propose an implementation plan and discuss the types of issues that could make up four “centenary conversations”. “Although key issues are highlighted, they are not dealt with exhaustively or in depth. It will be for the initiative itself to do that at the appropriate levels of ambition and intellectual rigour” [1]. Additionally, it was stated that “the ambition is not to mark the ILO’s centenary in a purely ceremonial way, but with a process that will help to guide its work for social justice into its second centenary. Your views on this Report will be the first steps to realizing that ambition” [1].

Having in mind previously mentioned, this paper should be understood as a contribution to the efforts of the Director-General of ILO that are described above. In connection with that, it can be seen that this report is written in the form of articles. It consists of 89 articles in total. Although this report consists four formal chapters, it is difficult to notice some consistency or connection between the articles. Often it is the case that in one article, several problems from different areas are mentioned. This approach makes it difficult to the reader to find out and to follow the essence of the presentation. In addition, it unfortunately allows that certain important aspects that affect the work be omitted.

Taking into account the above mentioned, one of the main goals of this paper is to identify the main areas that affect the work. Knowing all these areas will enable not only the development of all main areas that contribute to the improvement of work, but will also allow a systematic approach in the identification of sub-factors that influence work. An additional goal is emphasizing the importance of the application of certain scientific areas that contribute to the development of work, but which have not been mentioned in the report.

3. IDENTIFICATION OF MAIN AREAS THAT AFFECT THE WORK AND WORKERS

The list of identified main areas that affect the work and workers is given below. The order of items in the list is not in any way in accordance with their importance for the improvement of the work. Every item in the list contributes to the work and to the workers in a specific way. All identified areas have their scientific basis. These main 14 areas are:

- Politics
- Economics
- Technics and technology
- Education
- Management
- Law
- Sociology
- Environmental engineering
- Psychology of work (organizational psychology)
- Philosophy of work
- Occupational safety and health

- Industrial (occupational) hygiene
- Occupational medicine
- Ergonomics

It is interesting to see which of these areas are present in the report “The future of work centenary initiative” [1], as well as the extent to which they are represented. This analysis is given below.

3.1. Politics

Regarding politics, Director-General of ILO in his report about “The future of work centenary initiative” mentioned several terms involving politics, such as:

- political and substantive engagement
- political controversy
- political leaders
- political imperative
- renewed geopolitical tensions.

In connection with politics, a part of the document is primarily about job creation policy, the full-employment policy and policy of raising of the standard of living.

3.2. Economics

Within “The future of work centenary initiative”, economics has been recognized as one of the crucial elements that provide the material means to eliminate poverty and meet human needs as never before [1]. However, at the same time, it is pointed out that the “workings” of that economy are generating mass unemployment and underemployment. Due to that, the Director-General of ILO considers that between now and the year 2030, the global economy needs to create over 600 million new jobs. In addition, certain key points for consideration in the next period has been distinguished [1]:

- economic development
- informal economy
- costs for workers
- knowledge-based economy
- green economy
- care economy
- macroeconomic agenda (for jobs, growth and development)
- financial versus real economy versus a productive economy.

3.3. Technics and Technology

Technology has been also mentioned in the report “The future of work centenary initiative” [1] of the Director-General of ILO, but in a different context. It has been mentioned that effects of technological change on jobs are some two centuries old, and that notwithstanding the disruption it inevitably brings, over the long term it has created more employment than it has destroyed, and has pushed

overall living standards to new levels. From the other side, the technological revolution has not been considered in a positive manner. It has been pointed out that technological revolution symbolized by the application of “big data”, 3D printing and robotics to manufacturing has shown its labor-replacing potential that manifests as an inhibitor rather than a generator of decent work. Some additional key points that have been mentioned in the context of the effects of technology are:

- technological innovation
- new technologies
- technological transformation
- internet-based technologies
- information and communication technologies.

With the exception of the internet-based technologies, the effects of other aspects of technology that are mentioned above have not been considered in any detail.

