Meeting of the IEA Council
Beijing - China
August 9-14, 2009

MINUTES

Minutes were prepared by Pascale Carayon, Secretary General of the IEA

Location of the Council meeting
The IEA Council meeting took place in the Jiuhua International Conference and Exhibition Center in Beijing, China.

Acronyms used in this document
BCPE = Board of Certification in Professional Ergonomics
CREE = Centre for Registration of European Ergonomists
EC = Executive Committee
EQUID = Ergonomics Quality In Design
FEES = Federation of European Ergonomists
GEM = Global Ergonomics Month
IEA = International Ergonomics Association
ICOH = International Commission on Occupational Health
IDC = International Development Committee
ILO = International Labour Organization
IOHA = International Occupational Hygiene Association
ISO = International Standards Organizations
LM = Liberty Mutual
PSE = Professional Standards and Education
SG = Secretary General
STP = Science, Technology and Practice
TC = Technical Committee
WHO = World Health Organization

Attendees
Council members from 30 Federated Societies, 1 Affiliated Society and 2 Networks were represented at the Council meeting. The IEA is currently comprised of 46 Federated Societies, 2 Affiliated Society and 2 Networks.

The following 68 people attended the Council meeting:

Mohmed Akrout – STE (Tunisia)
Tahar Hakim Benchekroum – SELF (France)
Verna Blewett – HFESA (Australia)
Mark Boocock – NZES (New Zealand)
Ralph Bruder – IEA EQUID (German)
Alexander Burov – All-Ukrainian Ergonomics Association (Ukraine)
Emilio Cadavid – SCE (Colombia)
David Caple – IEA President (Australia)
Pascale Carayon – IEA Secretary General (USA)
Alan Chan – HKES (Hong Kong)
Min Chung – IEA Treasurer (South Korea)
Jan Dul – IEA Development (The Netherlands)
Pierre Falzon – IEA Awards (France)
Knut-Inge Fostervold – NES (Nordic Countries)
Matthias Goebel – ESSA (South Africa)
José Orlando Gomes – ABERGO (Brazil)
Paul Green – HFES (USA)
Alma Maria Jennifer Guttierez – PES (Phillipines)
Sung H. Han – ESK (South Korea)
Roger Haslam – ES (UK)
Martin Helander – ERGOSS (Singapore)
Sadao Horino – Human Ergology Society (Japan)
Andy Imada – HFES (USA)
Hardianto Iridiastadi – Perhimpunan Ergonomi Indonesia (PEI) (Indonesia)
Jon James – ESSA (South Africa)
Christina Jonsson – NES (Nordic Countries)
Henrijs Kalkis – LES (Latvia)
Valdis Kalkis – LES (Latvia)
Halimahtun Khalid – IEA Science, Technology and Practice (Malaysia)
Jung Yong Kim – Ergonomics Society of Korea (South Korea)
Ernst Koningsveld – NVVE (The Netherlands)
Kentaro Kotani – JES (Japan)
Sudthida Krungkraiwong – EST (Thailand)
Yair Lifshitz – IES (Israel)
Chiuhsiang Joe Lin – EST (Taiwan)
Nicolas Marmaras – HES (Greece)
Bill Marras – HFES (USA)
Victorio Martinez – SEMAC (Mexico)
Abada Mhamdi – STE (Tunisia)
Johan Molenbroek – NVVE (The Netherlands)
Roeland Motmans – BES (Belgium)
Dimitris Nathanael – HES (Greece)

Michel Neboit – SELF (France)
Enricho Occhipinti – SIE (Italy)
Yusaku Okada – JES (Japan)
Dave O'Neill – ES (UK)
Ahmet Ozok – Turkish Ergonomics Society (Turkey)
Michelle Robertson – HFES (USA)
Zenija Roja – LES (Latvia)
Pieter Rookmaaker – FEES (Europe)
Gustavo Rosal Lopez – AEE (Spain)
Luz Mercedes Sáenz – SCE (Colombia)
Rosemary Seva – PES (Phillipines)
Deepak Sharon – Indian Society of Ergonomics (India)
Tom Smith – IEA Professional Standards and Education (USA)
Marcelo Soares – IEA International Development (Brazil)
Tom Stewart – ES (UK)
Helmut Strasser – GfA (Germany)
Xianghong Sun – CES (China)
Þórunn Sveinsdóttir – NES (Nordic Countries)
Mario Cesar Vidal – ULAERGO (Latin America)
Sheng Wang – CES (China)
Eric Min-yang Wang – Ergonomics Society of Taiwan (Taiwan)
Christine Waring – HFESA (Australia)
Horie Yoshinori – JES (Japan)
Kan Zhang – CES (China)
Klaus Zink – GfA (Germany)
Gert Zülch – GfA (Germany)

Decision on voting items

Voting items	Number of votes and decision
1. The South East Asian Ergonomics Society ceases to be a member of the IEA as a federated Society. The IEA accepts the membership of the Association of Southeast Asian Nations Ergonomics Societies (ASEAN-ES) as a Network member.	YES: 38; NO: 0; Abstain: 0
2. The IEA Council approves the Ergonomics Society of Thailand to become a federated society of the IEA.	YES: 38; NO: 0; Abstain: 0
3. The IEA Council approves the Ergonomics Society of Singapore [ERGOSS] to become a federated society of the IEA.	YES: 38; NO: 0; Abstain: 0
4. The IEA Council endorses the document on EQUID as an official IEA document.	YES: 42; NO: 0; Abstain: 3
5. The Basic Rules are changed as follows: The word 'shall' is changed to 'should' in the following sentence: "In addition, candidates for President **shall** have served a term on the Executive Committee."	YES: 36; NO: 1; Abstain: 7
6. An ad hoc committee is established to review the Rules of the IEA concerning the leadership governance of the IEA. Recommendations will be proposed at the 2010 Council meeting.	YES: 45; NO: 0; Abstain: 0
7. The following federated societies have submitted a bid to host the IEA'2015 Congress: The Human Factors and Ergonomics Society of Australia (Australia and New Zealand), Societa Italiana di Ergonomia (Italy) and the Ergonomics Society (United Kingdom). The IEA Council members will vote for one of the bids.	Winner: Australia/New Zealand proposal
8. Vote for the location of the 2010 IEA Council meeting.	Winner: FEES conference in Bruges, Belgium, in October'2010
9. The IEA Council approves the treasurer's report.	YES: 45; NO: 0; Abstain: 0
10. The IEA Council approves the auditors' report.	YES: 45; NO: 0; Abstain: 0
11. The IEA Council approves the following people as auditors for 2010: Michelle Robertson and Jung-Yong Kim.	YES: 45; NO: 0; Abstain: 0
12. Three voting items for the IEA officers: President, Secretary-General and Treasurer.	President elected: Andy Imada Secretary-General elected: Eric Wang Treasurer elected: Klaus Zink

Agenda

Saturday, August 8, 2009	
9-9:15am	Welcome; review of the agenda
9:15-10:15am	Introduction by federated societies: your name + 1 key item for your federated society
10:15-10:30am	Voting procedures eligibility and roll call
10:30-11am	*Break*
11-11:30am	Report by President
11:30-noon	Report by SG including list of voting items; voting items
Noon-1:00pm	*Lunch*
1:00-1:30pm	Report on STP
1:30-2pm	Report on Development
2-3pm	Report on EQUID and Discussion on implementation; voting item
3-3:15pm	*Break*
3:15-3:45pm	Report by Treasurer; voting items
3:45-4:15pm	Report on Awards including announcement of awardees
4:15-4:45pm	Report on IDC
4:45-5pm	Wrap-up of first day; review of agenda for second day
Sunday, August 9, 2009	
9:00-9:15am	Welcome; review of the agenda
9:15-9:45am	Report on PSE
9:45-10:30am	Voting items from Federated Societies
10:30-11am	*Break*
11-11:20am	Decision on location of 2010 Council meeting; voting item
11:20-11:40am	Report on IEA'2009
11:40am-noon	Report on IEA'2012
Noon-1:00pm	*Lunch*
1-2:30pm	Report on IEA'2015 Congress and 15-minute presentations for each of the 3 bids; voting item
2:30-3:00pm	*Break*
3-4:45pm	Elections of new IEA officers; voting item
4:45-5:00pm	Conclusion

Summary of the meeting

A total of 68 people attended the IEA Council meeting representing 30 Federated Societies, 1 Affiliated Society and 2 IEA Networks. The IEA Council meeting took place in the Jiuhua International Conference and Exhibition Center in Beijing, China.

Major progress was reported in the following areas:

- The South East Asian Ergonomics Society ceased to be a member of the IEA as a federated Society, and the South East Asian Network of Ergonomics Societies (SEANES) became an IEA member as a Network.
- Two new societies have joined the IEA as federated societies: The Ergonomics Society of Thailand and the Ergonomics Society of Singapore [ERGOSS].
- The IEA is now officially registered in the canton of Zurich, Switzerland. This was achieved with the great support and help from the Swiss Ergonomics Society.
- We have continued to build and reinforce partnerships with international organizations, in particular ISO, ICOH, ILO, WHO and ICSID.
- There is continued progress in the area of TC development. The IEA has now a total of 26 TCs that cover a wide range of domains. Several TCs have developed partnerships with international organizations and societies.
- The contribution of Halimahtun Khalid, Chair of STP, Sheng Wang and Kan Zhang to the organization of the IEA'2009 Triennial Congress was remarkable.
- Version 1.11 of the document on the IEA EQUID design process requirements was approved as an official IEA document and will be posted on the IEA website.
- There was much discussion about the need to review the governance of IEA. The Council approved a motion to establish an ad-hoc committee to review the IEA Rules concerning the leadership governance of the IEA. Recommendations will be proposed at the 2010 Council meeting.

The Council made some major decisions regarding the location of the 2010 IEA Council that will take place in Bruges, Belgium, in October in the context of the 1st European Conference on Ergonomics. A decision was also reached for the 2015 IEA Triennial Congress that will take place in Melbourne, Australia; this will be a collaboration between the HFESA and the New Zealand Ergonomics Society.

Congratulations to the newly elected IEA officers: Andy Imada as President, Eric Wang as SG and Klaus Zink as Treasurer.

Pascale Carayon and David Caple shared their personal thank you with the Council and the EC for all of their hard work and great accomplishments in the past three years.

Welcome; review of the agenda

David Caple, the IEA President, welcomed the Council members and guests.

The Council recognized the contribution of the following ergonomists who passed away in the past year:

- UK: Professor Tom Reilly and Professor Mark Porter
- Russia: Dr. Pinkhus Shlaen, Russian ergonomist who was president of the Inter-Regional (Russian) Ergonomics Association
- SELF: Jacques Durafourt
- Japan: Dr. Isao Kuroda, forensic ergonomist and physician.

A small group discussion was organized around the theme of the Congress: changes, challenges and opportunities. Each group discussed the changes, challenges and opportunities experienced by the societies. People sitting at each roundtable participated in a 15-minute discussion and one person reported results of the discussion. The following issues were raised by the small groups:

- growth
- diversity
- international connections and collaboration
- aging of societies: how to get young people involved in the societies
- coordination of ergonomics across different societies, e.g., industrial engineering, occupational medicine, etc…
- who is doing the risk assessment in companies? A certified ergonomist or someone who took a one-week course on ergonomics?
- how to market our profession? how do we move forward our image? Linking ergonomics and economics.
- issues related to membership: some societies are experiencing decreasing membership; how to increase membership? Who to accept as a member? How to balance different categories/groups of members within a society?
- setting up government relations committee
- planning for the future
- what new areas can we move into: e.g., ergonomics of nanotechnology
- organization of conferences for our own networking and for the public; too many conferences? competition between conferences
- working toward the discipline or working toward the practice? Can we have activities that are as complementary as possible?
- being more visible to our countries, government, public,…
- publication of a scientific journal by a federated society
- interest from media for ergonomics
- decreased interest by government
- certification of ergonomics programs can help spread the message of ergonomics to related fields; in companies, physical therapists do the job of ergonomists but may not have the right qualifications.
- increased communication with institutions (e.g., research, universities) and non-ergonomic societies (e.g., engineering, medicine)
- publication with pictures of workplaces has been very successful.
- creating a package of information on ergonomics that can be distributed to other societies, displayed at conferences, etc…
- preserving the environment; environmental sustainability; green development

- convergence of technology; affective design
- bringing together a variety of disciplines: occupational safety and health, physical therapy, etc…
- education of ergonomics: teaching ergonomics in design schools
- networking with other ergonomists and ergonomics societies
- challenges related to the size of the country: e.g., India-large country and New Zealand-small country
- technologies being imported into developing countries: how to adapt those technologies?
- how to manage and develop our relationship with industry, with occupational safety, with the design community?
- legislation that can foster the development/application of ergonomics
- positive influence of the triennial Congress on the development of ergonomics in China
- how to keep a society active, especially over time (e.g., turnover of members)?

Voting procedures eligibility and roll call

Pascale Carayon, the IEA Secretary General, called each of the IEA federated societies and announced the number of votes for each of the societies. A society with 1001 or more members is allocated 3 votes; a society with 501-1000 members gets 2 votes; a society with 500 or less members gets 1 vote. The SG also announced that one proxy vote had been provided:

- Asociacion de Ergonomia Argentina: proxy vote given to Mario Vidal.

A total of 46 votes were represented at the Council meeting. The breakdown of the 46 votes is as follows:

	2009 votes
President	1
SG	1
Treasurer	1
Human Factors and Ergonomics Society	3
Japan Ergonomics Society	3
Nordic Ergonomic Society	3
Ergonomics Society	3
Societe d'Ergonomie Langue Francaise	2
Human Factors and Ergonomics Society of Australia	2
Ergonomics Society of Korea	2
Gesellschaft fur Arbeitswissenschaft	2
Chinese Ergonomics Society	2
Nederlandse Vereniging Voor Ergonomie	1
Societa Italiana di Ergonomia	1
Belgian Ergonomics Society	1
Asociacion Espanola De Ergonomia	1
Brazilian Ergonomics Association	1
New Zealand Ergonomics Society	1
All Ukrainian Ergonomics Association	1
Ergonomics Society of Taiwan	1
Indian Society of Ergonomics	1
Turkish Ergonomics Society	1
Ergonomics Society of South Africa	1
Israeli Ergonomics Society	1
Hellenic Ergonomics Society	1
Hong Kong Ergonomics Society	1
Sociedad de Ergonomistas de Mexico	1
Sociedad Colombiana De Ergonomia	1
Asociacion de Ergonomia Argentina	1
Sociedad Chilena De Ergonomia	1
Philippines Ergonomics Society	1
Latvian Ergonomics Society	1
Tunisian Ergonomics Society	1

There are a total of 46 votes out of a possible total of 63 votes. According to the IEA Rules, "Where voting is necessary, a simple majority of those present, but not less than one-third of the Council Membership is required. " Therefore, during the 2009 Council, a voting item will pass as long it receives 24 votes.

Report by President (see full report in Appendix A)

David Caple, president of the IEA, gave his report on the goals and achievements of the IEA in the past 3 years. The major themes of the 2006-2009 EC were (1) partnerships to strengthen future growth of ergonomics, and (2) inclusiveness for participation in IEA activities. Major achievements in the past 3 years include:

1. growth of the IEA family
2. communication with and participation of Federated Societies
3. partnerships with international agencies and professional associations
4. TCs development and engagement with endorsed journals
5. certification program development
6. IEA dues introductions and good finances
7. registration of the IEA.

1. Growth of the IEA
We welcomed two new members present at the Council: Latvia and Tunisia. Other members were also welcomed but were not able to attend the Council meeting: Indonesia, Nigeria and Ecuador. There has been increasing regional cooperation; in addition to two existing IEA networks (FEES and ULAERGO), there is an emerging network in the Southeast Asian region: the South East Asian Network of Ergonomics Societies. We estimate the number of ergonomists to be around 25,000 in 47 Federated Societies. During the Council meeting, we will examine the application of two ergonomics societies from Singapore and Thailand.

David recognized the contribution of the IEA sustaining members, including our Diamond members (Elsevier and Liberty Mutual). The IEA has also direct links with numerous companies, universities and individuals.

2. Communication
With regard to communication, David emphasized the increased utilization of the IEA website (www.iea.cc) as a communication tool. We have also produced monthly newsletters, which have been widely distributed and used by Federated Societies. The IEA EC has extensively used technologies (e.g., Skype, email and online conferences) to reduce operational costs.

There was a request to use technologies to involve Council members in the Council meeting from a remote location. We need to explore how these technologies can be used for future Council meetings, and to understand the impact of using these technologies for the IEA rules (e.g., voting and attendance).

David gave a special thank you to Pascale Carayon, SG, Jon Ross, Pascale's assistant, and Sharon Herbstreit, David's assistant.

The IEA Registration is now complete: the IEA is registered in the canton of Zürich, Switzerland [Firm number: cH-020.6.001.285] (see Appendix B). We recognized the tremendous help from the Swiss Ergonomics Society with the registration process.

3. Partnerships
The IEA is formally recognized as an NGO by WHO. We receive many invitations to participate in various WHO activities, such as the annual meeting (Ralph Bruder attended this meeting) and the meeting on health care (Richard Goossens from The Netherlands represented the IEA). We also have joint projects with WHO, such as WHO collaborating centers and the MSD toolkits.

The ILO is another important partner of the IEA. The second edition of the Ergonomics Checkpoint and the edition of the Ergonomics Checkpoints in Agriculture will be launched at the 2009 IEA Congress. Dr. Kazutaka Kogi has been a champion for the development of the checkpoints.

ISO is another major partner of the IEA. The ISO will be holding various standards meetings during the 2009 IEA Congress. There are opportunities to integrate EQUID in the ISO process.

Other examples of partnership include:

- ICOH: participation of David Caple at the ICOH Congress in South Africa, 2009
- ICOH/IEA handbook on ergonomics in occupational health and safety
- ICOH/IEA work on the MSD toolkit
- ICSID: potential EQUID involvement. The IEA has been invited to attend the Council meeting of ICSID in December.

4. Certification of ergonomists and ergonomics programs
There are 6 certification programs for individual ergonomists that have been accredited by the IEA: CREE (Europe), BCPE (USA), Japan, UK, Australia and New Zealand.

The chair of PSE, Tom Smith, will lead a discussion about the role of the IEA in the accreditation of education programs. There is a need for information about various ergonomics programs across the world.

5. Growth of technical committees
David thanked Halimahtun Khalid, chair of STP, for her leadership in the development and creation of technical committees. A number of TCs are currently under development.

There is a desire for individual participation at the international level. The Ergonomics Without Borders program was launched by Hal Hendrick and Peter Budnick. Many individuals have expressed interest with this program via ErgoWeb. Hal Hendrick was charged with setting up a strategic plan for this initiative. There are many other examples of international participation: e.g., participation in TCs and increasing interest in international collaboration with other agencies.

This growth poses challenges to the structure of the IEA. We need to identify the appropriate organizational structures for an Association of this size and nature of operation. Strategic thinking and a consultation process is required by the Council to review and propose future directions for the governance of the IEA.

David recognized the contribution of the EC members:
- Pascale and Min: elected officers
- Pierre: past president and chair of the awards SC
- Halimahtun Khalid: chair of STP and for her involvement in the scientific program of the Congress
- Jan Dul: chair of the Development committee
- Marcelo Soares: chair of the Industrially Developing Countries Committee
- Tom Smith: chair of the Professional Standards and Education Committee
- Ralph Bruder: chair of the EQUID committee; and Lina Bonapace, chair of the EQUID committee between 2006 and 2007
- Sheng Wang and Kan Zhang for their work in organizing the IEA2009 Congress.

A survey was conducted to gather Council members' opinions of the monthly newsletters and the IEA website:
- 24 people rated the monthly newsletters as very useful or useful.
- 17 people indicated that they distributed or forwarded the newsletters to their society members.
- 12 people indicated that they took some pieces of the newsletter and sent those pieces around to their colleagues.

- 16 people indicated that monthly was a good frequency for the newsletter; 10 people would prefer the newsletter on a quarterly basis.
- Some people indicated that we need to add information about upcoming events.
- The majority visited the IEA website once a month or a couple of times a month.
- The parts of the website that are most frequently viewed include: link to IEA congress; stay informed section; internal links (IEA member list, list of TC chairs)
- The parts of the IEA website that are the least viewed include: IEA projects.

David thanked other people who have contributed to the IEA, including the Congress organizers and TC chairs.

Report by SG (see full report in Appendix C)

Pascale Carayon, SG of the IEA, presented her report. According to the IEA rules, the tasks of the IEA SG include:

- Keeping close connection to the President to receive advice and to formulate the policy of the Association in routine questions.
- Looking after the correspondence and requests and routing of the correspondence to the appropriate officers for response or action.
- Preparation of the Council meetings.
- Preparation of the General Assembly Meeting to be held in conjunction with the Triennial Congress.

In practice, the SG performs the following activities:

- Communicating with EC and federated societies
- Answering/processing questions and requests
- Preparing and managing meetings (EC, Council)
- Managing bid process for location of 2010 IEA Council meeting
- Maintaining IEA website
- Other SG business: management of IEA basic documents, maintenance of list of societies, and keeping track of various emails and projects.
- Overall IEA EC strategy.

In addition to the IEA SG business, Pascale is the chair of the IEA Healthcare Systems Ergonomics and Patient Safety (HEPS) steering committee. She managed the bidding process for the 2011 HEPS conference, which is an IEA sponsored conference. The new deadline for the proposals is October 15, 2009. Pascale is also the chair of the IEA KU Smith Student Award committee. Pierre Falzon will give a report on this award along with other awards.

Pascale presented a series of 3 motions for the approval of one new network and two new societies to become members of the IEA.

The South East Asian Ergonomics Society ceases to be a member of the IEA as a federated Society. The IEA accepts the membership of the South East Asian Network of Ergonomics Societies (SEANES) as a Network member.

Halimahtun Khalid provided background on the formation of SEANES. The triennial General meeting of SEAES was held on October 22nd, 2008 in Bangkok, Thailand, and led to a vote to form a new IEA Network. This will be known as the South East Asian Network of Ergonomics Societies (SEANES). The Membership of the SEAES would be disbanded from the IEA. National ergonomics societies from the 10 countries of Southeast Asia will then have the opportunity to become members of the IEA. So far these countries include

Philippines and Indonesia; the Council will be asked later to evaluate the applications from Thailand and Singapore.
The motion passed (YES: 38; NO: 0; Abstain: 0).

