








Emerging Ergonomic Associations: Achievements, Obstacles, and Lessons Learned

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Abstract. Self-evaluation and self-critics is a rare exercise, among the members or executive committees of academic and professional associations. Human factors and ergonomics associations throughout their seven decades of existence have rarely been evaluated. The aim of the present research is to highlight what objectives were achieved, what are the obstacles to attain the outlined objectives of the HF/E associations of the study sample, and what lessons can be learned throughout the existence of each society?

To answer these questions, five responsible/representatives of four (4) HF/E associations participated in the discussion panel. Their answers to the three questions on: achievements, obstacles and lessons learned were stratified into categories of (1) achievements: seven goals have been achieved, (2) eight obstacles are facing HF/E societies to achieve their missions, and (3) twelve lessons are learned during life time of HF/E society from its inception to today.

These results are discussed taking into account the context of each HF/E society, while having a critical eye when adopting experiences of other HF/E societies. Some of these are of great value, others cannot be applied locally. A particular emphasize steamed from the discussion among members of the panel is the implementation of workable strategies for short, medium and long terms to promote ergonomics at all levels.

Keywords: Emerging ergonomic associations · Achievements · Obstacles · Learned lessons

1 Introduction

Ergonomics societies are the guards of the temple of human factors and ergonomics discipline and profession. From its inception more than seventy years ago, these associations have not been subject to evaluation, except for rare history narrating cases [1, 2]. Evaluation actions are necessary operations for sustainability and efficacy of any scientific and professional organizations, to see to what extent the goals for which they were established have been achieved, to have a feedback to strengthen the positive practices, to correct errors that occur along the way, and benefit from experience of the well-established societies in the field of HFE, or that of the international ergonomics association (IEA) [3].

The 21st triennial Congress of the IEA seems to be the appropriate opportunity to raise these questions and discuss its different facets among HF/E specialists in a panel of ergonomists representing a sample of HF/E societies, and wishing to get feedback from interested colleagues in the congress, in the perspective of creating networks at regional or global levels, to exchange best practices, to organize common activities like, joint conferences, workshops, training courses, and so forth.

The aim of the present research is to shade light on three aspects of a sample of HF/E societies, namely: their achievements, the challenges facing them, and the lessons learned during the course of their existence.

Participating associations will be evaluated in terms of what they have been able to accomplish, the obstacles that may prevent achievement, and the lessons learned from work during the past years.

Accordingly, the following questions are asked:

1. What are the achievements of the ergonomic associations recently formed (the past twenty years) in developing countries?
2. What are the obstacles to carrying out their normal activity?
3. What are the lessons learned from these years on the job?

2 Methodology

Data related to the research methodology were collected from the participants in this panel (heads of some ergonomic associations or their representatives). The data included the method used in the research, research samples, and data collection tools. Each of the participants presented his/her report, in which he/she highlighted the elements of the aforementioned methodology. After that, these elements were reviewed in all reports, from which the methodology used in the current panel was derived.

2.1 Sample

Twelve (12) ergonomics societies' representatives have been contacted to participate in discussing points of achievements, obstacles and lessons learned during their course of existence as national ergonomics bodies which are concerned with the promotion of HF/E in their local or regional areas. Only five (5) persons representing four (4)

ergonomics societies were willing to participate and have finished the different stages of the study, and ended up by constituting a discussion panel to debate the above mentioned three issues (See Appendix A). The rest eight (8) ergonomics societies' representatives, either they were not willing to participate in the panel or in the 21st IEA congress due to COVID-19 pandemic, or they just did not answer at all.

2.2 Data Collection Tool

A questionnaire investigating the three research variables of the study (achievements, challenges and lessons learned) was elaborated from the answers assigned to each variable. The process ended up with a twenty seven (27) statements' questionnaire, covering the three variables of this study as follows:

- Seven (7) statements describing the achievements of HF/E societies.
- Eight (8) statements describing the obstacles facing HF/E societies to achieve their missions, objectives and strategic plans and honor their commitments according to their creation status.
- Twelve (12) statements describing the lessons learned during life time of HF/E society from its inception to today.