3.4. Education

This very important area that influences work has been also recognized in [1]. However, it seems on a relatively marginal level, because it is mentioned only once (in one sentence) in the document. It is pointed out that a better connection between educational systems and business needs should be established.

3.5. Management

Management has also been mentioned in [1], but only twice. It has been pointed out to the importance of macroeconomic management of the global economy. In addition, the role of management in restoring sustained, strong and balanced growth has been mentioned. Other forms of management were not mentioned. However, the organization of work has been separated as an important factor that influences work.

3.6. Law

Law is also mentioned a few times in “The future of work centenary initiative”. The terms used are:

- international law
- compliance with the law.

With the law, the notion of justice is connected. The term social justice has been widely considered in the initiative. However, having in mind that this term is also connected with the sociology, here it will not be considered in more detail.

3.7. Sociology

As a scientific area, the sociology has not been mentioned even once in [1]. However, it does not mean that sociological issues have not been treated at all. On the contrary, it seems that these

problems are much more considered in relation to problems from any other area that influences the work. The topics from the domain of sociology that have been considered in [1] are:

- social justice
- social protection systems
- social inclusion
- socialization process
- social relations
- social networks
- social identity
- social exclusion
- social norms
- social progress
- social responsibility
- social policy
- social dialogue
- social partners

Among the above-identified issues, the topic that refers to social justice is most often considered. This is not so much surprising, because, as Director-General of ILO in the preface of the document [1] states, the goal was to guide the “social justice into its second centenary”.

3.8. Environmental Engineering

Environmental engineering as an area that can influence conditions of work has not been mentioned in the [1]. However, the environment is mentioned once in the document. In that context, it was said that “It is given extra impetus by environmental considerations – equally to the fore now as the international community approaches the United Nations Climate Change Conference in Paris in December – given the awareness of planetary limits to ongoing gross domestic product growth, at least under current conditions of production”.

3.9. Psychology of Work (Organizational Psychology)

This very important area that can influence the quality of work has not been mentioned even once in [1]. However, one problem that refers to that area (including the area of ergonomics) has mentioned in the document. It was recognized the importance of the control of human and economic costs resulting from the mental stress at work.

3.10. Philosophy of work

Although many books have been written on this topic, in [1], this scientific area has not been mentioned at all.

3.11. Occupational Safety and Health

Safety and health (although without the term "occupational") have been mentioned once in [1]. Some problems in that area have been recognized. In connection with that, the occupational disease was mentioned. The information is provided that some 2.3 million workers lose their lives and that there is a heavy burden in terms of occupational disease. It was pointed out also [1] that the number of working-age people who can no longer work as a result of disability or poor health now exceeds the number of unemployed people.

In general, ILO has identified health and safety as factors that influence work. For example, they organized conferences about safety and health. One of them was organized in Frankfurt in 2014. The name of the conference was "Safety and Health at Work: A Vision for Sustainable Prevention". There is also a specific branch within ILO dedicated to occupational safety and health issues. Several books and documents published by ILO also are in the domain of occupational safety and health.

3.12. Industrial (Occupational) Hygiene

Although important for work, industrial (occupational) hygiene as a scientific area has not been mentioned in [1].

3.13. Occupational medicine

This scientific area, which is important for the preservation of the health of the working population, also has not been mentioned in [1].

3.14. Ergonomics

This very important scientific area for work and workers has not been mentioned even once in [1]. Having in mind that omission, below is shown in a concise form what is the nature of the connection between ergonomics and ILO, and it will be also pointed out how important is ergonomics for the future of work.

4. THE ROLE OF ERGONOMICS FOR THE FUTURE OF WORK

Ergonomics is undoubtedly one of the very few scientific areas that arose in the period of the appearing of civilization. Actually, when a primitive man created the very first ax in the Paleolithic Era and adapted its form to the human hand's anatomy, he unwittingly laid the foundations of the Ergonomics [2]. Of course, ergonomic laws and principles at that time were applied on an intuitive basis. However, as a science, Ergonomics was formed much later.