The IEA Council approves the Ergonomics Society of Thailand to become a federated society of the IEA.

Pascale Carayon provided some background to the Ergonomics Society of Thailand. It was created in 2001, and has 50 members. For more information, check the society's website at: www.est.or.th.
The motion passed (YES: 38; NO: 0; Abstain: 0).

The IEA Council approves the Ergonomics Society of Singapore [ERGOSS] to become a federated society of the IEA.

Pascale Carayon provided some background to the Ergonomics Society of Singapore. It was created in 1985, and has 28 members. For more information, check the society's website at: www.ergoss.org.
The motion passed (YES: 38; NO: 0; Abstain: 0).

Report on STP (see full report in Appendix D)

Halimahtun Khalid presented the report of the STP Committee. The goal of STP is to promote and coordinate exchange of scientific and technical information at the international level. The three objectives of the STP committee are:
1. To create Technical Committees that address specific areas of technical interest in human factors and ergonomics, and to promote their activities through various means
2. To assist in developing the program for the IEA Triennial Congress, in cooperation with the Technical Committees
3. To facilitate the IEA endorsement of scientific events and journals.

Objective 1: Technical committees
Currently, the IEA has a total of 26 technical committees:

1. Activity Theories for Work Analysis & Design
2. Aerospace
3. Affective Design
4. Aging
5. Agriculture (replaced Primary Industries)
6. Anthropometry
7. Auditory Ergonomics
8. Building & Construction
9. Ergonomics for Children & Education Environments
10. Ergonomics in Product Design
11. Gender and Work
12. Healthcare
13. Human Factors & Sustainable Development
14. Human Simulation & Virtual Environment
15. Ergonomics in Manufacturing (replaced HAMAHA)
16. Mining
17. Musculoskeletal Disorders
18. Online Communities
19. Organizational Design And Management

20. Process Control
21. Psychophysiology in Ergonomics
22. Safety & Health
23. Slips, Trips and Falls
24. Transport
25. Visual Ergonomics (NEW)
26. Work With Computing Systems.

Here is a list of TCs that could be created in the future:

- cultural ergonomics
- rehabilitation ergonomics
- footwear and sports ergonomics
- nanoergonomics
- crises and emergencies
- displays and warnings
- forensics investigation
- mobile HCI
- digital natives
- home ergonomics.

Various TCs have been successful in developing partnerships with significant international organizations/societies and in organizing events. Examples of international cooperation of TCs include:
- MSD TC: collaboration with the PREMUS conference organized by ICOH
- ATWAD TC: cooperation with international society for cultural and activity research
- Ergonomics in Product Design TC: involved in ICSID, represented IEA at World Design Congress in Singapore, November 2009
- Aging TC: organization of the 4th Symposium on Work Ability-Age Management, 6-9 June 2010 with ICOH, Finnish Society for Development & Aging, and the Finnish Ergonomics Society.
- Affective Design TC: support to the KEER 2010 conference to be held in March'2010
- Aerospace TC: organization of HCI-aero in Cape Canaveral, USA in November'2010

Halimahtun raised a number of issues regarding TCs. First, from a strategic viewpoint, some TCs have been reaching out to other non-ergonomics societies/organizations and have had impact on policies of major international organizations, such at ISO, WHO and ILO. In the future, TCs could play an even bigger role and have a greater impact. For instance, the TCs on HFSE and Transport could have a role in policies regarding energy efficiency and greening environment. Second, the focus of the TCs has been on the discipline: Science & Technology. There needs to be attention to the Practice. Third, it is important to pay attention to the sustainability of TC activities. Often, TCs are self-funded through organized activities. Could a special TC Fund be created and managed by the IEA Treasurer? It may also be useful to provide more seed money to kick-start activities. Finally, there is a need to enhance communication among the TCs. There is space on the IEA website to facilitate intra-TC communication and exchange; but this is under-utilized. Could a discussion forum be created for inter-TC exchange?

Objective 2: IEA'2009 Triennial Congress

The scientific program is the result of cooperation between the 26 TCs and members of the International Scientific Committee. It included 42 tracks: 26 tracks managed by the TCs and

11 tracks managed by the ISC. Halimahtun recognized the contribution of Professor Kan Zhang and his team at the Institute of Psychology, Chinese Academy of Sciences, in creating the conference program book. The traditional part of the conference included: keynotes, oral symposia, panels, product demos, posters, TC meetings, and meetings of ISO. The new elements of the conference included: outreach sessions, meet-the-editors sessions, synergy TC sessions/meetings, 99-second sessions, and launches of WEAR database and ILO checkpoints. Gaps in the program were the lack of technical visits, and no activities organized for students and young ergonomists and for retired ergonomists.

Halimahtun identified the following lessons learned regarding the role of STP in the organization of the IEA Triennial Congress:
1. The STP chair needs to know the IEA Basic Rules, in particular the rules related to the Congress organization and IEA expectations.
2. The STP chair needs to be able to identify the broad range of TC expertise and experience and address the diversity of ergonomics topics.
3. Communication and teamwork are important for a good organization of the Congress. There also needs to be frequent feedback provided to the program committee.
4. It is important to clarify the role and responsibility of the STP chair with regard to his/her role in the IEA Executive Committee and his/her role in the Congress organization.
5. The IEA branding needs to be considered. For instance, the name of Congress is the IEA Triennial Congress; other names have been used, therefore creating confusion. It may be beneficial to standardize Congress proceedings and other templates (e.g., submission, review process).

Objective 3: Endorsement of scientific events and journals
In 2009, a total of three events were endorsed:
- FEES conference in October 2010 in Bruges, Belgium
- KEER conference in March 2010 in Paris, France
- Work ability conference organized by the Finnish Society for Development and Ageing, the Tampere University and ICOH.
Forthcoming events may include SEANES 2010, CHI and APCHI/ErgoFuture.

The IEA has a total of 14 endorsed journals. Other journals could be approached, such as Cognition, Technology and Work (editor: Erik Hollnagel; publisher: Springer), and Universal Access in the Information Society (editor: Constantine Stephanidis; publisher: Springer). Various strategies are used to promote IEA-endorsed journals such as: promotion on the IEA Website (for visibility and sustainability), mention in the IEA newsletter (for promotion about subscription), publication of refereed papers from IEA endorsed conferences, special sessions on “Meet-the-Editors” at the IEA Congress, and exhibition booth at IEA sponsored conferences.

The STP committee may need to be re-structured to have a chair (TCs, endorsement of journals) and a co-chair (endorsement of conferences, triennial Congress committees).

There was some discussion about the focus of TCs on research versus practice. Halimahtun explained that TCs need to include both dimensions of research and practice. There was also some discussion about the organization of topics represented by TCs, as either scientific topics versus domain or industry. Some Council members raised the possibility of confusing people by increasing the diversity of ergonomics. We may need to do a better job at advertising success stories related to various TCs.

Report on Development (see full report in Appendix E)

Jan Dul reported on the achievements of the Development SC. The IEA website includes information about the Best Practices project. Future activities for the Best Practices project may include leading discussion on the IEA website (forum discussion).

The Future of Ergonomics project was to encourage discussion within IEA members on the future of ergonomics. Between 2006 and 2009, numerous documents were gathered: about 100 public documents and about 25 documents produced by societies. Many local initiatives have taken place in JES, the Victorian branch of the HFESA, Indonesia, HFES, NES and GfA.

Jan reported on the analysis of these various documents related to the future of ergonomics. There is not ONE future of ergonomics. Different topics emerge depending on the perspective (e.g., research, education). The issues also vary by region/country because of different geographical and economic situations. Jan indicated that the future of ergonomics cannot be "designed". In order to anticipate possible changes, there needs to be continued discussion about the future of ergonomics.

A number of sessions are organized at the IEA Congress regarding the future of ergonomics on (1) future of ergonomics education, (2) collaboration between ergonomics, engineering and business, (3) future of public awareness of ergonomics, and (4) lessons from the past.

In the future, there should be some continued discussion about the future of ergonomics. We may need to summarize these various discussions and post the results on the IEA website. We also need to formulate consequences for the IEA.

Report on EQUID (see full report in Appendix F)

Ralph Bruder gave the report on the EQUID committee. Version 1.11 of the EQUID requirements include the following rubrics: (1) Organization management and documentation: management commitment, quality policy, quality objectives and management planning, responsibility, authority and communication, and management reviews; (2) User requirements document(s): initial user requirements document and user requirement changes; (3) Design reviews: design and development planning, and design and development reviews; (4) Final ergonomic evaluation report and management decision: design and development validation, and management review of evaluation results compared to user requirements; and (5) User satisfaction evaluation reports: monitoring and measuring after-sales user satisfaction, control of a product that does not conform and corrective actions, and monitoring and continual improvement.

The main users of EQUID are smaller companies that can benefit from enhancing their product design process. Important aspects of EQUID include:
- bridging gaps between ergonomics, design, and product management
- integrating ergonomics into product development processes
- continuous consideration of ergonomics in product development process
- process defined by several experts on behalf of the IEA in the past 6 years.

We can now register the EQUID label given that IEA is registered.

There has been increasing interest from various partners, including ICSID and ISO.

We have also begun working on EQUID-related case studies through a research project sponsored by a German organization.

Recommendations from the EQUID SC were issued at a meeting in Darmstad, Germany, in 2009. The EQUID SC recommends that the latest version of the EQUID criteria document be published on the IEA website. An additional document about how to apply the EQUID criteria should be developed.

Ralph Bruder was invited to attend the advisory group of the ISO TC 159. EQUID or something stimulated by the EQUID approach could become a standard reaching the management level. A new working item may be proposed via ISO TC 159.

Future activities include:
1. development of the EQUID process document; development of an EQUID Handbook published by IEA
2. cooperation with ISO: on the agenda for the next meeting of the ISO TC 159, the possibility of starting a new work item related to EQUID will be discussed. The Council needs to express his opinion about this.
3. certification. If other organizations are interested, the EQUID SC should support the application of EQUID in certification and learn from it.

There was some discussion about future activities related to EQUID, including involvement of federated societies in encouraging the application of EQUID in countries not represented or active in ISO.

Ralph Bruder proposed the following voting item:

> **The IEA Council endorses the version 1.11 document on EQUID as an official IEA document.**

The motion passed (YES: 42; NO: 0; Abstain: 3).

Report by Treasurer (see full report in Appendix G)

Min Chung reviewed the IEA accounts, expenses and revenues for the 2008 year. He compared expenditures for 2008 to the budget.

Min listed the following ergonomics societies as being delinquent in their dues to the IEA:

- Croatia: for the years 02,03,04,05,06, 07, 08. All paid now.
- Philippines: for the years 05,06,07, 08, 09. All paid now.
- Hungary: for the years 04,05,06,07
- Russia: for the years
- Slovakia: for the years 00,01,02,03,04,05,06,07.

The Council encouraged the IEA EC to work on a policy document for dealing with delinquent societies.

In summary, the IEA is in good financial situation. The 2009 Congress will be our most expensive meeting for the Council, but it remains within our budget. Support for IDC conference attendees remains the main financial contribution of the IEA.

Min presented the following motion:

The Council approves the Treasurer report for 2008.

The motion passed (YES: 45; NO: 0; Abstain: 0).

The report of the auditors (Michelle Robertson and Jong-Yong Kim) was posted on the wiki of the IEA website and distributed at the council meeting. The auditors have approved the financial report (see Appendix G). Min presented the following motion:

The Council approves the auditors' report for 2008.

The motion passed (YES: 45; NO: 0; Abstain: 0).

Min presented the following motion:

The Council appoints the following auditors for 2010: Michelle Robertson and Jung-Yong Kim.

The motion passed (YES: 45; NO: 0; Abstain: 0).

We need to investigate whether there is a need to file financial documents to the Swiss government; this is important since the IEA is now registered as a not-for-profit organization in Switzerland.

We will make sure that the IEA Basic Rules are posted on the IEA website.

David suggested that the Council members discuss ideas for encouraging more organizations and individuals to join as IEA sustaining members. This could be a discussion over dinner.

Report on Awards (see full report in Appendix H)

Pierre Falzon, past IEA president, presented his report on the IEA awards. Awards are handed out to acknowledge the contribution of an individual to ergonomics, to recognize and encourage significant research efforts, and to disseminate information about ergonomics to the ergonomics community and the public. Because of cultural differences regarding attitudes of various societies towards awards, there tends to be under-representation of certain regions or countries.

Pierre described the two types of awards: annual awards (fellow and Liberty Mutual Medal) and triennial awards. Fellows are nominated by federated societies, whereas the recipient of the LM Medal is selected by a Committee. Triennial awards include:

- awards with nominations by societies: Distinguished Service Award, Outstanding Educators Award, Award for promotion of ergonomics in industrially developing countries, Ergonomics Development Award
- awards selected by committees: KU Smith Student Award, and JOSE best paper award
- the President's award.

Pierre Falzon gave an update on the various awards. The following people have been approved as IEA fellows:

- Arne Aarås (nominated by NES – Nordic Ergonomics Society)
- René Amalberti (nominated by SELF – Société d'Ergonomie de Langue Française)
- Thomas J. Armstrong (nominated by HFES – Human Factors and Ergonomics Society)
- Pascale Carayon (nominated by HFES – Human Factors and Ergonomics Society)

- Michelle Robertson (nominated by HFES – Human Factors and Ergonomics Society)
- Kan Zhang (nominated by CES – Chinese Ergonomics Society).

Congratulations to the new IEA fellows!

A total of 14 submissions from Australia, India, Argentina, Germany, Indonesia, Korea, The Netherlands, Slovenia, South Africa and the USA were submitted for the IEA/Liberty Mutual Medal in Occupational Safety and Ergonomics. The 2009 subcommittee consisted of Hal Hendrick (chair), Kazutaka Kogi (Japan), Pat Scott (South Africa), Mike Smith (USA) and Klaus Zink (Germany). The winner of the 2009 IEA/Liberty Mutual Award is a paper on "*Mitigating occupational health hazards of women farmers through educational and technological interventions*" authored by Dr. Suman Singh from India.

The triennial awards with nominations submitted by societies involve a vote by past IEA presidents, past recipients of the President's award and past recipients of the specific IEA award under consideration.

The IEA Distinguished Service Award is given to Sebastiano Bagnara from SIE, Italy.

The IEA Outstanding Educators Award is given to François Daniellou from SELF, France.

The IEA award for promotion of ergonomics in industrially developing countries is given to Elias Apud from Sochergo, Chile.

The IEA Ergonomics Development Award is given to Klaus Zink, GfA, Germany.

The IEA/KU Smith award is given to the following two very deserving students that were selected among 15 submissions from the USA, China, Hong Kong, Australia, India, Latvia and Portugal:
- Monical Lees from the University of Iowa, USA
- Molly Story from the University of California, Berkeley, USA.

The IEA President's award was announced at the awards ceremony during the IEA Congress. Kazu Kogi is the recipient of this award.

The JOSE best paper award is given to Dr. Kalev Kuklane. It may be possible to extend this award process to other IEA-endorsed journals.

Pierre discussed the possibility of creating two new awards:
1. IEA award for ergonomics quality in design. The objective would be to give visibility to organizations that follow the ergonomics design principles described in the EQUID document.
2. IEA ergonomics outreach award. The objective would be to acknowledge a realization or action targeted to the general public that contributes to the dissemination of ergonomics knowledge or to a better awareness of the benefits of ergonomics.

Report on IDC (see full report in Appendix I)

Marcelo Soares presented the report on IDC. The IDC supports the work of IEA societies by (1) facilitating joint events between member societies, (2) disseminating ergonomics knowledge at various levels (e.g., webcast promoted by the Canadian Ergonomics Society on

"job rotation as a strategy to reduce risk of musculoskeletal injuries"), (3) supporting participation of industrially developing countries in IEA activities (e.g., development of new Ergonomics Checkpoints), (4) supporting the continuing growth of ergonomics in IDCs by training and education (e.g., certification of ergonomists in IDC), (5) providing IDCs with ergonomics knowledge by, for instance, providing proceedings of IEA conferences to libraries in developing countries, and (6) supporting regional groups in ergonomics when this does not conflict with the operations of member societies.

Contact has been established with Ender Carrasquera from UVIERSO, the Venezuelan Union of Ergonomics and Occupational Health Researchers, and Miguel David Apoalaya from the Peruvian Ergonomics Society.

Council members asked questions about how to stimulate the Ergonomics Month and the concept of twinning. Regarding the Ergonomics Month (October), the IEA facilitates sharing of information among federated societies via the IEA website. Regarding twinning, there are various activities that federated societies are involved in, such as linkages between NES and Latvia, and between Tunisia and SELF.

Report on PSE (see full report in Appendix J)

Tom Smith presented the report of the PSE committee. The objectives of PSE are (1) to endorse certification schemes and provide advice on their development, and (2) to provide guidance on professional conduct, ethics and standards for ergonomics education.

Tom Smith reviewed the accomplishments during 2007-2008 and during 2008-2009. During 2007-2008, the PSE accomplishments include:

- Establishment of two subcommittees on certification (Bob Bridger, Peter Budnick and Kazuo Aoki) and on education (François Daniellou and Ian Gibson)
- Checklist for certifying body accreditation applications
- Accreditation of Board for Certification of New Zealand Ergonomists
- Feedback from Committee for Registration of European Ergonomists on accreditation process
- Proposal for IEA to establish formal accreditation program for ergonomics education programs.

During 2008-2009, the accomplishments of the PSE include:

- Organization of two panel sessions for the 2009 IEA Triennial Congress
- Advocacy for mutual recognition of the credentials of certified professional ergonomics by different certifying bodies
- Development of a draft IEA Basic Document with guidelines for IEA accreditation of E/HF ergonomics educational programs
- Solicitation of feedback regarding the merits of the IEA accreditation draft basic document.

Tom Smith organized two panel sessions for the 2009 IEA Triennial Congress:
- panel on certification of professional ergonomists – Who, why and how: participation from Professor Aoki (Japan), Dr. Peter Budnick (USA), Ernst Koningsveld (The Netherlands) and Marcelo Soares (Brazil).
- panel on the future of ergonomics in education: participation from Dr. Bob Bridger (UK), Professor Fostervold (Norway), Dr. Karen Jacobs (USA) and Professor Straker (Australia).

Tom Smith also promoted mutual recognition of the credentials of certified professional ergonomics by different certifying bodies. He contacted the certifying bodies and received feedback from CREE (CREE would recommend support for this idea, especially for PEs that move permanently to another juridisction), BCPE (BCPE would tend to support partial recognition of PE credentials from another jurisdiction), JES (JES supports mutual recognition among bodies accredited by the IEA), and Oxford Research Institute (They would consider this idea only if 11 criteria are satisfied).

Tom described a proposal to the Council regarding the IEA accreditation of post-secondary E/HF educational programs. He proposed that the IEA Executive Council endorse the establishment of a formal IEA accreditation program for E/HF educational programs. The accreditation process will be administered by the IEA PSE. In addition, Tom proposed a series of recommendations:
1. The IEA should develop and implement an accreditation program for university/college level E/HF educational programs.
2. The accreditation program should not target a specific degree level.
3. Specifications of care competencies for professional ergonomists should emphasize both content- and performance-based competencies.

A checklist for compliance with accreditation criteria was developed (see report in Appendix J). These are minimum specifications for (1) program institutional support, organization and resources, (2) program content, and (3) professional ergonomists trained by the program.

The administrative approach envisioned includes the following elements:

- Accreditation panel composed of internationally recognized ergonomics educators
- Target programs in countries/regions not currently served by a program accreditation service
- Accreditation checklist for program applicants
- Fee-based service.

Feedback was sought regarding the merits of the IEA accreditation draft basic documents from federated societies and a few ergonomists, and was rather positive.

Future potential action items include:
- review certifying body accreditation applications received
- rationalize existing IEA basic documents dealing with certifying body accreditation
- apply for accreditation from the US National Commission for Certifying Agencies to provide a third party audit of the quality of IEA accreditation services
- continue to lobby existing certifying bodies for mutual recognition of professional ergonomist certification
- lobby IEA federated societies in countries/regions that do not have a certification system to establish ….
- implement IEA E/HF educational program accreditation process advocated in basic document
- update IEA register of postgraduate ergonomics education programs worldwide.

There was some discussion about the role of IEA in the accreditation of educational programs. On behalf of SELF, Michel Neboit provided background to the feedback provided to Tom regarding the accreditation system. He emphasized the need to have a balance between various forms of research, and balance between practical experience and research

experience. Andy Imada indicated that HFES is putting its accreditation program on hold as it is not sure which direction to go. On behalf of the Dutch ergonomics society, Johan Molenbroek indicated that the Dutch ergonomics society attempted to identify all E/HF educational programs; but this was difficult to accomplish for multiple reasons, including the fact that different names are often used for E/HF programs. Pierre Falzon indicated his support for Tom's position. There are many ergonomics programs that have the title, but do not have the right qualified instructors; therefore, we need a system for recognizing/certifying ergonomics programs. Mario Vidal from Brazil and ULAERGO indicated that there needs to be more discussion to develop a comprehensive approach to this issue. An informal poll of the Council indicated that about 26 people were in favor of pursuing the exploration of the accreditation path and 6 people were unsure or undecided. David Caple summarized the discussion by recognizing the general interest from the Council to continue to explore the accreditation route, but with caution. The Council supports the EC in continuing to look at this issue, in concert with federated societies that have expressed an interest.

Voting items from Federated Societies

David Caple led a discussion on the voting items proposed by the HFES and the GfA.

Voting item proposed by the HFES

HFES Submission for:
Proposed Voting Items
IEA Business Meeting
Beijing, China
August 2009

The current IEA Rules for eligibility and election of the IEA president are listed in Title 5, Article 2. (Underline added):

> **TITLE 5 - EXECUTIVE OFFICERS**
> **Article 2. Elections, eligibility and duration of tenure**
> Officers are elected by Council from members of Federated Societies. To be eligible for office, candidates must be members of a Federated Society and have either served previously on the
> Council or are the current representatives. Candidates should have demonstrated service to IEA and continuity of attendance at Council meetings. In addition, candidates for President **should** have served a term on the Executive Committee. Elections are conducted at the Council meeting held in conjunction with IEA Triennial Congresses. The President is responsible for the election process as described in the IEA Operating Procedures.
>
> The terms of office for Officers are three years, in phase with the Triennial Congress. The maximum service is one term for the President and two terms for the Secretary General and Treasurer.
>
> Transition of leadership takes place at the closing ceremony of the Congress during which the
> Officers are elected. The term of the newly elected Officers begin after the closing of the Congress.