3 Results

Analysis of the answers of each statement of the questionnaire showed that:

3.1 What Are the Achievements of the Ergonomic Associations Recently Formed (the Past Twenty Years) in Developing Countries?

The members of HF/E societies of the sample agreed on the following achievements of their societies:

1. They organized a number of promotional activities, such as, seminars, webinars, training courses, workshops, conferences, etc.
2. They Built or are in the process of building relationships with stakeholders at national level.
3. They Built or are in the process of building relationships with stakeholders at international level.
4. They are engaged in actions of dissemination of HF/E knowledge & practice among large public (outreach).
5. Their activities are attracting new membership & outreach among specialists
6. Since their formation, they have setup a number HF/E training courses.
7. Since their formation and even before, members of these societies have initiated or participated in a number of HF/E research project, and published a number of scientific research papers.

3.2 What Are the Obstacles to Carrying Out Their Normal Activity?

As for the obstacles facing HF/E societies to achieve their missions, objectives and strategic plans and honor their commitments according to their creation status:

1. Despite the acute need for ergonomists, there are no sufficient ergonomics training programs in universities.
2. A small number of well trained and recognized teaching staff exists in universities and training institutions.
3. The HF/E identity is being absorbed into dominant host disciplines, like engineering, occupational health and safety, or psychology [4].
4. HFE is not known to stakeholders (decision makers, government services, companies, etc.).
5. HFE societies suffer from some environment hurdles, like the level of technological mastery, cultural aspects of development, etc.)
6. HFE societies suffer from the weak commitment of the executive board committees & members of the society.
7. HFE societies suffer from financial aspects which hinder the activities of the society
8. Some societies are over dependent on well-established ergonomic models and practices which are not adapted to local realities.

3.3 What Are the Lessons Learned from These Years on the Job?

The lessons learned during life time of HF/E society from its inception to today:

1. The use of real life problems & cases in teaching ergonomics has a very good impact on the training quality.
2. The application of ergonomics principles in design courses enhanced the understanding of students.
3. To improve curricula, the feedback from alumni seems to be important, provided that their records are kept and updated.
4. The use of software to teach tools of ergonomics research & intervention has improved training and intervention.
5. The use & creation of videos & simulation material on ergonomics for/by students has improved training quality.
6. Use of videos & simulation material on ergonomics to disseminate ergonomics principals & benefits among stakeholders (decision makers, companies, trade unions, workers), seems to have a high impact.
7. The ratio of practical over theoretical aspects of ergonomics has improved training quality.
8. HFE society has to overcome the resistance to ergonomic changes through participative ergonomics intervention.
9. Missions, objectives and strategic plan of ergonomics society are aligned with the national interest and agenda in promoting HFE.
10. Clear distribution/delegation of tasks & missions among executive members of the society is the best way to its efficacy.

11. The executive members of the society are proactively to respond to issues and take lead in areas related to HFE.
12. Practical ergonomics problem are research topics in collaboration with companies at local/national level.

4 Discussion

According to responses of the members of this panel to the questions ergonomics societies have and are still accomplishing a number of goals in the process of ergonomics promotion in their respective countries. Their achievements are promising in the fields of ergonomics training, research and field intervention. Although, their formation dates are quit recent (around two decades), their achievements are encouraging. One of the many noticed achievements was the increasing acknowledgement of the ergonomics society presence through conferences. Establishment of Networks, like the South East Asian Network of Ergonomics Societies, in the case HFEM and HFESP, or at individual levels during different conferences which is a milestone in developing cooperation and thinking for different ways to strengthen relations among individual and collective initiatives.