There are plenty of definitions of ergonomics. However, the next definition probably in the most effective way depicts the connection between ergonomics and work. This definition that has given in [2] says: "Ergonomics is a multidisciplinary science whose goal is to examine the impact of means of work, conditions of work, processes of work, and products as results of work on humans from the psychological, physiological, anatomical, biomechanical, sociological, organizational and physics

aspect by applying the quantitative and qualitative research methods, as well as to adapt the design of the aforementioned elements to humans, with the aim of improving comfort, safety, efficiency and satisfaction, which are considered during their interaction with humans.” So, the direct connection between work and ergonomics from this definition is more than obvious, and it seems that further explanation in that direction is not necessary.

From the practical viewpoint, the main areas where ergonomics have a positive impact on work are:

- Design and evaluation of the workplaces (workspaces, furniture...)
- Design and evaluation of conditions of the working environment (effects of noise, lighting, thermal environment, etc. on workers)
- Design and evaluation of equipment, tools, products that workers use
- Design and evaluation of work process in accordance with workers' characteristics and capabilities (design and evaluation of work tasks)
- Design and evaluation of work activities and equipment from a safety perspective (eg musculoskeletal disorders).

In addition, in [3] also has been given an analysis that indicates how ergonomics can contribute to the various areas of work.

4.1. Establishment of a Closer Connection Between International Ergonomics Organizations and ILO

Although ergonomics was not mentioned in [1], fortunately, it does not mean that ILO does not recognize ergonomics and its contribution to work and workers at all. A certain kind of relationship already was established between ILO and International Ergonomics Association (IEA). This connection resulted in publishing several documents [4-5], published mutually by ILO and IEA. Also, in the past, there were several joint activities between IEA and ILO. In addition, in 2019, a document “The essential contribution of Human Factors/Ergonomics to the future of work we want” [6] created by the President of IEA Prof. Kathleen Mosier and Prof. Juan Carlos Hiba has been published on the website of the ILO.

However, the possibilities for the application of ergonomics for the improvement of work are higher than it has been realized until now. This fact has been recognized by the officers (top management) of the IEA. Several years ago, it was formed a special group “Future of Work Task Force” within IEA. The Chair of this working group has been Prof. Juan Carlos Hiba from Argentina. The main tasks of this working group have been to provide adequate positioning of ergonomics in the frame of the future of work, as well as finding the connections between ergonomics and ILO, in order to improve the relationship between ILO and IEA in the future. As a result, Prof. Juan Carlos Hiba disclosed at the Council meeting of the IEA (Helsingor, Denmark) a white paper with the title “Ergonomics and the Future of Work - Why to develop a closer cooperation with the International Labour Organization” [3]. In this report, certain directions for the achievement of a stronger connection between IEA and ILO have been proposed.

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If we want to find an answer to the question about that which is the simplest way to establish the connection between ergonomics and ILO, then we should find areas that already were topics of consideration by ergonomics and ILO. The names of topics, sectors, departments and offices of the ILO that correspond to the ergonomics areas are:

- Health service
- Better work
- Working time
- Education
- Transportation
- Textiles, clothing, leather and footwear
- Disability and work
- Conditions of work
- Working conditions
- Skills, knowledge and employability
- Occupational safety and health.

It can be noticed that the names of these items are almost identical with the names of the areas of ergonomics that are often the main topics of consideration at ergonomics conferences, books, etc. ILO dedicates considerable attention to the conditions of work. They even have two departments (WORKQUALITY and INWORK) which both consider working conditions (this is the reason why this item is mentioned twice in the above list). It is not necessary to mention that working conditions are an almost unavoidable topic in any ergonomics textbook.