PROPOSED VOTING ITEM 1:
Discussions with two past presidents who were intimately involved in revising the IEA Basic Documents, including the IEA Rules, suggest that the requirement for the president to have served a term on the Executive Committee exceeds the writers' original intent. As with other candidates, the candidate for president must have been a member of council for at least one term. It may be desirable, but not necessary, that the candidate served one term on the Executive Committee. Service on the IEA Council and other IEA committee work can provide the necessary background and experience for president.

We believe this is unnecessarily restrictive for at least three reasons: First, all elected officers must have either previously served on the Council or are current representatives. There will always be a collective experience in the Executive Committee. Further, the presence of the immediate past president on the Executive Committee serves as the transfer of experience. Second, this requirement for a term on Executive Committee may extend the length of commitment unnecessarily and pose hardships on people who are willing to serve in elected capacities. For example, one term on council, one term on Executive Committee, one term as president, and one term as past president would require 12 years of service. Third, this requirement may create restrictions on the possible field of qualified candidates that Federated Societies can nominate to stand for president. Changing the article provide a broader spectrum of candidates to stand for election.
The proposal is to strike the following sentence from Title 5, article 2. "In addition, candidates for President shall have served a term on the Executive Committee."

PROPOSED VOTING ITEM 2

The change in Title 5, article 2 is effective immediately.

Voting item proposed by the GfA

GfA Submission for:
Proposed Voting Item
IEA Council
Beijing, China
August 8-9, 2009

The current IEA Rules for Executive Officers define in Title 5, Article 1 three roles: President, Secretary General and Treasurer. In Title 5, Article 3 the responsibilities of the Secretary General and the Treasurer are described as follows:

Secretary General:	Provides day-to-day administration of the IEA, including communication and documentation responsibilities
Treasurer:	Responsible for accounting the IEA funds
	Conducts budget analysis and projections
	Provides financial management
	Establishes new sources of revenue

Proposed Voting Item:
IEA has grown continuously over the past few years and the workload for its officers has grown as well. Until now there has been a formal division of labor, which can impede a team

approach in the Executive. The IEA is one of the few scientific associations without Vice President officers.
To create a better balance of responsibilities making the executive more of a team approach the proposal is:
Upgrade the Secretary General to Vice President for Internal Affairs and Communication (with the same list of duties) **and to upgrade the Treasurer to Vice President of Finances and Planning** (enlarging the responsibilities to include planning).

Title 5, Article 1 (definition of responsibilities) would read:
The officers of the Association are:

- President
- Vice President Internal Affairs and Communication
- Vice President Finance and Planning

Title 5, Article 3 (Responsibilities of the officers) would be changed in one point regarding the Vice President Finance and Planning. (Proposed change underlined)
Vice President Finance and Planning:

- Responsible for accounting of IEA funds
- Conducts budget analysis and projections
- Provides financial management
- <u>Supports the President in planning of activities and the evaluation of their financial consequences</u>
- Establishes new sources of revenue

The proposal is that these changes be considered at the August 2009 Council meeting in Beijing and be applied to the incoming executive council.

Bill Marras from HFES described the HFES motions and provided background to the motions. Existing rules specify that the President should have experience in the EC. However, there are various ways for a potential candidate to get experience with professional organizations, such as experience as an officer in a federated society. Another solution would be to have a president-elect. The current rules may create problems for candidates who do not meet the requirements of the existing rules.

David Caple provided feedback from the EC on the proposed motions. The EC agreed with the issues raised by the HFES motion; we need to figure out how to better handle transitions between the ECs. There is also the issue of the duration of commitment of the officers. As the expectations have grown, there is increasing work to be done by the officers and the EC. The EC does not agree with this particular motion by the HFES: there may be other solutions that should be explored. This motion should be used as input into a broader discussion about other models on how to address the issues of IEA governance. For instance, we could talk to other international associations about their organization and functioning. The concept of president-elect may be a way of transitioning into the role. The EC would also like to question the specific role of the past president on the EC. The EC accepts the HFES motions as a contribution toward a broader debate that could lead to the exploration of alternative governance models; this discussion would be put forward to the Council in 2010. In addition, now that the IEA is registered in Switzerland, any change in the Rules needs to be addressed carefully; we need to explore how changes in Rules should be managed in light of our new

registration status. The EC thinks that changes to the Rules need to be done carefully as Rules are not changed very often. A holistic approach to reviewing the current structure of the IEA is preferable. In addition, David Caple remarked that not having prior experience will be relevant for the election of officers. He encourages Council members to be open and transparent, and states that, when dealing with the election of officers, the Council is at liberty not to follow its own rules. The Council can decide not to follow its own rules: rules are there to guide us; if there are other options, the Council can decide otherwise.

There was much discussion about the HFES motions. Some Council members, including Sadao Horino, agree that the IEA structure and, therefore, the IEA Rules may need to be changed to adapt to the changing world. Several Council members supported the position expressed by David Caple on behalf of the EC. Pieter Rookmaaker was in favor of spending more time to review the governance of the IEA. Yair Lifshitz proposed to establish an ad-hoc committee to review the IEA governance and propose solutions; the establishment of an ad-hoc committee was supported by Torunn Sveinsdottir. Other Council members agree that it is difficult to find volunteers to participate in not-for-profit organizations. Johann Molenbroek insisted that it is important for candidates to understand the workload associated with the EC work. Instead of a "3+3+3" process (i.e. 3 years on the EC, 3 years as President and 3 years as past President), one solution proposed by Martin Helander is "2+2+2"; however, this would mean that the EC is out of sync with the Triennial Congress. Other solutions to the length of commitment were suggested by Pierre Falzon, including a president-elect. Pierre also suggested that we review the need to have a past president function. Given the multiple pathways, Pierre emphasized the position expressed by David Caple on behalf of the EC, i.e. many solutions are possible and we need to take the time to review these various solutions. Klaus Zink emphasized the need to proceed with changes very soon: governance problems have existed for some time; there has been extensive discussion that needs to now lead to changes. He emphasized the need to broaden the scope of potential candidates. He views the HFES motions as pragmatic first steps, and fear that, if we do not do anything, then too much time will be spent on discussion and nothing will happen.

Tom Stewart indicated that we have one nomination for IEA President that does not meet the criteria set in the Rules. He proposed a change of word in the motion, i.e. replacing the word of 'shall' by 'should'.

The following motion was proposed by Bill Marras (HFES) and seconded by Klaus Zink (GfA):

> **The Basic Rules are changed as follows: The word 'shall' is changed to 'should' in the following sentence: "In addition, candidates for President <u>shall</u> have served a term on the Executive Committee."**

The motion passed (YES: 36; NO: 1; Abstain: 7).

Helmut Strasser described the background to the motion proposed by GfA. The GfA has had good experience with the positions of President and Vice-Presidents, which support strong teamwork about the officers. In some countries, the title of VP is used to clarify the responsibility of the executive officers.

David Caple provided feedback on the GfA motion on behalf of the EC. He emphasized the importance of a holistic team approach. The President is the leader of the EC team whose members work collaboratively. In the past 3 years, the EC has worked as a team. We do not need to change titles to have a team approach. Broadening the scope of treasurer may actually

infringe on the responsibility of SCs. Different titles are used in different countries; different countries have different views on titles. The EC felt that at this stage, there is no need to change the titles. Changes in role definition may not necessarily make it clearer as some of these changes may create overlap with other committees. Changes in Rules need to be approached carefully. This topic should be included in the discussion of the ad hoc committee proposed in the previous motion.

The GfA did not move forward with their motion.

The Council agreed that the new EC should set up an ad-hoc committee to evaluate the governance of IEA and suggest changes to the organization, functioning and rules of the IEA. A motion was presented and then modified with a friendly amendment:

> **An ad hoc committee is established to review the Rules of the IEA concerning the leadership governance of the IEA. Recommendations will be proposed at the 2010 Council meeting.**

The motion passed (YES: 45; NO: 0; Abstain: 0).

Location of Council meeting in 2010

Pascale Carayon described the bidding and selection process for the location of the 2010 IEA Council. An email announcement was sent to all federated societies; proposals were due in July'2009. Two proposals were submitted by FEES and the Southeast Asia Network of Ergonomics Societies. The FEES proposal was related to the 1st European Conference on Ergonomics in Bruges, Belgium, on October 10-12, 2010. The 1st Southeast Asia Network of Ergonomics Society Conference will take place on December 12-13, 2010, in Manila, Philippines. The outcome of the vote for the location of the 2010 Council meeting is as follows:

- 28 votes for the FEES proposal
- 18 votes for the SEANES proposal.

The 2010 IEA Council meeting will take place in Bruges, Belgium, in October'2010.

IEA'2009 Congress

Sheng Wang gave a short update on the 2009 Congress.

IEA'2012 Congress

Marcelo Soares presented a report on the IEA'2012 Triennial Congress. He was joined by Jose Orlando Gomez, president of ABERGO, and Mario Vidal, president of UALERGO; both Jose Orlando Gomez and Mario Vidal made a few remarks in strong support of the IEA'2012 Congress.

The IEA'2012 Triennial Congress will be a joint conference between ABERGO and UALERGO. It will be the first IEA Congress in South America. It will be held in Recife in the state of Pernambuco, Brazil (northern part of Brazil). Marcelo Soares provided information about the city of Recife (e.g., size, location, access, hotel). The Congress will be held during the week before Carnival. Therefore, it is recommended to book hotels at least nine months before the Congress. The Congress will be held at the Pernambuco Convention Center on February 12-16, 2012.

The theme of the Congress is "Designing a sustainable future". A website has been drafted and will be launched after the 2009 Congress.

Deadlines for the Congress are:
- proposals, workshop, symposia: February 28, 2011
- abstracts: July 1, 2011
- abstracts reviewed: August 12, 2011
- full paper submission deadline: November 1, 2011
- program available on Internet: December 11, 2011

Halimahtun Khalid suggested that the deadlines be reviewed so that sufficient time is allowed between the abstract submission and the review of abstracts.

David Caple thanked Marcelo Soares for his presentation; he feels very confident that the Brazilian/South American team will deliver a great IEA Triennial Congress.

IEA'2015 Congress (see full report in Appendix K)

Pascale Carayon described the process used for submitting bids for the 2015 Congress. The deadline for the bids was February 1, 2009. An initial evaluation of the 3 submissions was done by an ad-hoc committee comprised of Ernst Koningsveld (chair), Hal Hendrick, Ken Laughery and Eric Wang. The committee used about 70 criteria specified in the IEA Basic Rules. The EC reviewed the bids and the evaluation report of the ad-hoc committee, and did not have a specific recommendation for the Council. All three proposals by (1) Australia and New Zealand, (2) Italy, and (3) the UK were considered very good. Each proposal was then presented. Christine Waring, Verna Blewett and Mark Boowock presented the submission for Australia/New Zealand. Enricco Ochipinti substituted Sebastiano Bagnara, who could't attend the meeting, gave the presentation for the SIE to host the IEA'2015 Congress in Firenze, Italy. Dave O'Neill gave the presentation of the submission by the Ergonomics Society on hosting the IEA'2015 Congress in Edinburgh.

The first round of voting produced the following results:
- Australia/New Zealand: 18 votes
- Italy: 17 votes
- UK: 11 votes

Because the first round of voting did not produce a clear winner (majority of the votes), a second round of voting was organized and produced the following results:
- Australia/New Zealand: 27 votes
- Italy: 19 votes.

In 2015, the IEA Triennial Congress will be held in Melbourne, Australia, and will be organized by the HFESA and the New Zealand Ergonomics Society.

Elections of new IEA officers

David announced the elections of the new IEA officers.

There was only one candidate for the IEA President: Andy Imada. Andy gave a presentation about his candidacy for IEA President. He was then asked to step out of the room and the vote took place. The outcome of the voting is as follows:

Yes: 41
Abstain: 4
No: 1
Andy Imada was elected as the 17th president of the IEA.

There was only one candidate for the IEA Secretary-General: Eric Wang. Eric gave a presentation about his candidacy for IEA Secretary-General. He was then asked to step out of the room and the vote took place. The outcome of the voting is as follows:
Yes: 45
Abstain: 1
Eric Wang was elected as the 17th SG of the IEA.

There was only one candidate for the IEA Treasurer: Klaus Zink. Klaus gave a presentation about his candidacy for IEA Treasurer. He was then asked to step out of the room and the vote took place. The outcome of the voting is as follows:
Yes: 46
Klaus Zink was elected as the 17th Treasurer of the IEA.

Congratulations to the newly elected IEA officers!

General discussion

David Caple opened the floor for general discussion and final comments.

Torunn Sveinsdottir brought up the issue of conferences organized by various federated societies and networks. There may be scheduling conflict between various conferences. One solution would be to have a calendar of events on the IEA website.

Ahmet Ozok recognized the work of David Caple and the rest of the EC team. He also recognized the need for increasing the development of ergonomics worldwide in a manner similar to the way the EC has been working in the past 3 years.

Tom Smith suggested the possibility of reverting to individual membership. In the past IEA was an association of individual members. David commented that there is a possibility for individuals to become sustaining members.

Pascale Carayon and David Caple shared their personal thank you with the Council and the EC. David called the meeting to a close.

APPENDICES

The appendices include the full reports presented at the Council meeting. The appendices are included in the order in which the reports were presented at the Council meeting (see agenda of the Council meeting).

APPENDIX A	President's report
APPENDIX B	Official Document on the Registration of IEA
APPENDIX C	Report by the Secretary General
APPENDIX D	Report on STP
APPENDIX E	Report on Development
APPENDIX F	Report on EQUID
APPENDIX G	Report by the Treasurer and report by the auditors
APPENDIX H	Report on Awards
APPENDIX I	Report on IDC
APPENDIX J	Report on PSE
APPENDIX K	Report on the IEA'2015 Congress

APPENDIX A - President’s report

International Ergonomics Association

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Past President - Awards
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5th June 2009

IEA PRESIDENT'S REPORT 2009

It is my pleasure to provide the final report of the 16th IEA Executive to the Council meeting in Beijing, China.

During the last 12 months, the IEA has continued to be extremely active in a range of areas based on our Strategy Plan.

At our last Council meeting in Reykjavik, Iceland in 2008 we welcomed five new Federated Societies into the IEA family. These were from Ecuador, Indonesia, Latvia and Tunisia together with Nigeria as an Affiliated member.

At the SEAES (South East Asian Ergonomics Society) Conference in Thailand we welcomed the formation of the new Network to be known as the South East Asian Network of Ergonomic Societies (SEANES). This is an important transition in the development of ergonomics in the South East Asian region. We are now seeing the emergence of individual ergonomics societies and the opportunity of a network for joint activities. We wish them well as they plan for their first conference in the Philippines in 2010.

During 2009 we have now received applications from Singapore and Thailand to join the IEA as Federated Societies. This will bring to 49 Societies that are now members of the IEA family which demonstrates a significant growth in recent years, particularly from developing countries.

This activity and growth around the world provides opportunities and challenges for the next phase of development of the IEA.

The opportunities arise from greater collaboration and support between Ergonomics Societies in sharing research, education, and application findings to further the development of ergonomics at an international level. This is occurring through a wider diversity of journals publishing ergonomics materials and the greater diversification and growth within our Technical Committees.

International Ergonomics Association

Under the leadership of the STP Chair, Halimahtun Khalid, we have seen ongoing interest in developing new Technical Committees. This brings together Ergonomists from around the world to share in their specialist areas of interest. During the last 3 years, we have seen the emergence of 8 new Technical Committees as we have also seen 2 dissolve. This is a process of ongoing maturity within the profession as we seek opportunities to apply ergonomics research and to develop new methodologies to advance the domain.

One of the challenges associated with this growth is the potential reduction in a clear understanding of the ergonomics domain by the community who seek simple concrete definitions as to what the study of ergonomics is all about. This presents one of the challenges for example, in the area of Government Legislation and employment of Ergonomists. The network of Ergonomists employed by Governments across the European Union has resulted in joint activities to develop and refine ergonomics tools and resources suitable for the understanding of the Legislators and workplace participants.

One of the ongoing challenges for the IEA is to avoid losing sight of the core components of the ergonomics domain to clearly maintain our identity.

Another challenge relates to all members of the IEA to engage with, and participate in, international activities. As newer countries joining are from developing regions of the world with limited resources, the practicality of attending international conferences and Council meetings are limited. One opportunity in 2009 was to support a delegate from each developing country to attend the Beijing Congress and the Council meeting. This was part of the Triennial financial outreach from the IEA funds. Even with a contribution from the IEA, there are still members who are unable to attend due to the additional expenses that would be involved. One opportunity that the Council needs to consider is greater utilization of technology to enable online participation for members unable to attend the meeting who may wish to contribute to particular discussion items. This style of participation will have implications for the IEA Rules particularly in relation to voting entitlements. This needs to be discussed by the Council members.

It is noted that a voting item has been introduced by the HFES at this Council meeting in relation to the pre-qualification of candidates standing for IEA President. Contained within the motion is information relating to the expected tenure of the candidate prior to, during, and after, holding IEA office. Historically, the cycle of each Executive of the IEA has been 3 years. One suggestion that has been made relates to reducing this cycle to 2-2.5 years to reduce the commitment required in the voluntary leadership roles.

The next Congress, IEA 2012 will be in February 2012 in Recife, Brazil. This will mean that the 17th Executive will have a 2.5 year tenure. This raises the possibility that the subsequent EC may also go for a 2-2.5 year tenure depending on the Council decision. I would propose that the Council during the next Executive should debate options relating to the duration of the Executive with an open mind to ensure that this growing organization maintains its vitality and attracts a strong diversity of candidates from around the world into the

leadership roles.

International Ergonomics Association

The registration of the IEA in Zurich, Switzerland during 2009 has been the culmination of significant work by many partners and a particular thanks to Marino Menozzi in Switzerland, and to our Secretary General, Pascale Carayon. This resolves an important legal and identity problem that we have had for some decades.

The recognition of the IEA as the representative body at an international level on ergonomics, has continued to grow in 2009. The renewal of the NGO status of the IEA by the World Health Organization has required significant work. This has subsequently resulted in numerous invitations to the IEA for participation on WHO committees and working parties. This has opened an opportunity for our Technical Committees to link with the WHO in partnership to influence and impact ergonomics research into the WHO programs.

The close friendship between the IEA and the International Labor Organization (ILO) has continued with their joint work in developing the second edition of the Ergonomics Checkpoints and the first edition of the Ergonomics Checkpoints in Agriculture to be launched at the IEA Congress in Beijing. The ILO has also welcomed the IEA as a strategic partner in the implementation of the Seoul Declaration signed by 50 international stakeholders, including the IEA in 2008.

The renewed closeness between the IEA and the International Organization for Standardization (ISO) is reflected with the participation of the ISO 159 Standing Committee meeting at the Congress in Beijing.

The willingness of the ISO to share their Standards relating to ergonomics on the IEA website and to work with the EQUID committee reflects their commitment to embrace the ergonomics contribution into their programs.

The relationship with the International Committee of Societies for Industrial Design (ICSID) has also been developing particularly through the mutual interest in product design specification and the EQUID project. Opportunities remain for further partnerships to be developed between the IEA and related international bodies to advance the ergonomics integration through other organization's activities.

The invitation from the International Commission on Occupational Health (ICOH) to attend the opening ceremony of the ICOH Congress in Cape Town, South Africa in 2009 was a further gesture of mutual support under the MoU between IEA, ICOH and IOHA. Further projects underlying this support have included the invitation for IEA participation in the PREMUS (Prevention of Musculoskeletal Disorders) conference in Angers, France in 2010. It is also reflected in the joint participation between IEA, ICOH, and IOHA in developing a toolkit of resources for developing countries on musculoskeletal disorders in conjunction with the WHO.

This Executive has particularly focused on a theme of partnerships in developing and integrating ergonomics beyond the IEA to encourage further development and integration of ergonomics at global level.

International Ergonomics Association

Another theme of this Executive has been the area of inclusiveness. This has encouraged the estimated 25,000 members of the societies to feel personally involved in the IEA and welcomed to make a contribution in ways that they would like. The continuation of the IEA Monthly Newsletter has provided many examples of feedback from Federated Societies seeking further participation at an international level. A recent example of this was the request for interest in an international accreditation program for ergonomics education. This has identified societies from around the world who currently do not have access to such a program but would look forward to working with the IEA in an inclusive project.

During 2009, an external request arose in relation to the formation of "Ergonomists without Borders". This arose through the Ergoweb organization and has resulted in significant interest from students, practitioners and researchers from all sections of the world. The IEA has offered to host this program to enable a platform from which support and outreach activities can be provided. The leadership provided by Hal Hendricks is acknowledged in supporting this initiative and mentoring the students who are developing a plan for the future.

Opportunities for individuals to contribute to ergonomics at an international level through this program, or others, appears to be a large area of growing interest that the IEA could further develop and support. Of particular note is the enthusiasm of students towards these outreach programs and a desire to link in with each other and meaningful programs across the world.

The major activity during the last year has been the tremendous work undertaken in the development of the IEA 2009 Congress here in Beijing, China. As President of the IEA, I am grateful to the wonderful leadership and work provided by Prof. Sheng Wang and his committee from the Chinese Ergonomics Society, supported by our colleagues from the societies in Taiwan and Hong Kong, China. I also acknowledge the leadership provided by Prof. Kan Zang and Dr Halimahtun Khalid in their joint chairing of the Scientific Committee which has been a huge effort over the last 12 months.

On behalf of the IEA, I would like to formally thank the Chinese Ergonomics Society for hosting this Congress which we look forward to over the coming week.

I also would like to acknowledge and thank the Brazil Ergonomics Society (ABERGO)and the members of ULAERGO (Union of Latin American Ergonomics Societies) who have come along to Beijing to promote the IEA 2012 Congress in Recife, Brazil.