The consensus among representatives of the HF/E societies of the present research on the different statements of the questionnaire ranged from 60% to 100%. This can be due to the maturity stage of each society, to the degree of technical and economic development and its related environmental factors [5–7].

Although there are some obstacles, as mentioned above, in the way of developing ergonomics, the ergonomic achievements in the fields of teaching, scientific research and practice in economic institutions give rise to hope. However, to develop ergonomics even more, it is necessary to benefit from the lessons mentioned above. We believe that well-known universities have been taking these lessons into consideration. These results are similar to those of Olabode, et al. [6] and Jaafar, et al. [5].

The members of the panel emphasized: (1) the need to strengthen the achievements realized, (2) To overcome the obstacles by implementing workable strategies for short, medium and long term. Some of the hurdles can be overcome throughout a time span, like the training of a sufficient number of qualified ergonomists, dissemination of HF/E principles and practices among stakeholders and the larger public alike, (3) Besides the lessons learned from the short experience of the new emerging HF/E societies, lessons and experiences of the well-established HF/E societies in developed nations are of great value, to cite examples of such societies, the CIEHF [1], and the HFES [2].

5 Conclusions

The organizers of the discussion panel on achievements, obstacles and lessons learned of the new generation of HF/E societies, were keen to gather more representatives of such societies in order to have a larger diversity of experiences, but for the above mentioned reasons this could not be possible. This fact does not hinder in any way the objectives of the present research work.

The authors of this paper are eager to share their experiences with the participants in the 21st triennial Congress of the IEA, in scope of developing their initiative on the periodic evaluation of HF/E societies, during IEA triennial congresses.

Although, the evaluation of the scientific and professional associations is not an easy exercise, as it deals with the efforts of the executive, steering committees and responsables of the associations, and brings to light their missteps and failures (the forbidden zone), which stems from the human nature itself, besides, the self-evaluation and self-critics are seldom objective. We think that these hurdles can be overcome by the appropriate research methods and tools, and the will to evaluate and change to the better.

Appendix A

See Table 1.

Table 1. Sample members.

No	Member	Position
01	Prof. Mebarki Bouhafis	Algerian Ergonomic Association
02	Prof. Rosemary Seva	Ergonomics Society of Philippines
03	Prof. Mohamed Mokdad	Algerian Ergonomic Association
04	Prof. Serpil Aytac	Turkish Ergonomic Association
05	Dr. Ng, Y. G	Malaysian Ergonomic Association

References

1. Waterson, P., Sell, R.: Recurrent themes and developments in the history of the Ergonomics Society. *Ergonomics* **49**(8), 743–799 (2006)
2. The human factors and ergonomics society (HFES): Stories from the first 50 years. In: Stuster, J. (ed.). *The Human Factors and Ergonomics Society*. Santa Monica, CA, USA (2006)
3. Dul, J., Bruder, R., Buckle, P., Carayon, P., Falzon, P., Marras, W.S., Wilson, J.R., van der Doelen, B.: A strategy for human factors/ergonomics: developing the discipline and profession. *Ergonomics* **55**(4), 377–399 (2012)
4. Oakman, J., Hignett, S., Davis, M., Read, G., Aslanides, M., Mebarki, B., Legg, S.: Tertiary education in ergonomics and human factors: quo vadis? *Ergonomics* **63**(3), 243–252 (2020)
5. Jaafar, R., Libasin, Z., Razali, W.N.: Knowledge of ergonomics among technical staff in university technology of marapenang Malaysia. *J. Eng. Technol. (JET)* **10**(2), 220–226 (2019)
6. Olabode, S.O., Adesanya, A.R., Bakare, A.A.: Ergonomics awareness and employee performance: an exploratory study. *Econ. Environ. Stud.* **17**(44), 813–829 (2017)
7. Tan, L.W.H., Subramaniam, R.: Scientific academies and scientific societies have come of age. *Int. J. Technol. Manage.* **46**(1–2), 1–8 (2009)