It is important to mention that between ergonomics, industrial hygiene, occupational medicine and occupational safety and health as separated scientific areas (that all affect work, as previously mentioned) exist certain overlapping, due to the similarities of the topics that they study. Papers that consider similarities and differences between these scientific areas are extremely rare. This problem is partially considered in [7], where especially has been made a clear distinction between ergonomics, industrial hygiene and occupational medicine.

In addition, there are several ergonomic topics that are also tangible with some of the topics, sectors, departments and offices of the ILO. These ergonomics topics (that are in some form mentioned or considered within ILO) are:

- Ergonomics for aging population
- Injuries prevention
- Gender differences
- Work and job satisfaction
- Workplace stress.

In addition, one large area, where it is possible to provide ergonomics contribution to the work and workers, is the area of the humanization of work. This area is of particular importance to the ILO. Ergonomics can contribute to the humanization of work in many ways. Such consideration is out of the frame of this paper, due to its volume.

CONCLUSION

The main contribution of this work is manifested in the identification of the main scientific fields that can contribute to the advancement of work and affect the well-being of workers. In total, 14 such areas have been identified, which, from a theoretical and practical point of view, can contribute to solving numerous work issues and working-class problems.

In a report entitled "The Future of Work Centenary Initiative" formulated by the Director-General of ILO as guidance for consideration in the next century, some of the identified major areas that impact the work are not mentioned. Among those areas that are not mentioned in this document is ergonomics also. The magnitude of this omission is perhaps best illustrated by the fact that several books for the presentation of the contribution of ergonomic research to the study and improvement of work wouldn't be enough.

Including all the identified areas that affect the work and well-being of workers would not contribute only to the creation of a comprehensive report regarding the future of work, but also to a more efficient organization of the ILO. This means that the ILO could form separate departments (offices) for each of the 14 major areas of influence on the work in the future. Any other field of interest, such as, for example, internationalization of production, agriculture, etc. in essence emanates from one or more main areas of interest that have identified in this paper.

The employees of the aforementioned departments should have ongoing communication and consultation with experts from international organizations representing those fields. This means, for example, that the newly-formed Department of Ergonomics within the ILO should collaborate with experts from international ergonomics organizations such as the International Ergonomics Association (IEA), the Federation of European Ergonomics Societies (FEES), and others. In this way, the ILO can achieve in its domain the highest level of promotion of work and well-being of workers in the future.

References

- [1] Ryder G., 2015, The future of work centenary initiative, International labour conference, Report of the Director-General (104 Session), International Labour Office, Geneva, Switzerland.
- [2] Zunjic A., 2017, A new definition of ergonomics, *IETI Transactions on Ergonomics and Safety*, Vol 1. (Iss.1), pp. 1-6.
- [3] Hiba J.C., 2019, A white paper on ergonomics and future of work – Why to develop a closer cooperation with the International Labour Organization, Unpublished document.
- [4] International Labour Office in collaboration with the International Ergonomics Association, 2010, *Ergonomic checkpoints: Practical and easy-to-implement solutions for improving safety, health and working conditions (second edition)*, International Labour Office, Geneva.
- [5] International Labour Office in collaboration with the International Ergonomics Association, 2014, *Ergonomic checkpoints in agriculture: Practical and easy-to-implement solutions for improving safety, health and working conditions in agriculture (second edition, edited by Niu S and Kogi K.)*, International Labour Office, International Ergonomics Association, ILO, Geneva.

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<http://ieti.net/TES/>

2019, Volume 3, Issue 2, 1-10, DOI: 10.6722/TES.201912_3(2).0001

- [6] Moiser K. and Hiba J.C., 2019, The essential contribution of Human factors/ergonomics to the future of work we want,
https://www.ilo.org/safework/events/safeday/33thinkpieces/WCMS_681581/lang--en/index.htm
- [7] Zunjic A., 2019, The role and importance of ergonomics for occupational safety and health at work (in Serbian), Proceedings of the 5th Scientific conference POLITEHNIKA, pp. 354-358, Beogradska Politehnika, Belgrade, Serbia.