I would like to acknowledge the candidates who have put in such a tremendous amount of work seeking to host the IEA 2015 Congress which will be voted upon at this Council meeting.

I would also like to congratulate the winners of the IEA Annual and Triennial Awards that will be presented during the Congress dinner. These individuals are all wonderful ambassadors for ergonomics and we are very grateful for the contribution that they have made for ergonomics at an international level.

International Ergonomics Association

Finally, I would like to thank our Executive Committee for their tremendous support, energy, and commitment to the IEA over the last 3 years. The elected officers, Pascale Carayon, Secretary General, and Min Chung, Treasurer, have been a wonderful team to work with and I thank them for their unfailing energy and tolerance of me over the last 3 years.

I also thank:-

- Halimahtun Khalid, Science Technology & Practice;
- Jan Dul, Development
- Tom Smith, Professional Standards & Education
- Ralph Bruder, EQUID
- Marcelo Soares, Industrially Developing Countries
- Past President, Pierre Falzon, IEA Awards and mentorship to me.

I also acknowledge the work to this Executive by Peter Buckle and Lina Bonapace who were Executive Members for STP and EQUID respectively during our time.

I wish the next elected Executive Committee every success and enjoyment and thank the Council for their confidence and support over the last 3 years.

Thank you,

David C Caple

Prof. David C Caple
President – International Ergonomics Association

APPENDIX B - Official Document on the Registration of IEA

HANDELSREGISTER DES KANTONS ZÜRICH

Firmennummer	Rechtsnatur	Eintragung	Löschung	Übertrag von: / auf:	1
CH-020.6.001.285-4	Verein	15.05.2009			

Alle Eintragungen

Ei	Lö	Name	Ref	Sitz
1		**International Ergonomics Association**	1	Zürich

Ei	Lö	Mittel, Haftung, Nachschusspflicht und weitere Pflichten der Mitglieder
1		Mittel: Jahresbeiträge, Teilnahmebeiträge für Konferenzen, Spenden, Erbschaften und sonstige Einnahmen
1		Organisation: Rat, Vorstand von 3 Mitgliedern, Leitungsgremium, IEA-Ausschüsse, Auditoren

Ei	Lö	Adresse
1		c/o Matthias Emmenegger Schindlerstrasse 4 8006 Zürich

Ei	Lö	Zweck
1		Der Zweck der IEA ist die Weiterentwicklung und Förderung von Wissenschaft und Praxis der Ergonomie sowie die Ausweitung des Anwendungsbereichs. Weiterhin soll ein höherer gesellschaftlicher Beitrag zur Verbesserung der Lebensqualität geleistet werden. Die enge Zusammenarbeit mit ihren angeschlossenen Gesellschaften und ähnlichen internationalen Organisationen spielt hierbei eine zentrale Rolle. Die wichtigsten Ziele der IEA sind: eine effektivere Kommunikation und Zusammenarbeit mit Verbündeten Gesellschaften zu entwickeln; die Wissenschaft und Praxis der Ergonomie auf internationalem Level zu fördern; den Beitrag der Fachdisziplin Ergonomie für die globale Gesellschaft zu verbessern.

Ei	Lö	Postadresse

Ei	Lö	Bemerkungen, Angaben betreffend Übernahme von Aktiven und Passiven	Ref	Statutendatum
			1	09.08.2008

Ei	Lö	Zweigniederlassung (en)	Ei	Lö	Zweigniederlassung (en)

Zei	Ref	TR-Nr	TR-Datum	SHAB	SHAB-Dat.	Seite / Id	Zei	Ref	TR-Nr	TR-Datum	SHAB	SHAB-Dat.	Seite / Id
ZH	1	17848	15.05.2009	97	22.05.2009	27 / 5029908							

Ei	Ae	Lö	Personalangaben	Funktion	Zeichnungsart
1			Caple, David C., australischer Staatsangehöriger, in Ivanhoe East (AU)	Präsident des Vorstandes	Einzelunterschrift
1			Carayon, Pascale, amerikanische Staatsangehörige, in Madison (WI/US)	Mitglied und Sekretärin des Vorstandes	ohne Zeichnungsberechtigung
1			Chung, Min K., Staatsangehöriger der Republik Korea, in Pohang (KR)	Mitglied des Vorstandes + Quästor	Einzelunterschrift

Zürich, 22.05.2009 07:34

HANDELSREGISTERAMT KANTON ZÜRICH

Beglaubigter Auszug

Der Registerführer i.V.

Dieser Auszug aus dem kantonalen Handelsregister hat ohne die nebenstehende Originalbeglaubigung keine Gültigkeit. Er enthält alle gegenwärtig für diese Firma aktuellen Eintragungen sowie allfällig gestrichene Eintragungen. Auf besonderes Verlangen kann auch ein Auszug erstellt werden, der lediglich alle gegenwärtig aktuellen Eintragungen enthält.

APPENDIX C - Report by the Secretary General

Report of the Secretary-General
Pascale Carayon

INTRODUCTION

The IEA Secretary General (SG) provides day-to-day administration of the IEA, including communication and documentation responsibilities.

According to the IEA rules, the SG has the following tasks:

> *The Secretary General has the duty to provide day to day administration of the Association. The tasks include :*
>
> *- Keeping close connection to the President to receive advice and to formulate the policy of the Association in routine questions.*
> *- Looking after the correspondence and requests and routing of the correspondence to the appropriate officers for response or action.*
> *- Preparation of the Council meetings. The fixed time periods are as follows:*
> *a / Information of the time and place of the Council meeting shall be sent at the latest three months prior to the meeting. This information should contain among others the updated list of the members of the Council.*
> *b/ Proposed agenda and eventual documentation shall be sent to the Council members at the latest six weeks prior to the meeting.*
> *c/ Information on the agenda should be sent in due time also to the Secretaries of the Federated Societies as well as societies having other types of liaison to the IEA than federation.*
> *- Preparation of the General Assembly Meeting to be held in conjunction with the Triennial Congress. Preparation is in collaboration with the chairperson of the Congress.*

During 2006-2009, the SG was assisted in its duties by Emmanuel Dimiccioli (until December 2007), Ronelle Smith (January-April'2008) and Jon Ross (after April'2008). The assistant to the SG is also the webmaster of the IEA website.

REPORT OF ACCOMPLISHMENTS AND FUTURE ACTIVITIES

Objectives of the SG	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012)
Communication with Federated Societies *IEA Strategic Plan* *Goal A. To develop more effective communication and collaboration with federated societies.* *Objective A1. Support the work of member societies.* *Objective A2. Improve IEA operational effectiveness.*	1. Maintaining and updating the list of IEA council members 2. Maintaining and updating information on the Federated Societies on the IEA website 3. Email the monthly newsletters to IEA Council email list. The monthly newsletters are also posted on the IEA website (see below).	To be continued. Continue to collect information from societies regarding their cycle of elections; this will help in updating the IEA website and contact information for societies. The monthly newsletters are a major communication effort to keep the societies informed about IEA activities and get them

Objectives of the SG	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012)
	4. Regular contacts with Federated Societies. During the 2008-2009 year, many of the contacts with societies were about the triennial Congress. 5. Visits to Federated Societies. I keep track of the visits to Federated Societies made by various members of the EC (see below). 6. I issue various IEA official documents, such as certificates of appreciation.	engaged in IEA activities. It may be worth exploring an email newsletter with embedded links (including links to the IEA website), instead of a newsletter as a separate file attachment.
IEA Website *IEA Strategic Plan* *Goal A. To develop more effective communication and collaboration with federated societies.* *Objective A1. Support the work of member societies.*	1. Maintaining and updating IEA website.	Continue to maintain and update the IEA website. Review the section for members-only for usage. How much is the forum section used? How much is the wiki used? Should the IEA be visible as an entity on social networking websites, such as LinkedIn, Twitter and Facebook?
Organization of Council meetings *IEA Strategic Plan* *Goal A. To develop more effective communication and collaboration with federated societies.* *Objective A1. Support the work of member societies.*	Organization of the 2009 Council meeting: - logistics of meetings of the IEA EC and the IEA Council - communication to IEA Council members - templates for reports by IEA EC; collection of reports and dissemination to IEA Council	Explore the possibility of using information technology (e.g., Skype or other Internet communication technology) to allow Council members to participate remotely.
Organization of meetings of the IEA Executive Committee *IEA Strategic Plan* *Goal A. To develop more effective communication and collaboration with federated societies.* *Objective A2. Improve IEA operational effectiveness.*	A meeting of some members of the IEA EC took place in Amsterdam, The Netherlands. Attendees: Bruder, Caple, Carayon, Dul, Falzon, Smith.	The new EC will have to define a strategy for working together (e.g., use of information technologies, face-to-face meetings).
Communication with IEA President and EC members	I communicate with the President and EC members via	The new EC will need to decide on communication mechanisms,

Objectives of the SG	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012)
IEA Strategic Plan *Goal A. To develop more effective communication and collaboration with federated societies.* *Objective A2. Improve IEA operational effectiveness.*	email on a weekly basis and via Skype on a monthly or bi-monthly basis.	including email and other electronic media, as well as the need for face-to-face meetings.
Archives *IEA Strategic Plan* *Goal A. To develop more effective communication and collaboration with federated societies.* *Objective A2. Improve IEA operational effectiveness.*	Pierre Falzon is currently updating the archives. I keep documents that need to be archived.	To be continued
New or emerging ergonomics societies *IEA Strategic Plan* *Goal A. To develop more effective communication and collaboration with federated societies.* *Objective A1. Support the work of member societies.*	1. Tracking of contacts with new or emerging societies. Different members of the EC (Caple, Carayon, Falzon, Khalid, Soares) are in contact with specific countries regarding the formation or development of ergonomics societies. 2. Proposals of the following societies to become federated with the IEA: - Ergonomics Society of Singapore - Ergonomics Society of Thailand	Support new societies that have recently joined the IEA. There has been a rapid growth in IEA membership; new IEA federated and affiliated societies may need to get support and help from established societies. Continue to monitor and support new ergonomics societies for potential IEA membership.
Responding to various requests to the SG *IEA Strategic Plan* *Goal C. To enhance the contribution of the ergonomics discipline to global society.* *Objective C1. Promote recognition of ergonomics discipline.*	This is an on-going task. Apart from communication with the EC and federated societies, I receive about 10-20 requests per month. During 2008-2009, many of the requests were about the IEA Triennial Congress.	To be continued
Relationship with ISO *IEA Strategic Plan* *Goal C. To enhance the*	I am the official IEA contact for ISO.	To be continued

Objectives of the SG	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012)
contribution of the ergonomics discipline to global society.. Objective C1. Promote recognition of ergonomics discipline.		
Support to the IEA initiative on HEPS (Healthcare Ergonomics and Patient Safety) *IEA Strategic Plan* *Goal C. To enhance the contribution of the ergonomics discipline to global society.* *Objective C1. Promote recognition of ergonomics discipline.*	I am the chair of the HEPS steering committee. I manage the call for proposals to host the HEPS conference in 2011.	The new IEA President will need to work with the STP chair to decide about the future of the HEPS steering committee.
Bid for IEA'2015 Congress *IEA Strategic Plan* *Goal B. To advance the science and practice of ergonomics at an international level* *Objective B2. Facilitate knowledge exchange and collaboration.*	I managed the bidding process for the IEA'2015 Congress. In collaboration with the IEA President, I convened an evaluation committee to review the 3 bids; the evaluation committee submitted its report to the EC.	A similar process will need to be managed for the 2018 Congress.
KU Smith Award for Student *IEA Strategic Plan* *Goal C. To enhance the contribution of the ergonomics discipline to global society* *Objective C1. Promote recognition of ergonomics discipline*	I am the chair of the KU Smith Student Award committee; two awards will be given in 2009. I worked with Tom Smith and Pierre Falzon on this initiative.	The new IEA President will need to decide on the future chair of the KU Smith Student Award committee.
Registration of the IEA *IEA Strategic Plan* *Goal A. To develop more effective communication and collaboration with federated societies.* *Objective A2. Improve IEA operational effectiveness.*	In collaboration with the IEA President, I managed the process for registering the IEA in Switzerland. Marino Menozzi and the Swiss Ergonomics Society have been extremely helpful in this process. The IEA is again officially registered in the register of commerce of Zurich, Switzerland (Number cH-020.6.001.28).	One needs to monitor the need to renew the IEA registration.

Visits to Federated Societies

Country	Who?	When?	What?
Indonesia	David	August 28-30, 2006	International symposium on past, present and future ergonomics and OSH, Bali
New Zealand	David	September 17-19, 2006	NGO delegate at the WHO Pacific Rim meeting Meeting with the New Zealand Ergonomics Society
USA	EC	October 15-16, 2006	In conjunction with IEA EC meeting
Chile	Pierre	October'2006	Invited plenary – SOCHERGO conference
Brazil	Pascale, Pierre and Jan	October 29-November 2, 2006	ABERGO'2007
Turkey	Jan	November'2006	
Japan	David	January'2007	Meeting with JES and Human Ergology Society
China	David	January'2007	Meeting with IEA'2009 Congress organizers
UK	Pierre	April 17-19, 2007	Keynote address at the ES congress in Nottingham
Mexico	Pascale	April 25-28, 2007	SEMAC conference
Turkey	David	May 14, 2007	Meeting with Prof. Ozok
UK	David	May 15, 2007	Meeting with The Ergonomics Society
Switzerland	David	May 16-17, 2007	Meeting the ILO, WHO and ISO
Sweden	David, Pascale, Pierre, Halimahtun, Jan	May 20, 2007	EC meeting right before WWCS'2007 (conference from May 21 to May 24, 2007)
Sweden	David and Pascale	May 22, 2007; 5:30pm	Meeting with the Swedish Ergonomics Society (Christina Jonsson)
Denmark	David	May 24, 2007	Meeting with the Danish Ergonomics Society

Country	Who?	When?	What?
Columbia-ULAERGO	David, Pierre and Marcelo	October 16-19, 2007	ULAERGO conference in Bogota, Columbia
Singapore	Halimahtun	November 12, 2007	Meeting with Ergonomics Society of Singapore (ERGOSS) President
Malaysia	Halimahtun and David	November 25-26, 2007 November 27-29, 2007 November 29, 2007	IEA / ILO workshop on Agriculture checkpoints AEDeC Conference on Agriculture Ergonomics. Meetings of MSD and AE technical committees
India	David	December 2007	HWWE conference, Bhopal, India
Singapore	David	December 2007	Meeting with Ergonomics Society representative Meeting with ERGOSS representative
Spain	Marcelo	December 2007	2nd. Ibero-American Symposium of Ergonomics, Aviles, Spain
Taiwan	David	February 2008	IOHA 2008 Congress Keynote Meeting IEA 2009 sub committee Meeting Ergonomics Society, Taiwan
Thailand	Halimahtun	February 29, 2008 March 2, 2008	Meeting with SEAES President on SEAES as IEA network Meeting with Ergonomics Society of Thailand representative
Mexico	David	April 2008	Represent IEA at Mexican Ergonomics Society conference
France	Pascale, Pierre, Jan and David	June 2008	Represent IEA at HEPS conference Sub EC meeting EQUID meeting
Korea	David, Min	June 2008	Represent IEA at World OHS Summit IEA session at KOSHA OHS conference
Thailand	Halimahtun, David	October 2008	SEAES conference and meeting re formation of SEANES

Country	Who?	When?	What?
Japan	David	January 2009	PPCOE conference at Kitakyshu, Japan
South Africa	David	March 2009	Represent IEA at ICOH Congress. Meeting with the ergonomics Society of South Africa
Netherlands	David, Jan	March 2009	Represent IEA at Netherlands Ergonomics Society conference, Zeist, and meeting with the Dutch Ergonomics Society and and Executive of FEES.
Netherlands	Pascale, Pierre, Jan, Tom, Ralph, David	April 2009	Meeting of Sub EC in Amsterdam, Netherlands
Bahrain	David	April, 2009	Inaugeral meeting of the Ergonomics Society of Bahrain and official meeting with the Minister for Health
Dubai	David	April 2009	Meeting with representatives for forming an Ergonomics Society in the UAE
Switzerland	Ralph	May 2009	Represent the IEA at the WHO Annual Assembly meetings

Monthly Newsletters of IEA President

	When?	Content of letter
1	August'2006	Announcement of elected officers and EC Short update on Council'2006 meeting Overview of IEA communication strategy Preliminary announcement regarding the Council'2007 meeting
2	September'2006	Announcement regarding the location + time of the next Council'2007 meeting Announcement of the debate on the future of ergonomics Announcement of IEA website updates by Andy and Pascale Announcement of planning of new EC Copy of the IEA strategy plan
3	October'2006	Result of the vote for Council'2007 Presentation of TC on Gender and Work Brief introduction of communication strategy and planning for IEA executive committee
4	October 24, 2006	IEA'2006 Congress Update on IEA'2009 Congress TC on Slips, trips and falls
5	Late November'2006	Key outcomes of IEA EC meeting in SF TC on Ergonomics in Design Invitation to host IEA'2008 Council meeting + copy of IEA rules
6	December'2006	Changes in EC (Mahtun-STP, Marcelo-IDC) Update on new ergonomics societies Ideas for formation of new TCs Update on ergonomics competencies and accreditation of education courses Award of Gavriel Salvendy Review of IEA dues Update on EQUID Visit to Japan and China
7	January'2007	Report on visit to Japan: Japan Ergonomics Society and Human Ergology Society Update on IEA'2009 Congress Update on EQUID Update on code of conduct (see IEA website)

	When?	Content of letter
		List of ergonomics post-graduate programs Letters from President on the IEA website Update on redesign of IEA website New honor for Waldemar Karwowski
8	February'2007	Joint project between IEA and Foundation for Professional Ergonomics Announcement of International Conference on Slips, Trips and Falls 2007: From Research to Practice Announcement of a new IEA Diamond Level Sustaining member: Elsevier Publishers Reminder: Nominations to host the IEA Council meeting – 2008 Science, Technology and Practice Update: info. updated on TCs on the IEA website International Development Committee Actions 2006-2009 Visit to ISO in May
9	March'2007	Certification requirements for Ergonomics Practitioners IEA dues – proposal for new calculation Update on IEA website Update on IEA Council in Boston Articles from Elsevier
10	April'2007	Tragic event at VA Tech Launch of IEA website Update on IEA technical committees Endorsement of HF IEA Congress in 2006 – financial contribution Update from IDC Ergonomics in agriculture
11	May'2007	New technical committees; potential committee on forensics Honor of Waldemar Karwowski Certification of ergonomists in Japan Visits to federated societies Meeting with ISO, ILO, WHO Financial support for specific IEA projects Update on IEA Council meeting in Boston
12	June'2007	Passing of Brian Shackel

	When?	Content of letter
		Nomination of Tom Smith as chair of PSE Update on EQUID Update on IEA Council meeting in Boston ILO support of IEA workshop on Ergonomics Checkpoints in Agriculture IEA Conference on Ergonomics in Agriculture ICOH sponsorship IEA endorsement of journal on "Occupational Ergonomics" IEA sponsored conference on HEPS
13	July'2007	Passing of Cheryl Bennett and Ted Brown HEPS conference in 2008 IEA conference on ergonomics in agriculture New chairs of technical committees Honor of Gavriel Salvendy
14	August'2007	IEA Council meeting in Boston, USA Announcement of location for IEA Council meeting in 2008: Reykjavik, Iceland Partnerships with various organizations HEPS conference in 2008 Special edition of WORK journal New system for IEA dues
15	September'2007	Minutes of the IEA Council meeting in Boston, USA Announcement of location for IEA Council meeting in 2008: Reykjavik, Iceland HEPS conference in 2008 Definition of 'certified ergonomist' AEDEC conference in 2007 2nd symposium on Activity 2008
16	October'2007	Confirmation of minutes of 2007 Council meeting Announcement of location for IEA Council meeting in 2008: Reykjavik, Iceland HEPS conference in 2008 AEDEC conference in 2007 2nd symposium on Activity 2008 Ergonomics with indigenous communities ULAERGO conference in 2007

	When?	Content of letter
		IEA'2012 congress: February 12-16, 2012; Recife, Brazil Tracking new ergonomics societies
17	November'2007	Update to IEA website New IEA technical committees Workshop on ergonomic checkpoints in agriculture AEDEC 2007 conference Workshop on mining in Bostwana Definition of 'certified ergonomist' Call for nominations for 2015 Congress 2nd symposium on Activity 2008
18	December'2007	Conference of the Indian Society of Ergonomics IEA endorsement of the New Zealand Certification program Twinning opportunities New IEA sustaining members World OSH summit in 2008 IEA endorsement of journals IEA endorsement of CybErg'08 conference
19	January'2008	Joint meeting IEA/ILO/ICOH/WHO/NIOSH Hosting of the IEA Council meeting by NES in 2008 HEPS conference in 2008 IEA dues for 2008; new system being implemented Special issue of Ergonomics on "Future of Ergonomics Revisited"
20	February'2008	Liberty Mutual Prize 2008 Nomination for IEA fellows Update on EQUID IOHA congress in 2008 Discussion groups on the IEA website Newsletter editors from federated societies Hosting of the IEA Council meeting by NES in 2008 HEPS conference in 2008
21	March'2008	New technical committees Update on IEA'2009 Congress

	When?	Content of letter
		Update on EQUID CybErg'2008 conference Announcement of KU Smith student award for 2009 IEA awards HEPS conference in 2008
22	April'2008	Update on IEA'2009 Congress Comment on EQUID document Relationship with ICSID Invitation to the World OHS summit 60th anniversary of the Ergonomics Society Visit to SEMAC conference in Mexico IEA awards Discussion groups and wiki on IEA website
23	May'2008	IEA'2009 congress: website, theme, call for proposals, publication of keynote addresses, external participation, involvement of researchers and practitioners, involvement of students and 'retired' ergonomists
24	June'2008	Announcement of new IEA EC member: Ralph Bruder New IEA TCs Announcement of the KU Smith Student Award Signature of a triple memorandum of understanding between the IEA, ICOH and IOHA IEA'2009 congress
25	July'2008	New IEA TC on Human Factors and Sustainable Development Final preparation for the IEA Council meeting in Iceland IEA'2009 congress Update on EQUID
26	August'2008	Success of IEA council meeting in Iceland New members of the IEA as federated societies: Ecuador - Asociacion Ecuatoriana De Ergonomia; Indonesia - Perhimpunan Ergonomi Indonesia; Latvia - Latvijas Ergonomikas Biedriba; and Tunisia - Société Tunisienne d'Ergonomie New member of the IEA as affiliated society: Ergonomics Society of Nigeria IEA'2009 congress
27	September'2008	Announcement of the Global Ergonomics Month for October'2008

	When?	Content of letter
		IEA'2009 Congress Nominations for IEA'2015 Triennial Congress Announcement of the KU Smith Student Award Announcement of various conferences: IOHA'2010 and Cyberg'2008 New name of The Ergonomics Society, UK: "Institute of Ergonomics and Human Factors"
28	October'2008	Announcement of the Global Ergonomics Month for October'2008 IEA'2009 Congress Formation of new regional network of Ergonomics Societies formed in South East Asia
29	November'2008	IEA'2009 Congress New Internet group for IEA Members on LinkedIn
30	December'2008	IEA'2009 Congress 60th anniversary of The Ergonomics Society, UK Reminder of deadline for submitting bids for IEA'2015 Triennial Congress Development of partnership between the IEA and ISO for EQUID
31	January'2009	IEA'2009 Congress Nominations for the 17th IEA executive committee
32	February'2009	IEA'2009 Congress Nominations for the 17th IEA executive committee Development of an "Ergonomics without Borders" program
33	March'2009	IEA'2009 Congress New definitions for an 'ergonomist' and 'IEA-recognized certified ergonomist' Update on EQUID Update on ICOH meeting attended by David Caple Visits of David Caple at the Dutch Ergonomics Society Conference, at the Bahrain Ergonomics Society meeting and at the Arabian Ergonomics Society meeting Meeting with Pieter Rookmaaker, president of FEES Meeting of the IEA sub-EC in Amsterdam, The Netherlands
34	April'2009	IEA'2009 Congress Update on "Ergonomics Without Borders" Announcement of IEA Council meeting in Beijing, China Last call for IEA triennial awards
35	May'2009	IEA'2009 Congress

	When?	Content of letter
		Nominations for the 17th IEA executive committee Proposed voting items by the HFES regarding rules for eligibility and election of IEA President Formation of a new TC on visual ergonomics Announcement of CybErg 2011 and First ErgoDesign Forum in June'2009 Registration of the IEA in Switzerland

APPENDIX D - Report on STP

Report of Science Technology & Practice (STP) Standing Committee (SC)

INTRODUCTION

Goal and Objectives

The goal of the Science Technology and Practice (STP) Committee is to promote and coordinate the exchange of scientific and technical information at the international level. This is accomplished through three main objectives:

1. To create and manage Technical Committees which address specific areas of technical interest in human factors and ergonomics;
2. To assist in developing the program for the IEA Congress, in cooperation with the Technical Committees;
3. To facilitate the endorsement of IEA scientific events and journals.

Structure

The STP work is operationalized in cooperation with two Committees (a) Technical Committees (TCs); and (b) IEA Congress Program Committee (CC). The structure of the STP (2006-2009) is shown in Figure 1.

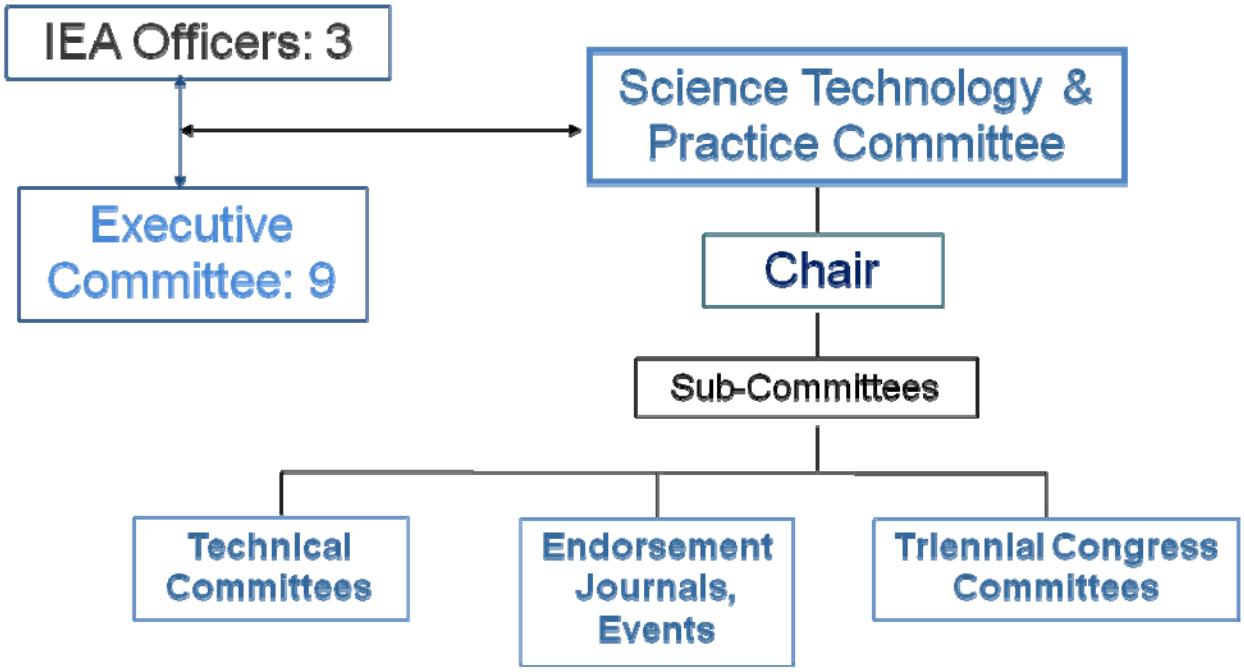

Figure 1. Structure of Science Technology & Practice Standing Committee, 2006-2009

There are **26** TCs, see http://www.iea.cc/browse.php?contID=technical_committees_home

Functions
The STP functions by developing various guidelines and templates to enhance communication and implementation, as summarized below.

Objective 1: Creation and Management of Technical Committee
1.1 Formation
- Proposal template for formation of TC
- FAQ sheet on TC formation

1.2 Management
- Template for posting TC blueprint on IEA Website
- Template for annual report

Objective 2: Facilitation of IEA Congress
2.1 Congress Organizer
- Checklist for Congress Organizer
- Abstract review form
- Guidelines for preparation of manuscript

2.2 Technical Program
- TC planning form
- Templates for proposed technical sessions: symposium, panel, 99 seconds, demonstration
- Wiki site for TC exchange

Objective 3: IEA Endorsement of Events and Journals
3.1 Conferences
- Guidelines
- Application form *

3.2 Journals
- Guidelines
- Application form

With the exception of the Conference application form (*), all the material above have been newly created for use in 2006-2009.

The STP Chair liaises directly with the TC Chairs and IEA Executive Committee (EC) through *email* and *skype*. Communication with the TC Chairs is usually copied to the IEA Officers.

REPORT OF ACCOMPLISHMENTS AND FUTURE ACTIVITIES

Objectives of the SC	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012)
1. To create Technical Committees which address specific areas of technical interest in human factors and ergonomics *IEA Strategic Plan* Goal B. To advance the science and practice of ergonomics at an international level **Objective B1 – To advance the science and practice of ergonomics at an international level**	**Formation of NEW TCs:** Two (2) TCs were formed around the last Council meeting in Reykjavik: • **Human Factors in Sustainable Development** (Chair: Klaus Zink, Germany), endorsed 15 July 2008. Proposal initiated in May 2008. • **Mining** (Chair: Schu Schutte, South Africa), endorsed 24 July 2008. Proposal initiated in March 2008. A new TC was formed in 2009: • **Visual Ergonomics** (Chair: Magne Helland, Norway), endorsed 30 April 2009. Proposal initiated in October 2008. **Renaming of TC:** Two TCs were renamed: • Primary Industries to **Agriculture Ergonomics** (Chair: Fadi Fathallah, USA); • HAMAHA to **Ergonomics in Manufacturing** (Chair: Hwang Sheue-Ling, Taiwan) **International Cooperation:** Various TCs have been successful in developing partnerships with significant international organizations/societies in organizing events: • The **MSD TC** will continue to cooperate with PREMUS organizers. • The **ATWAD TC** is cooperating with the International Society for Cultural & Activity Research (ISCAR). • The **Ergonomics in Product Design TC** will represent the IEA at ICSID World Design Congress in Singapore, 23-25 November 2009.	**Formation of new TCs – identified during the IEA 2009 Congress, and their prospective Chairs:** • **Cultural Ergonomics** (Yili Liu, USA) • **Rehabilitation Ergonomics** (Kurt Landau, Austria) • **Footwear & Sports Ergonomics** (Ravindra Goonetilleke, Hong Kong) • **Crises & Emergencies** (Kan Zhang, China) • **Displays & Warnings** (Catherine Burns, Canada) • **NanoErgonomics** (Yair Lifshitz, Israel) • **Forensic Investigations** (Andrew McIntosh, Australia) **TC Synergy:** Some TCs will need to explore how they can synergize efforts and complement each other: • The ErgoProduct Design TC and Affective Design TC • WWCS TC and

	• The **Aging TC** will organize the 4th Symposium on Work Ability-Age Management, 6-9 June 2010 with ICOH, Finnish Society for Development & Aging, Finnish Ergonomics Society. • The **Affective Design TC** supports the KEER2010 conference organized by the Japan Society of Kansei Engineering, supported by the Design & Emotion Society, Taiwan Kansei Ergonomics to be held in Paris, 2 March 2010. • The **Aerospace TC** will organize HCI-Aero in Cape Canaveral, USA, 3-5 November 2010 in collaboration with NASA. **CHI** program committee has also contacted the IEA about the use of the IEA mailing list. **IEA Federated Societies:** Transport TC will organize "Human Factors towards in resilience in transport system," with APERGO, Lisbon, 2010.	Online Communities TC. • MSD and ODAM TCs. • Agriculture and Mining TCs. **International Cooperation:** Relations may be established with: • The ECEE TC could explore cooperation with UNICEF. • WWCS with CHI.
Sub-objectives: 1.1. To monitor the progress of TCs, including appointment of Chairs. *IEA Strategic Plan* Goal A. To develop more effective communication and collaboration with Technical Committees. **Objective A2 – To improve STP-TC operational effectiveness**	Technical Committees provided their Annual Report using the Report template, see Appendix A. These reports are posted on the TC page of the IEA website.	The next TC annual report is due in the first/second quarter of 2010. Periodic revisions of TC template on the IEA website by TC Chairs and webmaster will be required.

1.2. To provide information in the creation of TCs and to support their formation. *IEA Strategic Plan* Goal A. To develop more effective communication and collaboration with Technical Committees. **Objective A2 – To improve STP-TC operational effectiveness**	A discussion space has been created on the IEA website to enable TC Chairs and members discuss issues related to their respective TCs, http://www.iea.cc/browse.php?contID=member_login A revised template for TC planning of events/meeting at the IEA 2009 Congress was created, see Appendix B. A wiki site was created for TCs to upload their proposals after December 2008, and to exchange communication with other TC/Track Chairs. See http://iea2009.wik.is/index.php?title=Special:Userlogin&returntotitle=Upload	Revisit the discussion space to motivate its use by TCs for communication with members, other TCs and for forward planning of the next Congress.
1.3. To promote TC Plan of activities. *IEA Strategic Plan* Goal A. To develop more effective communication and collaboration with Technical Committees. **Objective A1 – To support the work of technical committees**	Each TC creates a Website template (i.e. TC Charter) that is posted on the TC page. The Charter describes the goals and implementation plans of the TCs. The following TCs have updated their Charter due to new appointment of Chair: • Agriculture TC – Fadi Fathallah, USA • Manufacturing TC – Hwang Sheue Ling, Taiwan The following TCs have posted their Charters: • Human Factors and Sustainable Development TC • Mining TC • Visual Ergonomics TC • Transport TC TC news and events are announced in the monthly IEA President's newsletter. At the IEA 2009 Congress, the IEA Forum will promote all TCs in an outreach session during morning/afternoon breaks.	Provide input to the IEA Officers on TC activities for announcements in the newsletter or website.

2. To assist in developing the program for the IEA Congress, in cooperation with the Technical Committees.
 	
IEA Strategic Plan
 	
Goal B. To advance the science and practice of ergonomics at an international level.
	The IEA 2009 Congress website was updated in January 2009, www.iea2009.org. The updates focused on members of the International/ Program Committees and Keynote Speakers.
	
	Various templates were created for generating proposals for the scientific program, as given in Appendix C.
	
	There are **42 Technical Tracks** at the Congress:
	• 5 are organized by IEA Standing Committees:
	  o IEA Forum (President, STP);
	  o Meet-the-Editors (STP);
	  o Future of Ergonomics (DC);
	  o Ergonomics in Design (EQUID);
	  o Certification of Education (PSE);
	• 26 Tracks are organized by the IEA TCs;
	  o See Appendix D.
	• 11 Tracks are organized by members of the International Scientific Committee.
	  o See Appendix D.
	• WEAR database to be launched by the Anthropometry TC.
	
	A form for abstract review and a template for manuscript preparation were created, see Appendix E.
	
	The final keynote speakers and their topics are listed in Appendix F.
	
	During the period of September 2008 to March 2009, the STP Chair acted on behalf of the Congress Organizers to coordinate the keynote submissions and reviews, including identifying 3-4 referees for each keynote paper, and liaising with the **Journal of Applied Ergonomics** publisher and Senior Editors.
	
	The keynote addresses will be published in the Congress Proceedings, and a revised edition in the **Applied Ergonomics**, subject to the journal's review process.
		Appointment of STP Co-Chair to head and manage the IEA Congress Committee with Congress Chair as Secretary to the Committee.
		
		Early review of the Congress Organizing Plan with the Congress Chair using the checklist, and to communicate the IEA Rules on Congress Organization.

3. To facilitate	The following event was approved initially as an	Conferences foreseen in

the IEA in endorsement of scientific events and journals. *IEA Strategic Plan* Goal C. To enhance the contribution of the ergonomics discipline to global society **Objective C2 – To promote applications of ergonomics in all aspects of life**	IEA sponsored conference, but later changed its status to endorsed event: • Ergonomics in and for Europe Quality of Life: Social, Economic & Ergonomic Challenges for Ageing People organized by FEES 10 October, 2010, Bruges, Belgium. Two events were endorsed as IEA events: • KEER 2010 organized by Arts et Metiers, JSKE, TIK, 2-3 March 2010, Paris. • Work Ability 2010 organized by Finnish Ergonomics Society, Finnish Society for Development and Ageing, Tampere University, ICOH. Other conferences organized in 2009 by IEA **federated societies** or **TCs** include: Ergo Design Forum 8-10 June 2009, Lyon, France NES 2009 Globalized Ergonomics 22-24 June 2009, Elsinore, Denmark CREATE 2009: Creative Inventions and Innovations for Everyday HCI 1-2 July 2009, London, UK 19th International Symposium on Shiftwork and Working Time 2 - 6 August 2009, San Servolo Island, Venezia, Italy IEA'2009 Triennial Congress 9 - 14 August 2009, Beijing, China	2009-2010: **IEA Endorsed Conferences:** • KEER 2010, 2-3 March 2010, Paris, France. • FEES, 10 October 2010, Bruges, Belgium. • Work Ability 2010, 6-9 June, 2010, Tampere, Finland. **Others by IEA Federated Societies, TCs:** XLth Annual Conference of the Association of Canadian Ergonomists 14-17 September 2009, Quebec City, Canada First International Conference on Driver Distraction and Inattention 28-29 September 2009, Gothenburg, Sweden USE 2009: Understanding Small Enterprises 20 - 23 October 2009, Denmark 9th Annual Work Congress 9-11 November 2009, Toronto, Canada 2009 IEEE International Conference on Industrial Engineering and Engineering Management 8-11 December 2009, Hong Kong HWWE 2009 17-19 December 2009, Kolkata, India

		Ergonomics Society Annual Conference 2010 13-15 April 2010, Staffordshire, UK AHFE International 2010 (4 conferences inclusive) 17-20 July 2010, Miami, Florida, USA. APCHI & ErgoFuture 3-5 August 2010, Bali, Indonesia SEANES 2010 14-17 December 2010, Cebu City, Philippines.
IEA Strategic Plan Goal B. To advance the science and practice of ergonomics at an international level. **Objective B2 – To facilitate knowledge exchange and collaboration**	There are no journals for endorsement in 2009. To date, IEA has endorsed **14 journals.** A Congress Proceedings will be produced by the Chinese Ergonomics Society in conjunction with IEA 2009. Two checkpoints will be launched at IEA 2009: Revised **Ergonomics Checkpoints** (Second Edition), and **Agriculture Checkpoints**, a joint publication by IEA and ILO.	To explore and invite existing journals for endorsement: o **Cognition, Technology & Work** (Springer: Erik Hollnagel) o **Universal Access in the Information Society** (Springer: Constantine Stephanidis) To identify other TC areas that may be made into IEA-WHO checkpoints (e.g. Aged Healthcare)

FUTURE DIRECTIONS

Over the past 3 years, there have been several issues and developments that require further deliberation and action by the next STP Committee, specifically, and the IEA leadership in general:

1. **Re-structuring STP Committee**
   The workload has increased which necessitates the appointment of a Co-Chair, who will oversee the IEA Congress and IEA endorsed events in particular.

2. **Formation of Technical Committees**
   New TCs seem to be more application and practice-oriented relative to research-focused. This trend suggests that intra- and inter-sharing between TCs should be enhanced, as envisaged by the richness and diversity of scientific tracks at this IEA 2009 Congress.

3. **Creation of TC Fund**
   The creation of a special fund, to be managed by the Treasurer of the IEA, is required to support TC activities. TCs do not charge membership fees and could raise funds through their events such as conferences, workshops and publications. The funds may serve as seed money to help new TCs kick-start activities.

4. **IEA Endorsement of TC Events**
   Events organized by IEA Federated Societies are endorsed automatically, but this has not been the case for TC events. It is important to recognize TC events as they characterize the scientific expertise of IEA.

5. **Implementation of IEA Congress**
   Congress organizers are expected to read the IEA Basic Rules (section on Congress Organization) and implement the suggestions, guided by the STP Co-Chair and IEA Executive.

6. **Partnership and Cooperation between TCs and other Stakeholders**
   While several TCs have taken the lead to cooperate with IEA TCs, there is a need to sustain the collaboration at a more strategic and international level, to create an impact in policy decisions and multi-lateral development in science, technology and practice.

Prepared by:

Halimahtun M. Khalid, PhD, CPE
Chair, Science, Technology & Practice
Standing Committee, 2006-2009

List of Appendices:
Appendix A – Technical Committee Triennial Reports, 2006-2009
Appendix B – Template for TC Planning/Meeting at IEA 2009
Appendix C – Templates for Proposals: Symposium, Panel, 99 Seconds, Demonstration
Appendix D – IEA Congress Technical Tracks
Appendix E – Abstract Review Form and Manuscript Preparation Guidelines
Appendix F – Keynote Speakers IEA 2009

APPENDIX E - Report on Development

Report of Standing Committee (SC) Development Jan Dul

This committee develops and manages activities related to the development of IEA member societies and of the ergonomics discipline at large. The two main activities are the "IEA Best Practices Initiative" (Development of member societies) in which member societies can learn from each other's experiences, and the "Future of Ergonomics" (Development of the Discipline) to stimulate world wide discussions about the future of the discipline.

Objectives of the SC	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012
Best Practices project		
Deliverable 1. New webpage of the DC with results of IEA Best Practices project IEA goal A1	This deliverable is realized. The results of the Best Practices project are posted on the website of the IEA and is accessible for member societies. It contains a large number of ideas for ergonomics societies about: • Membership recruitment • Interaction with members • Assistance to young ergonomists • Certification of ergonomists • Continuous education • Strengthening external relationships with national government, business world, non-ergonomics societies • Improvement of public visibility and recognition The main tentative conclusion is that each single member society has specific experience that can be useful or other member societies to run the society more effective and efficient.	Maintenance of the webpage.
Deliverable 2a. Protected discussion forums on internet for leaders of IEA societies IEA goal A1/A2	This deliverable is realized. A discussion forum has been created on the IEA website for discussion and adding new ideas.	Stimulate further contributions from member societies, e.g. by a "webmaster"
Deliverable 2b. Summaries of main discussion results on the open IEA website IEA goal A1/A2	Due to limited contributions to the discussions no final conclusions could yet be formulated.	After sufficient contributions this deliverable can be realized and consequences for IEA policies can be formulated
Future of Ergonomics project		
Deliverable 3a:	Several local Future of Ergonomics	Further initiate and

Establishment of a taskforce of a small number of people (4?) from different world regions that have overview of ergonomics, have access to external networks, and are able and willing to organize local meetings between ergonomists and external stakeholders. IEA goal C1	discussion meetings have been organized by 7 member societies. Japan (JES) Nordic countries (NES Indonesia (Manuaba) Germany (GfA) USA (HFES) Australia (Victoria Branch of HFES) Netherlands (REN, certified ergonomists). The main tentative conclusion is that there is no ONE future of ergonomics • Different futures of ergonomics for different topics: e.g. The profession, The professional, Research, Application, Education, Public awareness, Collaboration • Different futures of ergonomics for different regions/countries (geographically, economically) • The future of ergonomics cannot be "designed". In order to anticipate on possible changes, there is a need for continuous exploring and discussing the future	monitor local and global discussions on the future of ergonomics . Make main conclusions available on the IEA website. Formulation of consequences for IEA policy.
Deliverable 3b: Identification and classification of external stakeholders and their networks IEA goal C1		
Deliverable 3c: Debates in several parts of the world between ergonomists and external stakeholders IEA goal C1		
Deliverable 3d: "Living" discussion document on the future of ergonomics IEA goal C1	About 75 public documents and 25 society documents on the future of ergonomics were collected.	Selection of documents can be made available on the IEA website or member societies Scientific analysis of this body of literature and developments of other disciplines to develop a model with "stages of ergonomics development"
Deliverable 3e: Workshops at IEA2009 to present the results and discuss its consequences IEA goal C1	At IEA2009 4 Future of Ergonomics discussion sessions have been organized about specific topics: - "Future of ergonomics education" - "Future of Collaboration between Ergonomics, Engineering, and Business" - "Future of Public Awareness of Ergonomics" - "Lessons from the past".	Publish conclusions on the IEA website

APPENDIX F - Report on EQUID

Report of Standing Committee (SC) EQUID
Ralph Bruder

INTRODUCTION

This committee develops and manage activities related to the use of ergonomic knowledge and methods in the design process of product, work system and services. This objective is accomplished through the definition of ergonomic requirements for the design process of products, work systems and services, and the establishment of certification for ergonomics quality in design (EQUID) program.

Objectives

The objectives of the committee are :

a) to define process criteria and requirements for the ergonomic design of products, work system and services;

b) to define a system for accrediting certifying bodies that will assess the ergonomics quality in design, using the relevant criteria and requirements;

c) to design, implement and manage a system for regularly assessing and updating the process requirements for the ergonomic design of products, work system and services;

d) to design, implement and manage a system for regularly evaluating and improving the accreditation program.

Committee Policies

The Committee is responsible for ensuring wide participation in the development, implementation and maintenance of EQUID process requirement for the ergonomic design of product, work system and services, and of the EQUID accreditation program.

EQUID activities shall involve the participation of various stakeholders, including both experts, researchers, practitioners, industry representatives and consultants. Since the program is international, participation from ergonomics in different parts of the world will be sought after.

Procedures

The membership of the EQUID Committee shall include between five to seven persons, appointed by the Chair, normally to serve for a period of three years. Two subcommittees are constituted in order to realize Committee objectives: (1) Subcommittee on Ergonomics Process, and (2) Subcommittee on Accreditation Criteria and Process.

Members of the Subcommittees may preferably be recruited to give a global coverage of responsibilities. It is also critical to recruit individuals in different areas of the world. The chairs of the subcommittees are automatically members of the EQUID Committee. "

The SC EQUID is chaired by Ralph Bruder since July 2008. Beforehand it was chaired by Lina Bonapace who resigned from the position as chair of SC EQUID in May 2007.

The Standing Committee EQUID has the following members:
Tomas Berns (Sweden), Olle Bobjer (Sweden), Lina Bonapace (Italy), Pierre-Henri Dejean (France), Wolfgang Friesdorf/Sebastian Glende (Germany), Michel Nael (France)
There had been different sub-committees in the past for SC EQUID.

The main focus of the sub-Committee for the Ergonomic Process was the preparation of the EQUID document. This Sub-Committee is chaired by Michael Nael (Ergonomics & Design, France). The following members supported the preparation of the document:
Olle Bobjer (Ergonomidesign, Sweden), Hugh McLoone (Microsoft, US), Jiyoung Kwahk (Samsung, South Corea), Sebastian Glende (TU Berlin, Germany).

REPORT OF ACCOMPLISHMENTS AND FUTURE ACTIVITIES

Objectives of the SC	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012)
Development of EQUID process *IEA Strategic Plan* *Goal B To advance the science and practice of ergonomics at an international level* *Objective EQUID* *a) to define process criteria and requirements for the ergonomic design of products, work system and services;*	Version 1.11 of EQUID document was created Two inquiries with experts in product development (mainly from practice) concerning the EQUID document had been conducted	Version 1.12 (or Version 2.0) should be created, considering e.g. the feedback from ICSID (International Council of Societies of Industrial Design) Guidelines for the usage of EQUID should be formulated Case studies on the introduction of EQUID in different fields of application should be developed A handbook "EQUID" should be published by IEA
Cooperation with ISO *IEA Strategic Plan* *Goal C To enhance the contribution of the ergonomics discipline to global society.* *Objective EQUID* *c) to design, implement and manage a system for regularly assessing and updating the process requirements for the ergonomic design of products, work system and services;*	According to the recommendation of the IEA Council 2008 (Reykjavik) the communication with ISO (TC 159 "Ergonomics") had been intensified. Presentation of EQUID at the meeting of the Chairman Advisory Group (Chair of TC 159) Meeting in Geneva Consultation of Chairs of ISO TC 159 Sub-Committees, esp. TC 159 / SC 4 (chaired by Tom Stewart, UK)	Proposal of a New Work Item for ISO for an Ergonomic Standard on Management level (based on the EQUID process) Participation within a Working Group for the development of an Ergonomic Standard on the implementation of an ergonomic design process in companies

Dissemination of EQUID… *IEA Strategic Plan* *Goal C To enhance the contribution of the ergonomics discipline to global society.* *Objective EQUID* *a) to define process criteria and requirements for the ergonomic design of products, work system and services;*	Presentation of EQUID at a FEES conference May 2009 (by Lina Bonapace) Presentation of EQUID at the Ergonomics&Design Conference in Lyon June 2009 (by Michel Nael) Consultation with ICSID (International Council of Societies of Industrial Design) EQUID is used within an European project (participation of Michel Nael) EQUID is used within a German Research Project (Lead by Ralph Bruder)	Making EQUID available at the IEA website Answering the questions from users of EQUID Presenting EQUID at different conferences Starting of research projects with a focus on the usage of EQUID in companies from different fields of application and in different countries
Accreditation/Certification *IEA Strategic Plan* *Goal C To enhance the contribution of the ergonomics discipline to global society.* *Objective EQUID* *b) to define a system for accrediting certifying bodies that will assess the ergonomics quality in design, using the relevant criteria and requirements;* *d) to design, implement and manage a system for regularly evaluating and improving the accreditation program.*	According to the recommendation of the IEA Council 2008 (Reykjavik) IEA should not be involved directly into any process of accreditation or certification Several requests from companies with respect to a certification of an EQUID process and obtaining any kind of "label" from IEA had been answered (in that sense that IEA is not giving such a label) Questions referring to the Legal Property Rights have been checked with experts	SC EQUID should have contact to those organizations that are interested to use EQUID for certification SC EQUID should take care for a period of 3 years of the usage of EQUID, the changes made on the EQUID process by others and the reference of the EQUID process in publications (or in brochures of companies)

APPENDIX G - Report by the Treasurer and report by the auditors

IEA TREASURER'S REPORT

January - December, 2008

Min K. Chung, Treasurer

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1. Summary of Financial Performance

1.1. *Accounting and Banking Procedures*

As in the past, IEA carried out its financial operations in 2008 in U.S. Dollars (US$). The IEA fiscal year coincides with the calendar year, January 1 through December 31. A cash basis of accounting was employed. Revenues were noted and recorded when received, and expenses were noted and recorded when paid.

We continued to maintain and carry out our financial activities with Scotiabank in Ottawa, Canada. Three separate accounts were maintained: the Active Cash Account (ACA) into which income was deposited and from which payments were made; and two Guaranteed Investment Certificates (GICs) that are interest bearing accounts.

Because the IEA Congress is held every third year, and because there are significantly greater expenses during years of the Congress, it is customary for the annual Treasurer's report to show revenue and expenditures for the past three years. This additional information provides the basis for better understanding expenditures as well as a longer-term picture of IEA's financial status.

1.2. *Overview of 2008 Financial Performance*

a. Total Revenue - The total revenues for the 2008 fiscal year was $89,603. This revenue included all funds that were deposited into the active cash account ($83,600) plus the interest earned in the GIC accounts ($6,003). There are seven categories into which the sources of revenue can be grouped: federated & affiliated society dues, sustaining member dues, capitation fees, interest, contributions to special funds, awards, and miscellaneous. The amounts of revenue received in each of these categories are presented in Table 3.

b. Total Expenditures - The total expenditures during 2008 was $39,103. The expenditures can be grouped into eight categories: officers' expenses, standing committee expenses, office/clerical, meetings costs, awards, grants/seed, bank fees, and miscellaneous. The amounts spent in each of these categories are presented in Table 3.

c. Assets - IEA's assets at the end of 2008 totaled $204,067. The funds in each of the Scotiabank accounts are shown in Table 1 below.

Table 1. Scotiabank Accounts and Seed Fund Receivable

Active Cash Account (ACA)	$86,679
Guaranteed Investment Certificate (GIC)	117,388
Total	$204,067

d. Equity - While IEA's funds are held in the Scotiabank accounts indicated above, the money is actually earmarked for certain categories of expenditures. Two general categories are annual operations and special reserves. The annual operations include revenues from membership dues, capitation fees, interest, and other receipts. Expenditures in this category include the administrative work of the officers and office support, the work of the standing committees, meeting costs, and other recurring activities.

The special reserves category includes a loans fund of $35,000 that was established several years ago to ensure a supply of seed funds for conferences. There were four special funds in this category whose purpose generally is to promote and support ergonomics is developing countries (IDCs), and it is now combined into one IDC fund. The Liberty Mutual Prize and Medal Fund are also in this category.

2. Assets and Equity

Table 2 presents IEA's assets and equity for 2008 and for the previous two years.

Table 2. Balance Sheet for Year Ended December 31, 2008 (in US Dollars)

Year	**2008**	**2007**	**2006**
ASSETS			
Cash Account	86,679	42,235	24,516
Term (GIC) Deposits	117,388	132,018	116,388
Seed Fund Receivable	0	0	0
Total	**204,067**	**174,253**	**140,904**

Year	2008	2007	2006
EQUITY			
IDC Fund	36,262		
ESA		5,426	5,426
HFES		8,496	8,496
JES		12,731	11,101
SELF		7,647	7,647
Liberty Mutual Fund	14,687	(9,448)	(1,528)
Loan Reserve	35,000	35,000	35,000
Cash Reserve	118,118	114,401	74,762
Total	**204,067**	**174,253**	**140,904**

Comments on Special Funds and Liberty Mutual Fund

a. Special Funds - One of IEA's goals is to advance the science and practice of ergonomics at an international level. In striving to achieve this goal, significant effort and resources have been focused on ergonomics in developing areas. The four special funds are essentially dedicated to that purpose. During 2008, there was no spending in this category.

b. Liberty Mutual Fund - This fund provides financial support for the IEA/Liberty Mutual Award of $10,000 that is awarded annually. .

   Funding for the IEA/Liberty Mutual Award is provided by Liberty Mutual Insurance Company. The Liberty Mutual Fund contained a minus balance of $9,448 at the beginning of 2008. This amount was a carryover from previous contributions and expenditures. We had a minus balance in 2007 because the payment of the 2007 contribution has been delayed to the following year (2008) due to a mail delivery problem. During 2008, total contribution of $30,000 was received and the service fees of $3,960 were spent for the promotion of the LM Award. Other expenditures of $1,905 were also spent, and thus we have a balance of $14,687 in the fund at the end of 2008.

3. Revenue and Expenditures

Table 3 presents a summary of IEA revenue and expenditures during 2008.

3.1. *Comments on Revenue*

a. Membership - As shown in Table 3, membership income includes two categories: dues from federated and affiliated societies and dues from sustaining members. In 2008, there were 43 federated societies and one affiliated society. Table 4 shows the federated and affiliated societies and the dues paid as of December 31, 2008. The

Table also indicates the amount paid and identifies those societies that chose the 2% payment option. Also, the Philippines Society has not paid its dues and its membership was contingent on such payment.

Sustaining members paid for 2008 are shown in Table 5.

b. Capitation Fees – Two capitation fees of $500 and $1,924 were received for Slip, Trip and Fall conference held in 2007 and for HEPS Conference in 2008, respectively.

c. Interest, Contributions, and Liberty Mutual Fund - These categories of revenue have been discussed. One additional comment concerns the amount of the interest and exchange values in Table 3. From the Table, it can be seen that the amounts vary from year to year. This variation is due in part to the time of year that interest payments are due for the two GIC accounts. It will also vary as a result of changes in the value of the US dollar relative to the Canadian dollar.

d. Miscellaneous – There was a small fee income of $48.38 from Elsevier for the sale of Handbook for HCI.

Table 3. Statement of Operations for Year Ended December 31, 2008 (in US Dollars) With Comparisons to Two Previous Years

Year	2008	2007	2006
REVENUE			
Membership Dues			
Fed and Aff Societies	32,815	32,740	28,655
Sustaining Members	16,350	15,400	2,600
Capitation Fees	2,424	790	24,000
Interest and Exchange Value	6,003	5,957	4,425
Contributions (JES/ESK)	1,962	3,300	2,312
Liberty Mutual Fund	15,000	15,000*	15,000
Misc (ILO–Checkpoints/Certification)	49	5,080	5,000
(Surplus from 2006 Congress)			13,345*
Total	**74,603**	**78,267**	**95,337**

* This amount was actually deposited in the following year.

Year	2008	2007	2006
EXPENDURES			
Officers and Administrative			
Office-related expenses	273	335	
Officers - Travel	16,431	13,616	21,681
Meeting Costs (Council dinner)	6,157	6,908	16,499
Standing Committees			
Development	1,869	1,861	3,092
Science, Technology, Practice	0	3,320	1,813
Prof Standards and Education	2,918	0	6,918
International Development	3,877	13,658	8,645
(Including AEDeC 2007 support)			
Communication and PR		1,208	3,478
EQUID	1,170	3,460	16,503
Awards	1,905		
Liberty Mutual Medal/Prize Promotion	3,960	7,920	31,065
Fees and Bank Charges	543	591	228
Miscellaneous			
Archives			
Documents for Council Meeting			30,952
Total	**39,103**	**52,878**	**140,874**
OPERATING SURPLUS	**35,500**	**25,389**	**(45,537)**

Table 4. Dues Payments During 2008 by Federated and Affiliated Societies

	Fed & Aff	SOCITIES	Dues Owed	Dues Paid	Amount	Comments
1	ABERGO	Brazil	'08		$ 205.00	
2	ACE	Canada	'07, '08	'07	$ 1,460.90	
3	ADEA	Argentina	'08	'08	$ 55.00	
4	AEE	Spain	'08			
5	APERGO	Portugal	'08			
6	AUEA	Ukraine	'07, '08			
7	BES	Belgium	'08	'08	$ 262.00	
8	ChES	China	'08	'08	$ 96.00	
9	CrES	Croatia	,02-,07, '08	,02-,07	$ 877.10	
10	CzES	Czech	'08	'08	$ 50.00	
11	ES	Great Britian	'08	'08	$ 2,453.30	
12	ESS	Serbia	,05-,07, '08	,05-,07	$ 619.50	
13	ESK	Korea	'08		$ 583.00	
14	ESSA	South Africa	,06,07, '08			
15	EST	Taiwan	'08	'08	$ 50.00	
16	GfA	Germany	'08	'08	$ 1,842.97	2% rule for 2008
17	HES	Greece	,06,07, '08			
18	HFES	USA	'08	'08	$ 12,735.00	2% rule for 2008
19	HFESA	Australia	'08	'08	$ 3,474.49	
20	HKES	Hong Kong	,07, '08			
21	InES	Iran	'08			
22	IREA	Russia	,05-,06; '08		$ 50.00	
23	IrES	Ireland	'08	'08	$ 92.21	
24	ISE	India	,07, '08			
25	IsES	Israel	,06,07, '08			
26	JES	Japan	'08	'08	$ 4,977.12	
27	MES	Hungary	,04-,07, '08		$ 50.00	
28	NES	Nordic	'08	'08	$ 505.00	
29	NVVE	Netherlands	'08			
30	NZES	New Zealand	'08	'08	$ 116.29	
31	OAE	Austria	,07, '08			
32	PES	Poland	'08			
33	PhES	Philippines	,05-,07			
34	SCE	Colombia	,06,07			
35	SEA	Slovakia	,00-,07, '08			
36	SEAES	SE Asia	'08	'08	$ 50.00	
37	SELF	SELF	'08	'08	$ 1,510.00	
38	SEM	Mexico	'08			
39	SIE	Italy	'08		$ 700.00	
40	SOCHERGO	Chile	,06,07, '08			
41	SSE	Switzerland	'08			
42	TES	Turkey	'08			
43	HES-J	Japan	'08			
44	LES	Latvia	08	'08	$ 50.00	

Table 5. Sustaining Members Paid in 2006 -2008

	2008	2007	2006
Diamond Members			
Elsevier	$ 10,000.00	$ 10,000.00	
Platinum Members			
Ergoweb, Inc.	In Kind		In Kind
Gold Members			
Central Inst for Labor Protection	$ 1,000.00	$ 1,000.00	$ 1,000.00
Ctr for Ind & Mgt Eng Res Resources, (Korea-Min)	$ 1,000.00	$ 1,000.00	$ 1,000.00
Conservatoire National des Arts et Metiers (CNAM)	In Kind	In Kind	In Kind
Korean Occ Safety and Health Agency (KOSHA)	$ 1,000.00	$ 2,000.00	
3M	$ 1,000.00	$ 1,000.00	
Knowles Group	$ 2,000.00		
Individual Sustaining Members			
Waldemar Karwowski			($ 200.00*)
Martin Hellander	($ 200.00**)	($ 200.00**)	($ 200.00**)
Kazutaka Kogi	$ 200.00	$ 200.00	$ 200.00
Becky Kinsler			$ 200.00
Jennifer A. Guthierrez	$ 200.00	$ 200.00	$ 200.00
Total	$ 16,400.00	$ 15,400.00	$ 2,600.00

* offset with travel expenses

** prepaid by royalty contribution to IEA in 2000 up to 2011.

3.2. *Comments on Expenditures*

a. Comparisons With the Previous Year (2007) - As shown in Table 3, expenditures for 2008 totaled $39,103. This total was smaller than during the previous year 2007 by $13,775(26%). From the table it can be seen that both revenue and expenditures were higher for 2006, a year of an IEA Congress than those during non-Congress years.

b. Officers and Standing Committees - A significant portion of IEA functions and activities are carried out by the officers and standing committees. Table 6 below presents the different categories of expenditures, the total for each category, and the percentage of the total represented by each category. From Table 6, it can be seen that expenditures in every category were much smaller in 2007/2008 than during the Congress year 2006, and there was a significant reduction in travel costs in 2008 by utilizing alternative methods of communication such as skype and international teleconferencing.

c. Comparisons with Allocated Budget - As shown in Table 7, expenditures in most of the categories were carried out within the allocated budget in 2008. There were no executions of expenditures for Liberty Mutual Award and IDC support in the year 2008. In fact, the payment of cash prize of $10,000 for 2007 Liberty Mutual Award was delayed and it was given to the winner in 2009. Over-spending in officers travel category is again explained by the delayed reimbursement of travel costs for EC and Council meetings in Boston in 2007.

Table 6. Expenditures by Category (in US Dollars) and Percent of Total

Year	**2008**		**2007**		**2006**	
Expenditure Category	**Total**	**%**	**Total**	**%**	**Total**	**%**
Officers and Administrative	16,704	43	13,951	26	21,680	15
Standing Committees	9,834	25	23,507	45	40,449	29
Awards	5,865	15	7,920	15	31,065	22
Meeting Costs	6,157	16	6,909	13	16,500	12
Grants						
Bank Fees and Charges	543	1	591	1	228	<1
Miscellaneous					30,952	22
Total	**39,103**	**100**	**52,878**	**100**	**140,874**	**100**

Table 7. Expenditures vs. Allocated Budget 2008

Expenditure Category	**Expenditures (A)**	**Budget (B)**	**Difference (B-A)**
Officers and Administrative	16,431	12,000	(4,431)
Officers - Travel	273	1,500	1,221
Clerical (plus website)	9,834	15,000	5,166
Standing Committees		10,000	10,000
IDC Support	5,865	12,000	6,135
Awards	6,157	10,000	3,843
Meeting Costs			
Grants	543	500	(43)
Bank Fees and Charges		1,000	1,000
Miscellaneous			
Total	**39,103**	**62,000**	**22,897**

4. Some Comments and Some Plans

4.1 *Federated and Affiliated Society Dues*

There have been a number of discussions and proposals in the previous Council meetings regarding annual membership dues by federated and affiliated societies. More specifically, the concern is one of fairness and ability to pay. In the 2007 IEA Council meeting in Boston, the following motion was passed:

The current method of collecting Dues from Federated Societies ceases from January, 1st 2008. A standard basis for Dues will be calculated by each Society based on 3% of the total income derived from membership fees during the preceding year. An interim arrangement will be implemented in 2008 for those Societies who currently pay less than 2% of their total membership fees; in 2008, they may wish to only pay 2% of their 2007 revenues and thereafter 3%. A minimum of $50 per society will apply. All payments will be made in US Dollars.

It was also agreed that the definition of membership rests with the Societies. If the calculated fee of the society is less than $50, it was decided that they would need to pay a minimum of $50.

4.2 *Controlling Costs*

The Officers and Standing Committee Chairs have been concerned with the need to keep expenditures under control and as low as possible within the context of carrying out the work of IEA. One area in which we have tried to restrain expenditures is travel, particularly for Officer and Executive Committee meetings. Airfares, hotels, meals, etc. are expensive, and getting more so. The current officers and members of the Executive Committee have attempted to have EC meetings related to major ergonomics conferences and/or special workshops, which some of the EC members have committed to attend. In this way, we tried to reduce the travel expenses as individual EC members have sought other sources of travel support. We will be continuing to explore methods for cost containment including alternative methods of communication and alternative organizational structures and procedures that can result in greater efficiencies. For example, we have been using skype and international teleconferencing as well as email to reduce the need for travel costs. However, carrying out the work of IEA, like any organization, requires some amount of face-to-face interaction. Team coordination, team spirit team effectiveness are notably enhanced by such interaction. This will be an ongoing matter for the IEA Officers and Executive Committee to take into account in carrying out their work.

Prof. Min K. Chung
IEA Treasurer
Dept. of Industrial Engineering
POSTECH
31, Hyoja
Namgu
Pohang
KOREA

August 3, 2009

Dear Professor Chung,

We are pleased to inform you that the audit of the IEA financial documents for the 2008 fiscal year has been completed. We have found the beginning and ending balances, deposits, expenditures, and service charges to be consistent with the amounts reported in the IEA Treasurer's Report dated January 2008 through December 2008. Also, we found your financial records to be complete and comprehensive with no mathematical errors.

We would also like to acknowledge your responsiveness in working with the auditing team to review the records, to answer all of our questions concerning records, expenditures and transaction and to discuss opportunities for the presentation of the budget. Below are some comments and suggestions for you and the IEA Executive Committee to consider:

1. We asked to have the treasurer report clarify the definition of "Assets" and "Equity" in the 2nd page of treasurer report. We received an explanation however it may useful in the future to provide examples of the differences for better clarity given the vast cultural background of the IEA EC.
2. In the IDC fund Table on page 3 of the treasurer report, we suggested that it might be useful and informative to report the dollar amount of the individual country's contribution instead of reporting the total. The Treasurer agreed to this suggestion and will change it.
3. In the Excel file, the transaction concerning Wang Sheng for 5/23/08 needed some further explanation. The Treasurer has clarified this.
4. A typo was found in the total of expenditure that was misaligned. It has since been corrected.
5. In page 6 of treasurer report, there was record stating "dues owed 08 / dues paid 08." We suggested that the record should show only "dues paid 2008" in the report. This was an additionally request that we asked the Treasurer to include and he indicated that he will.
6. In the Excel file, there is no number written number in the 'interest' column. This was another additional request asked of the Treasurer and he indicated that he will consider the request.
7. Consider creating another budget column in order to provide a simple comparison between the IEA budget for that particular activity and the actual expenditure at

the end of the budgetary cycle. This could lead to tying the budget to the IEA strategic objectives and planning strategies.

8. Consider developing for the IEA EC a plan for the annual budget based on anticipated income and expenses and how this cycles with the IEA Congress. Using a 3-year plan outlining income sources and expenditures categories would possible assist EC to plan for future activities and developments as well as highlight areas for controlling cost. This will be important for the incoming IEA EC.

We acknowledge the competence and commitment you have demonstrated in the execution of your duties as IEA Treasurer over these past 3 years.

Sincerely,

Jung-Yong Kim and Michelle Robertson
Audit Committee Members

APPENDIX H - Report on Awards

Awards Committee Report 2008-2009

Pierre Falzon

Awards Committee Chair, Past President of the IEA

1. Mission of the Award Committee and objectives for 2006-2009

In accordance with the IEA Strategic Plan, the mission of the Awards Committee is to promote the ergonomics discipline and to support the IEA through recognition of outstanding ergonomists/human factors professionals throughout the world. The specific goals in the 2006-2009 period are to:

- maintain and support current IEA awards making process, proposing changes when necessary ;
- enhance the involvement of IEA federated and affiliated societies in making nominations for the various awards.

It is to be reminded that awarding an individual for its achievements is not only an acknowledgement of the contribution of this individual to ergonomics but a sign addressed to IEA Societies and to our worldwide community.

The table below presents the awards, their periodicity and the mode of selection of awardees.

	Annual	**Triennial**
Nominations by Societies	**• Fellow Award**	**• Distinguished Service Award** **• Outstanding Educators Award** **• Award for promotion of ergonomics in industrially developing countries** **• Ergonomics Development Award**
Selection by adhoc committee	**• Liberty Mutual Medal**	**• K.U. Smith Student Award** **• JOSE Best Paper Award**
Presidential		**• President's award**

As shown, except for the IEA Fellow Award and the IEA/Liberty Mutual Medal, IEA awards are granted every third year.

Information on IEA Awards can be found on http://www.iea.cc/browse.php?contID=awards .

All awards for the 2007-2009 period will be officially presented at the IEA Congress in Beijing, during the Congress dinner.

2. Annual Awards

2.1 IEA Fellow Award

Following the call for nominations sent to IEA Societies, eight nominations have been received and electronically assessed by the Fellow Subcommittee. This subcommittee is composed of all living IEA Fellows. The IEA Policy on Awards (Title 3, Article 9) state that :

> *The nominee's candidacy must be approved by two-thirds vote of the members of the Fellows Selections Committee. Those candidates so approved must be elected by a majority of the IEA Executive Committee.*

The application of these rules has led to the decision to award the IEA Fellowship to :

- Arne Aarås (nominated by the NES – Nordic Ergonomics Society)
- René Amalberti (nominated by the SELF – Société d'Ergonomie de Langue Française)
- Thomas J. Armstrong (nominated by HFES – Human Factors and Ergonomics Society)
- Pascale Carayon (nominated by HFES – Human Factors and Ergonomics Society)
- Michelle Robertson (nominated by HFES – Human Factors and Ergonomics Society)
- Kan Zhang (nominated by the CES – Chinese Ergonomics Society)

2.2 IEA/Liberty Mutual Medal

The IEA/Liberty Mutual Medal in Occupational Safety and Ergonomics was instituted in 1998. The award recognizes outstanding original research leading to the reduction or mitigation of work-related injuries and/or to the advancement of theory, understanding, and development of occupational safety research.

Requirements for submission are:

- the paper should present original work, containing non-proprietary data, describing laboratory, field, or intervention research
- it should be unpublished at the time of submission (papers submitted for publication or accepted for conferences are acceptable)
- it should be thirty pages or less (single-spaced using point size 12 with 1 inch margins)

In 2009, 14 research papers have been submitted: 4 from Australia, 2 from India, 1 from Argentina, Germany, Indonesia, Korea, the Netherlands, Slovenia, South Africa, USA. They have been reviewed by the IEA/LM subcommittee, which included this year Hal Hendrick (subcommittee chair, IEA Fellow and Past IEA President), Kazutaka Kogi (JES), Pat Scott (ESSA), Mike Smith (HFES) and Klaus Zink (GfA).

The 2009 winner of the IEA/LM Medal is Dr. Suman Singh, from India, for her work "Mitigating occupational health hazards of women farmers through educational and technological interventions". The reviewing subcommittee was impressed (a) by the systems approach of combining ergonomic design/redesign of equipment and development and application of a training program involving participatory field level skill training and repeated field demonstrations in the proper use of the ergonomically improved farm instruments, and (b) the impact of the project, which directly benefitted 4,200 women, and potentially can benefit many more farm workers in IDC's.

3. Triennial Awards

3.1 Award description

On the year of the IEA Congress, the IEA is acknowledging the contributions of individuals with the following awards:

- The *IEA Distinguished Service Award* is presented to individuals for outstanding contributions to the promotion, development and advancement of the IEA.
- The *IEA Outstanding Educators Award* is presented to persons in recognition of outstanding contributions in the area of ergonomics education for having developed ergonomics education programs, produced new methodology and/or materials for teaching ergonomics, or graduated persons who have become outstanding ergonomists.
- The *IEA Award for Promotion of Ergonomics in Industrially Developing Countries* is given to a person(s) who has made significant and outstanding contributions to the Development of Infrastructure of Ergonomics in an industrially developing country. This may be manifested through development of teaching/training programs, implementation of ergonomics design in industry, development of R&D programs, organization of ergonomics professionals, and extensive collaboration with international bodies such as United Nations.
- The *IEA Ergonomics Development Award* is presented to persons who have had an international impact on ergonomics in terms of making a contribution or development which significantly advances the state of the art of existing ergonomics sub-specialty, or opens up a new area of ergonomics research and/or application.
- The *IEA President's Award* is presented to persons who have made outstanding contributions to ergonomics or the development of ergonomics, and whose contribution does not clearly fall into one of the other award categories. Persons qualifying for this award do not necessarily have to be ergonomists.
- The *IEA K.U. Smith Student Award* honors two deserving students responsible for applications of or contributions to ergonomics/human factors (E/HF) worthy of recognition. Any student enrolled in an accredited post-secondary institution worldwide is eligible to apply for the award. All areas of E/HF are eligible for consideration.
- The *IEA/JOSE Best Paper Award* is given every 3 years to the author (or authors) of the best paper published in the *International Journal of Occupational Safety and Ergonomics* (*JOSE*) since the previous award.

3.2 Award recipients

IEA Societies have been requested to nominate deserving individuals for the first four of the above awards. Following this call, 7 nominations were received and were assessed. The electorate for designating recipients is composed, for a given Triennial award, of past Presidents of the IEA, past recipients of the President's award and past recipients of the award under consideration.

The result of the ballot is the following :

- *Ergonomics Development Award* : Prof. Klaus Zink, nominated by the GfA (Gesellschaft für Arbeitwissenschaft, Germany)

- *Outstanding Educators Award* : Prof. François Daniellou, nominated by SELF (Société d'Ergonomie de Langue Française, France)
- *Award for the promotion of ergonomics in IDCs* : Prof. Elias Apud, nominated by SOCHERGO (Sociedad Chilena de Ergonomia, Chile)
- *Distinguished Service Award* : Prof. Sebastiano Bagnara, nominated by the SIE (Societa Italiana de Ergonomia, Italy)

15 submissions to the *IEA K.U. Smith Student Award* were received : 7 from USA, 2 from China, 2 from Hong Kong and 1 from Australia, India, Latvia, Portugal. They were assessed by a subcommittee composed of Tom Smith, Pascale Carayon and Pierre Falzon. The decision was to give the awards to the two following students :

- Monica N. Lees (University of Iowa, USA) for her paper "Cross-modal alerts for orienting of attention in attention impaired drivers" (the paper is co-authored with Joshua Cosman, John D. Lee, Shaun Vecera, Mijin Jang, Jeffrey D.Dawson and Matthew Rizzo);
- Molly F. Story (University of California, Berkeley, USA) for her paper "Effects of table height and handholds on accessibility of medical examination tables for ambulatory elder patients with mobility disabilities".

Recipients of the *IEA President's Award* and of the *JOSE Best Paper Award* will be announced at the Council meeting.

4. Future awards ?

The IEA Executive committee has discussed the opportunity of creating two new awards :

- the IEA/EQUID Award, acknowledging products developed using the framework and criteria elaborated by the EQUID Committee ;
- the IEA Ergonomics Outreach Award, intended to acknowledge a realization or action targeted to the general public contributing to the dissemination of ergonomics knowledge, or to a better awareness of the benefits of ergonomics

The two awards are briefly sketched below. A discussion on the interest of creating these awards will take place at the Council meeting in Beijing.

4.1 IEA/EQUID Award

The full title of the award would be : *IEA Award for Ergonomics Quality in Design*

This award is intended to give visibility to products which have been designed following the ergonomics principles described in the EQUID Committee document. This award, which could have a strong public relations and media impact, would serve several purposes: increasing the awareness of the public to ergonomics, developing the profession, developing the discipline.

The award would be given every year. The nomination could come from Federated Societies. Direct submissions from companies would also be possible. The selection of the award winner would be made by a sub-committee of the Awards Committee (adhoc EQUID Award Committee), with decision by the EC and Council. Several awards could be attributed every year. A fee could be requested for the processing of applications.

4.2 IEA Ergonomics Outreach Award

The *IEA Ergonomics Outreach Award* is proposed following a suggestion by Johan Molenbroek (from NVvE, the Dutch Ergonomics Society). Johan has called our attention to a website, developed by a student, which offers "an enormous amount of attractive ergonomical knowledge for a wide audience. […] It is inspirational and educational and state of the art. It has 7000 hits a months including 30% from Europe and 40% US". When discussing this issue, we realized that the IEA has no way to acknowledge an action targeted to the general public contributing to the dissemination of ergonomics knowledge, or to a better awareness of the benefits of ergonomics. This would be the goal of the *IEA Ergonomics Outreach Award*.

The award would be given every year and could be presented to a person or to an organization. The nomination could come from Federated Societies. Direct submissions would also be possible. The selection of the award winner would be made by an *adhoc* sub-committee of the Awards Committee. Several awards could be attributed every year. Publicity of the award would be made through the IEA website.

APPENDIX I - Report on IDC

Report of International Developing Committee

INTRODUCTION

Considering the main objective of the IDC Committee which are promotes, coordinates, and implements ergonomic activities in industrially developing countries by supporting local and regional initiatives concerning research, development, training, and conferences, the IDC/IEA has carried out actions which reflects these objectives.

In according to IEA Strategic Plan, IDC Committee has developed the following actions to be carried out between 2008-2009:

1. To support the work of member societies by helping ergonomics societies in developing regions organize joint conferences such as the ABERGO 2008 – Congress of the Brazilian Ergonomics Association and Cyberg2008 hosted by UNIMAS, Malaysia.
2. To support participation of industrially developing countries (IDCs) in IEA activities supporting IDC members travel to IEA related conferences. IEA will support the attendance from developing countries to the IEA Congress in Beijing.
3. To support the continuing growth of ergonomics in IDCs by training and education facilitating the conduct of knowledge and competency-based workshops including the "Foundation for Professional Ergonomics" program hosted by Hal Hendricks (USA). This has now been renamed the "Ergonomists without borders" group.
4. To provide IDCs with ergonomics knowledge by stimulating the existing IEA mechanisms distributing free resource material to libraries such as books, conference proceedings, etc. This service is continuing to be done by the IEA Book donation program. This has involved books sent to Nigeria and conference proceedings sent to 11 libraries in IDCs.
5. To promote ergonomics in geographical regions where particular support is needed appointing representatives from different regions to form a network of regional resource persons; supporting existing societies in their revival or restructuring effort; facilitating the inauguration of new ergonomics societies in IDCs; and facilitating the federation of newly formed ergonomics societies in IEA. There are new ergonomics societies created in 2008 included Equator in Latin America, Latvia, Indonesia, Nigeria and Tunisia.
6. In 2009 two countries were considered by the IEA Council for membership. These are Singapore and Thailand.
7. Some countries are in the phase of developing new Societies such as: Arabic Emirates, Bahrain Sri Lanka and Vietnam.
8. To promote applications of ergonomics in all aspects of life promoting collaboration in ergonomics projects among government and international bodies. This aim will be reached by collaborative projects including representatives from WHO, ILO, Liberty Mutual, NIOSH and other international focused bodies undertaking global projects with the IEA. IEA would like to lead an international project on the design of face masks for Asian populations to protect against SARS and Avian Influenza pending funding support from an international partner.

REPORT OF ACCOMPLISHMENTS AND FUTURE ACTIVITIES

Objectives of the SC	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012)
Objective A1 – To support the work of member societies [2] To facilitate joint events between member societies when this will not conflict with the operations of these societies [2.1] To help ergonomics societies in developing regions organize joint conferences	2007 – Support the organization of ABERGO 2008 – Congress of the Brazilian Ergonomics Association 2008 - Support the organization of Cyberg2008 hosted by UNIMAS, Malaysia **Deliverable:** CD-ROM proceedings provided to IDCs. Participation of IDCs in Cyberg 2008.	2010 – Support the organization of Cyberg2010 hosted by the Federal University of Pernambuco and Federal University of Rio Grande do Sul, Brazil.
[4] To support member societies to disseminate ergonomics knowledge at various levels [4.1]To support content development and webcast of ergonomics programs by experts to member societies in developing regions [4.2] To facilitate translation of ergonomics educational material into different languages (e.g. Portuguese, Spanish)	2008-Stimulate IDC members to attend the webcast on "Job rotation as a strategy to reduce risk of musculoskeletal injuries" promoted by the Canadian Ergonomic Society. **Deliverable:** Webcast programs involving IDC delegates. 2008- Collaborate with the translation into Portuguese of the University of Nottingham Distance Learning materials.	Continue to: 2009- Collaborate with the translation into Portuguese of the University of Nottingham Distance Learning materials. 2009-2012 – Explore Distance Learning programs in ergonomics that could be translated into Spanish for use in Latin America. 2009-2012 - Organize workshops which may be the starting point to the IEA development and verification of the Ergonomics Checkpoints such as mining, services, products, etc.
[5] To support participation of industrially developing countries (IDCs) in IEA activities [5.1] To support IDC members travel to IEA related conferences	2008 – SEAES Triennial Conference, Thailand 2008 – Cyberg 2008 2009 – IEA Triennial Congress, Beijing, China **Sources:** - IEA Self funds/HFES - Nordic Ergonomics Society support of Latvia to IEA Congress	2009-2012 – To explore potential sources of funds to support the participation of industrially developing countries (IDCs) in IEA related conferences.
[6] To support the continuing growth of ergonomics in IDCs by training and education [6.1] To facilitate the conduct of knowledge and competency-	2nd Edition of the Ergonomics Checkpoints launched by the ILO.	To support and stimulate workshops to discuss: 2009-2012 – Agricultural Checkpoints developed and launched by the ILO.

based workshops	**Deliverable:** Ergonomics Checkpoints 2nd Edition Ergonomics Checkpoints in Agriculture 1st Edition	2009-2012– *Mining Checkpoints* (Botswana, South Africa, Brazil, Colombia). 2009-2012-Mining Workshop in Brazil.
[7] To provide IDCs with ergonomics knowledge by stimulating the existing IEA mechanisms. [7,1] To help distribute free resource material to libraries and relevant NGOs in IDCs	2009 – IEA Triennial Congress 2010 – IEA HEPS conference **Deliverables:** books, conference proceedings, etc.	2009-2012 - To support the distribution of free resource material to libraries in IDCs from IEA endorsed conferences: 2009-2012 - To assist the Science Technology and Practice IEA Committee chaired by Halimahtun Khalid to promote conferences of interest for IDC participation.
[7.2] To facilitate contacts for IDCs with HFE/ ergonomics experts in the conduct of professional activities	A Working party has been formed with ergonomists from around the world to form the "Ergonomists without Borders" project. Thanks to Peter Butnick – Ergoweb for his support in promoting this.	2009-2012 - To stimulate the contacts for IDCs with HFE/ ergonomics experts in the conduct of professional activities including the "Ergonomists without Borders " program hosted by Hal Hendricks (USA).
Objective B2 – To facilitate knowledge exchange and collaboration [2] To provide appropriate support of regional groups in ergonomics when this does not conflict with the operations of member societies	2008-2009 - To facilitate ULAERGO in realizing their mission and goals as an IEA network contributing to the election of the new ULAERGO EC. 2008-2009 - To facilitate and contribute to the creation of SEANES as an IEA network	Continuing : 2009-2012 - To facilitate ULAERGO in realizing their mission and goals as an IEA network. 2009-2012 - To facilitate SEAES in realizing their mission and goals as an IEA network after the development of SEANES as a Network.
Objective B3 – To enhance the quality of professional practice and education in ergonomics [9] To maintain and disseminate IEA minimum criteria for the process of certification of an ergonomists	2009 – Attend as discussant the IEA Certification of Professional Ergonomists – Who, Why and How Panel Session at IEA 2009.	2009-2012 – Continue to discuss certification of ergonomists in IDC countries in conjunction with the Professional Standards and Education IEA Committee chaired by Tom Smith.
Objective C1 – To promote recognition of ergonomics discipline [2] To promote ergonomics in geographical regions where particular support is needed [2.1] To appoint representatives		To support and stimulate: 2009-2012 – Regional based resource persons to be appointed to liaise with the regions on their respective needs.

from different regions to form a network of regional resource persons		
[2.2] To appoint representatives from different regions to form societies	Identified representatives from different regions to form societies: • Dr. Ricardo Montero – Cuba [rmontero@finlay.edu.cu] • Maximiliano Izzi, Uruguay [mizzi@netgate.com.uy] • Adriana Campos Fumero, Costa Rica [acampos@itcr.ac.cr] • Lida Orta, Puerto Rico [lorta@rcm.upr.edu] • Mohammad Jauhangeer, Mauritius [jauhangeer@gmail.com]	To support and stimulate: 2009-2012 – Regional representatives to work in partnerships on ergonomics projects.
[2.3] To support existing societies in their revival or restructuring effort	2008: restructure SEAES to IEA network - South East Asian Network of Ergonomics Societies (SEANES).	
[2.4] To facilitate the inauguration of new ergonomics societies in IDCs		To support and stimulate inauguration of new ergonomics societies in IDCs: 2009-2012 – Arabic Emirates, Bahrain, Costa Rica, Cuba, Mauritius, Puerto Rico, Uruguay, Sri Lanka and Vietnam.
[2.5] To facilitate the federation of newly formed ergonomics societies in IEA	2008: New Ergonomics Societies identified including: • Asociacion Ecuatoriana de Ergonomia (AEERGO) Ecuator • Perhimpunan Ergonomi Indonesia (PEI) Indonesia • Latvijas Ergonomikas Biedriba Latvia • La Société Tunisienne d'Ergonomie Tunisia • Ergonomics Society of Nigeria (ESN) as an Affiliated member	To support and facilitate inauguration of newly formed ergonomics societies in IEA: 2009-2012-Ergonomics Association of Peru (ASPERG). Contact: Miguel David MONTES APOALAYA - asperghyo_pe@hotmail.com 2009-2012-Venezuelan Ergonomics and Occupational Health Research Union Contact: Ender Enrique Carrasquero - endercarrasqueroster@gmail.com 2009-2012 - To support and facilitate IEA affiliated member to become a full member: Ergonomics Society of Nigeria

Objective C2 – To promote applications of ergonomics in all aspects of life [3] To promote collaboration in ergonomics projects among government and international bodies [3.1] To appoint a representative from WHO, ILO, Liberty Mutual, Safework on special task committee	2008-2009- Close liaison with the WHO, ILO Safework, ISO and Liberty Mutual in a range of joint programs. This includes the IEA representation at WHO meetings for their General Assembly; and a range of specialist meetings including Design and Helathcare.	2009-2012 - To support and stimulate collaboration of the IEA with the ICOH, IOHA and WHO in the face masks project for pandemics. 2009-2012 - To work with the WHO Collaboration Centres to include Ergonomics in their research programs.

APPENDIX J - Report on PSE

Report of the IEA Professional Standards and Education Standing Committee

DATE: June 12, 2009

INTRODUCTION

The IEA Professional Standards and Education Standing Committee (PSE) maintains, develops and disseminates the IEA Directory of Ergonomics Educational Programmes, endorses certification schemes, provides advice about their development, and provides guidance on professional conduct, ethics and standards for ergonomics education.

The Chair of the PSE is Thomas J. Smith (University of Minnesota), who accepted this position at the end of May, 2007.

Two Subcommittees of the PSE Standing Committee were established between May, 2007 and June, 2008: a Certification Subcommittee and an Education Subcommittee. Members of the PSE Certification Subcommittee are Prof. Kazuo Aoki (Japan), Dr. Robert Bridger (U.K.), and Dr. Peter Budnick (U.S.). Members of the PSE Education Subcommittee are Prof. Francis Daniellou and Dr. Ian Gibson.

REPORT OF ACCOMPLISHMENTS AND FUTURE ACTIVITIES

Objectives of the SC	Accomplishments for 2008-2009	Possible activities for the next 3 years (2009-2012)
Endorses certification schemes, provides advice about their development, and provides guidance on professional conduct, ethics and standards for ergonomics education. The primary IEA Strategic Plan Objectives that this PSE Objective supports are as follows: (1) Objective A2 - Improve IEA Operational Effectiveness; and (2) Objective B3 - Enhance The Quality Of Professional Practice And Education In Ergonomics.	PSE Standing Committee accomplishments since the 2008 IEA EC Meeting in Reykjavik, Iceland are as follows. 1. Organization of two panel sessions for the IEA 17th World Congress. Two panel sessions relevent to this committee have been organized and accepted for the IEA 27th World Congress, that will convene in Beijing in August, 2009. One session deals with certification systems for professional ergonomists, with the title, "Certification of Professional Ergonomists – Who, Why and How." The second session deals with E/HF education, with the title, "Future of Ergonomics in Education." Appendix 1 contains the final submissions to the Congress for both of these sessions. 2. Development of a draft IEA Basic Document calling for expanding the role of the IEA PSE Standing Committee to include accreditation of post-secondary ergonomic/human factors (E/HF) educational programs worldwide. The initial iteration of this document was first presented for review to a meeting of the	Possible activities of the PSE Standing Committee for the 2009-2012 period outlined below are contingent upon whether Smith is reappointed as Committee Chair. If Smith is reappointed, the following major initiatives will be pursued. 1. Establish the IEA PSE Standing Committee as an accrediting body for E/HF post-secondary educational programs worldwide. 2. Encourage certifying bodies in different countries to adopt provisions that call for mutual recognition of the credentials of certified professional ergonomists. 3. Secure formal certification of the IEA as an accrediting body by the National Commission for Certifying Agencies (NCCA) (U.S.)

	IEA Executive Committee (EC) at a meeting in Reykjavik, Iceland in August, 2008. The latest iteration of the document---presented in Appendix 2---will be offered for consideration by the IEA Federated Council at the upcoming IEA 17th World Congress in Beijing, China in August, 2009. 3. Solicitation of feedback regarding the merits of the IEA draft basic document in Appendix 1. In order to obtain independent judgments of the merits of the proposed E/HF educational program accreditation process set forth in the IEA draft basic document in Appendix 1, feedback on this document has been solicited from a series of qualified respondents, as follows: • Presidents or representatives of the following IEA Federated Societies - Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Croatia, Czech Republic, Ecuador, FEES, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Iran, Ireland, Israel, Italy, Latvia, Mexico, Netherlands, New Zealand, Nigeria, Nordic Countries, Philippines, Poland, Portugal, Russia, Serbia, Slovakia, South Africa, South East Asia, South Korea, Spain, Switzerland, Taiwan, Tunisia, Turkey, and Ukraine. Appendix 3 contains s copy of the covering letter used to solicit feedback from these Federated Societies. The Ergonomics Society (U.K.) and HFES (U.S.) were not contacted to solicit feedback on the accreditation proposal, because these two Federated Societies already accredit E/HF post-secondary educational programs in their respective countries. The proposed IEA PSE accreditation process is intended to target E/HF post-secondary educational programs in countries/regions that do not have access to such accreditation services, yet who may perceive the need or desirability to secure such accreditation. • The following individual E/HF professionals: Univ. Prof. Dr.-Helmut Strasser, Ergonomics Division, University of Siegen, Germany; Prof.	

	Kazuo Aoki, Chair, Committee on Certification of Professional Ergonomists, Japan Ergonomics Society, Nihon University College of Science and Technology, Tokyo, Japan; Susumu Saito, President, Japan Ergonomics Society; Christine Waring, President, Human Factors and Ergonomics Society of Australia, Senior Project Officer, Employee Wellbeing Unit, Melbourne, Australia; Christie Garson, Master of Ergonomics Program, University of Queensland, Australia; Matthias Goebel, Professor and Head of Department, Department of Human Kinetics and Ergonomics, Rhodes University, Grahamstown, South Africa; Alexander Burov, President, All-Ukrainian Ergonomics Association Additional feedback regarding the IEA accreditation proposal will be solicited prior to the IEA 17th World Congress, with the goal of being able to provide the IEA Council of Federated Societies at the Congress a reasonable profile of perspectives on the merits of the proposal from E/HF professionals worldwide. 4. Advocacy for mutual recognition of the credentials of certified professional ergonomics by different certifying bodies. Following up on an impetus provided by Ernst Koningsveld, the current President of the Committee for Registration of European Ergonomists (CREE), I have forwarded a memorandum to appropriate officials of 6 different certifying bodies worldwide recommending that each of these bodies adopt a provision specifying that they recognize the credentials of professional ergonomists who may have been certified by some other certifying body. The rationale for this idea rests upon at least four basic considerations. • Across different certifying bodies worldwide, there is considerable overlap in the criteria that these bodies use to certify professional ergonomists. • For this reason, the core competencies that a professional ergonomist is required to demonstrate to earn	

	certification in one jurisdiction likely will substantially satisfy required criteria in another jurisdiction. • Certifying bodies that have earned IEA accreditation (including BCPE) by definition have demonstated compliance to a common set of criteria in securing accreditation approval. It therefore can be argued that a PE who is certified by one of these bodies has satisfied a certification process that has a reasonable degree of commonality across different bodies. From this perspective, a PE certified by one accredited body who seeks recognition of his/her professional credentials by another accredited body can claim---again with reasonable assurance---that he or she has demonstrated and has achieved recognition for a set of professional core competencies that should satisfy criteria set forth by other accredited bodies. • The idea of mutual recognition of the credentials of certified professional ergonomists by different certifying bodies already has received attention in a discussion between BCPE and CREE (Western Europe). I am taking the liberty of accompanying this letter with a second Word file containing the perspective of Ernst Koningsveld, President of CREE, on the question of mutual recognition. A sample of this covering letter, sent to Chris Hamrick, President of the Board of Certification in Professional Ergonomics (BCPE) in the U.S., is contained in Appendix 4. Similar letters have been sent to: (1) Jose Orlando Gomes, Presidencia, ABERGO, Universidade Federal do Rio de Janeiro, Brazil; (2) Sue Alexander, BCNZE Convenor, Board for Certification of New Zealand Ergonomists; (3) Margo Fraser, Executive Director, Association of Canadian Ergonomists; (4) Ernst Koningsveld, President, CREE; (5) Ron Cordingley, Chair, Professional Affairs Board, Human Factors & Ergonomics Society of Australia; (6) Prof. Kazuo Aoki, Chair, Japan Ergonomics Society Committee on Certification of Professional Ergonomists; and (7) William Banks, President and CEO, Oxford Research Institute.	

Appendix 1

Final Submissions to 2009 IEA 17th World Congress for Two Panel Sessions Relevant to the Scope of the IEA PSE Committee

"Certification of Professional Ergonomists – Who, Why and How"

"Future of Ergonomics in Education"

Certification of Professional Ergonomists – Who, Why and How
Panel Session

Session Chair
Dr. Thomas J. Smith
Chair, International Ergonomics Association Professional Standards and Education Standing Committee
School of Kinesiology
University of Minnesota (UM)

Discussants
Prof. Kazuo Aoki, Chair, Japan Ergonomics Society Committee on Certification of Professional Ergonomists; Dept. of Medical & Welfare Engineering, Nihon University, College of Science & Technology, Tokyo, Japan
Dr. Peter Budnick, Former President, Board of Certification in Professional Ergonomics, USA; President and CEO, ERGOWEB Inc., Park City, Utah, USA
Ernst Koningsveld, President, Centre for Registration of European Ergonomists; Senior Consultant, TNO Quality of Life, Utrecht, Netherlands
Marcelo Soares, Chair, International Ergonomics Association International Development Standing Committee; Department of Design/CAC, Federal University of Pernambuco, Cidade Universitaria, Recife, Brazil

The expansion of interest in ergonomics worldwide, as evidenced by growth in the number of Federated Societies affiliated with the International Ergonomics Association (IEA), has been accompanied by growing awareness of the need for quality assurance methods and procedures regarding the training and credentials of professional ergonomists. Responsibility for such quality assurance often is assumed by professional ergonomist certifying bodies.

This session addresses: (1) the current status of professional ergonomist certification programs from an international perspective, as promulgated in a number of different countries; (2) experience of selected certification programs with the IEA certifying body accreditation process; (3) future prospects for new bodies responsible for professional ergonomist certification; and (4) a discussion of possible need and options for revisions/improvements to the IEA certifying body accreditation process. Session participants comprise professional ergonomists with internationally recognized roles in the certification of professional ergonomists.

OVERVIEW

Over the past two decades, the field of ergonomics/human factors (E/HF) has seen the introduction of systems of certification of professional ergonomists in a number of countries. Across these different systems, the common objective has been to promote a degree of quality assurance and professional credibility with regard to the credentials of those who wish to call themselves professional ergonomists. Clearly, this effort is mean to emulate the professional certification systems that long have been in place in other professions, such as medicine, law, or architecture.

The discussants for this panel session all are highly qualified to address the "who", "why", and "how" of the professional ergonomist certification process. Thomas Smith is current Chair of the Professional Standards and Education Standing Committee (PSE) of the International Ergonomics Association (IEA). One of the responsibilities of this committee is to accredit certifying bodies worldwide who choose to apply for such IEA endorsement. Kazuo Aoki is current Chair of the Japan Ergonomics Society (JES) Committee on Certification of Professional Ergonomists. Peter Budnick is a former President of the Board of Certification in Professional Ergonomics (BCPE) in the USA, and President and CEO of ERGOWEB, an internationally recognized online resource for ergonomics news and information. Ernst Koningsveld is current President of the Centre for Registration of European Ergonomists, a certifying body that serves E/HF societies in 17 different western European countries. Marcelo Soares is current Chair of the IEA International Development Standing Committee, and General Chair for the 18th IEA World Congress, that will convene in 2012 in Recife, Brazil. Mr. Soares comments address the challenges facing a relatively new certifying body that is preparing to apply for IEA accreditation.

Summary Information about Certifying Bodies Worldwide

Table 1 provides summary information about professional ergonomist certifying bodies currently in place worldwide (to the knowledge of the Chair of this session). The table lists the name of the certifying body (first column), the country in which it is located (second column), a summary description (third column), whether or not the IEA has accredited the certifying body (fourth column), the web site URL for the certifying body (fifth column), the total number of professional ergonomists certified by the body since its inception (sixth column), and the number of certified professional ergonomists currently registered (last column).

Of the certifying bodies listed in Table 1, two are in the USA (the BCPE and the Oxford Research Institute), and the others are in Australia, Brazil, Canada, Japan, and Western Europe. The certifying bodies in Australia, Brazil, Canada, and Japan are directly associated with the E/HF professional societies in those countries. In the USA, the BCPE and the Oxford Research Institute are independent of the Human Factors and Ergonomics Society (the professional E/HF society in the USA). In Western Europe, CREE provides professional ergonomist certification services for E/HF

professional societies in 17 different Western European countries (see CREE web site for identity of these countries).

The second-to-last column in Table 1 indicates that, across the eight certifying bodies specified in the table, a total of 3,403 professional ergonomists have been certified worldwide, throughout the history of professional ergonomist certification systems. The last column in Table 1 indicates that a total of 2,640 professional ergonomists currently are registered with the different certifying bodies. In terms of certifications processed, the BCPE and the Oxford Research Institute in the USA, and CREE in Western Europed, have certified the greatest number of professional ergonomists.

The numbers in the last two columns of Table 1 represent reasonably accurate estimates as of April, 2009, based on numbers reported to Smith (by representatives of some of the bodies), or reference to the web site for other bodies.

Table 2 pro rates the number of professional ergonomists currently registered by different certifying bodies (last column of Table 1) to the total population of different countries or regions with E/HF professional societies primarily served by the certifying bodies. Listed in Table 2 is: (1) in the first column, the certifying body or bodies (same as first column of Table 1): (2) in the second column, the country or region with E/HF professional societies served by the certifying body or bodies (same as second column of Table 1); (3) in the third column, the number of professional ergonomists currently registered by the certifying body (same as last column of Table 1); (4) in the fourth column, the total population, in millions, of the country or region; and (5) in the last column, the number of currently registered professional ergonomists per million inhabitants.

The statistics in the last column of Table 2 indicate that, for countries or regions with E/HF professional societies primarily served by BCNZE, CCCPE, CREE, JES, and the Register of Certified Professional Ergonomists in Australia, the number of currently registered professional ergonomists per million inhabitants is roughly comparable, ranging from about 1 to about 4. All of these certifying bodies started operation between 1990 and 1998 (third column of Table 1), which suggests that they all have achieved roughly comparable success in serving the E/HF professional societies in their respective country or region.

The highest number of currently registered professional ergonomists per million inhabitants is in the USA, with about 10. One possible reason for this high ratio is that there are two independent certifying bodies, BCPE and ORI, operating in this country. Brazil has the most recent active certifying body (late 2002), and the lowest ratio of currently registered professional ergonomists per million inhabitants.

Relative to many other professional disciplines, such as law or medicine, the per capita level of registered professional ergonomists in different countries is comparably much lower. Yet we should view the low ratio for our profession, not as a source of discouragement, but rather as a benchmark with which to measure our success in further penetrating different realms of world societies in the years to come.

Minimum Specifications for Professional Ergonomist Core Competencies

Across all of the certifying bodies described in Table 1, a common concern is the question of what constitutes the "core competencies" that a student in an E/HF program should acquire, in terms of both knowledge and skills, for purposes of applying for certification as a professional ergonomist. Table 3 provides perspectives on this question on the part of different certifying bodies, with regard to minimum specifications for core competencies to be expected in an applicant for certification as a professional ergonomist. Listed in the second through the sixth columns in Table 3 are minimum specifications for core competencies defined by BCNZE, BCPE, CCCPE, CREE, JES, and the SisCEB System of Brazilian Ergonomics. Some specifications defined by ORI are in the second-to-last column of Table 3---as noted in the footnote to the table, ORI does not define minimum specifications for core competencies as such.

The specifications in the first column in Table 3 are those set forth in the IEA basic document, "Guidelines on Standards for Accreditation of Ergonomics Education Programs at Tertiary (University Level) – Version 2, January 2003," that may be accessed on the web site indicated. Except for the IEA specifications (Column 1), the remaining sources in Table 3 represent professional ergonomist certifying bodies.

It should be emphasized that for each certifying body cited in Table 3, the minimum specifications listed represent broad categorical content specifications. Under each category a series of more specific core competencies are defined, to provide the ergonomist in training with knowledge and skill necessary to achieve understanding in each of the broad categorical areas (the web sites indicated delineate these specific topic areas).

The information in Table 3 prompts a number of conclusions. There are broad similarities in the minimum specification topic areas cited by BCNZE, BCPE, CREE, and JES, in that minimum core competency specification categories for each of these four sources number either 5 or 6 specifications. These specifications, without question, are either drawn directly from, or largely inspired by, recommendations contained in a working group document published by Rookmaaker and colleagues in 1992 [1], that sets forth the HETPEP model (Harmonising European Training Programmes for the Ergonomics Profession) for European ergonomists (the BCPE and CREE documents explicitly cite this source). The minimum specifications defined by the CCCPE are more broadly framed than those for these other four certifying bodies.

The IEA specifications cited in Table 3 (Column 1) stand in distinct contrast to specifications cited by BCNZE, BCPE, CCCPE, CREE, and JES. They are more verbose, less concise, and lack a precise categorical framework evident in specifications for other bodies. On the basis of this lack, it can be argued that they do not represent "minimum specifications.' As noted in the footnote to the table, the same can be said for the ORI specifications. The Brazilian Ergonomics SisCEB Certification System minimum specifications (last column of Table 3) have been promulgated to explicitly match, in most respects, the IEA specifications in the first column of Table 3.

Possibly because of the contrast between the IEA core competency specifications in the first column of Table 3, and

those promulgated by other certifying bodies delineated in the remaining columns of Table 3, the IEA specifications have attracted some criticism. Bridger [3], in a letter to IEA President David Caple and shared with the IEA PSE Committee, critiques a number of features of the IEA Basic Document referenced in the first column of Table 3, and in so doing advocates a hierarchical approach to core competency specifications along the following lines:

- basic concepts in physics, mathematics etc. (add statistics and epidemiology as well);
- their application to the study of work systems;
- systems theory as applied to ergonomics and the application of systems approaches;
- analytic approaches to the study of worksystems: objective and subjective assessment methods;
- standards and guidelines;
- professional practice; and
- legal and ethical issues (including research ethics).

These specifications parallel in some respects the minimum specifications advocated by the certifying bodies referenced in Columns 2-5 in Table 3. It should be noted that the perspective that Dr. Bridger brings to core competencies for professional ergonomists carries considerable authority, in light of his authorship of an internationally recognized introductory ergonomics text [4].

Another critical appraisal of the IEA specifications has been provided by Gibson, in a report to the Professional Affairs Board (PAB) that serves both the Human Factors and Ergonomics Society of Australia (HFESA) and the New Zealand Ergonomics Society (NZES) [5]. Based on the analysis provided in this submission, shared with the IEA PSE Committee, Gibson concludes that core competencies for professional ergonomists specified by the HFESA and the NZES are more consistent in format and general readability than the IEA specifications.

Checklist for IEA Accreditation of Certifying Bodies

Since the turn of the millennium, the IEA has promulgated a series of eight basic documents dealing with core competencies for professional ergonomists, with guidelines for professional ergonomist certification, and with the IEA accreditation process for certifying bodies. These documents may be accessed at: http://www.iea.cc/ - About IEA>Standing Committees>Professional Standards and Education Committee. Two of these documents, both dating from October, 2001, provide explicit guidance for certifying bodies wishing to apply to the IEA for accreditation of their certification process and system [6,7].

To assist certifying bodies in navigating through these documents, for purposes of preparing documentation in support of their application IEA accreditation, the Chair of this session has prepared a compliance checklist for certifying body compliance with IEA accreditation criteria. The checklist may be accessed at: http://www.iea.cc/upload/IEAPSE_AccreditationChecklist.pdf. The checklist contains 42 specifications, four from [6] and 38 from [7], that should be satisfied in documentation submitted by a certifying body for IEA accreditation.

In summary, there is growing awareness worldwide of the need for quality assurance methods and procedures regarding the training and credentials of professional ergonomists. This awareness has led to the emergence of eight certifying bodies to date in different countries or regions, that have assumed responsibility for certifying the credentials and core competencies of professional ergonomists. These efforts have obvious parallels with well-established certification systems in other professional disciplines, and it is almost certain that additional professional ergonomist certification systems will emerge in the future. Table 3 illustrates that existing systems exibit some commonalities, but also some distinct differences in the criteria they apply to the certification process. The IEA certifying body accreditation service---the only such service currently available within the E/HF discipline---attempts to apply common specifications and criteria of quality assurance to the certification process employed by different certifying bodies. This session addresses experiences with certification and with the IEA accreditation process from the perspectives of representatives of selected certifying bodies. It also points to process improvements that likely would improve the usability and credibility of the IEA accreditation system.

PERSPECTIVE OF KAZUO AOKI

The Japan Ergonomics Society (JES) started the certification program for professional ergonomists in 2003, and 126 ergonomists were certified in the first year. Development of the JES certification program dates back to 1994, with one important goal of preparing to apply for program endorsement from the IEA. In 2007, the JES certification program received IEA accreditation, and with this endorsement the program has become an international program. Applying for IEA endorsement was a very complicated process, requiring submission of many English documents. The examination for certification by the JES can be conducted not only in the Japanese but also in the English language. We hope that many Asian ergonomists will apply for the certification examination in Japan. In the future, more certification programs will apply for endorsement from the IEA. As regards criteria required for certification, different programs that receive IEA accreditation will satisfy core competencies for professional ergonomists defined by the IEA, but the terms of such compliance is not necessarily identical across different programs. That is, the basic competencies required of a certification applicant should be comparable across different programs, but a given program can and should have the latitude to accommodate regional specialization in certification criteria.

Table 1. Summary information about professional ergonomist certification systems in different countries.

Name of System*	Primary Region/ Country Represented	Brief Description of System	Accredited by IEA?	Web Site URL	Total Number of Professional Ergonomists Registered Since System Established	Overall Total of Professional Ergonomists Currently Registered
BCNZE	New Zealand	The Board for Certification of New Zealand Ergonomists (BCNZE) assesses and certifies qualified professional practitioners of ergonomics. The Board is associated with the New Zealand Ergonomics Society (NZES). The BCNZE certification scheme is modelled on the Centre for Registration of European Ergonomists (CREE) scheme, on which the certification criteria and administration procedures are based. The NZES is a federated member of the International Ergonomics Association (IEA) and BCNZE is abreast of current IEA developments regarding certification programme guidelines. The New Zealand and Australian Ergonomics Societies in 1998 jointly developed core competencies for ergonomists and these are also taken into consideration in certifying ergonomists. BCNZE was established in 1997 and began assessing applications in 1998. It is administered by an elected Board.	Yes	http://www.ergonomics.org.nz	14 (as of 2009)	12
BCPE	USA	Established in 1990 as an independent nonprofit organization, the BCPE is the certifying body for individuals whose education and experience indicate broad expertise in the practice of human factors/ergonomics. To date, over 1,000 professionals have successfully met BCPE's certification criteria and been awarded one of the following distinguished credentials: Certified Professional Ergonomist (CPE), Certified Human Factors Professional (CHFP), Associate Ergonomics Professional (AEP), Associate Human Factors Professional (AHFP), or Certified Ergonomics Associate (CEA). The BCPE is governed by an elected board of leading professionals and is managed by an Executive Administrator and a Financial/Information Systems Manager. The BCPE also adheres to the criteria and policies for competency assessment set by NOCA, the National Organization for Competency Assurance, and has been endorsed by the IEA, the International Ergonomics Association, as an accredited ergonomics certifying body.	Yes	http://www.bcpe.org	1529 (as of 2009)	1188
Brazilian Ergonomics SisCEB Certification System	Brazil	The Certification System of Brazilian Ergonomics (SisCEB) was originally approved in the Annual General Meeting of the Brazilian Association of Ergonomics (ABERGO), held during ABERGO 2002---the XII Brazilian Congress of Ergonomics---that occurred in the Brazilian city of Recife, Pernambuco State, on September, 4, 2002. The system then was approved and completed during the 1st Certification Forum of Brazilian Ergonomics, that convened in the Brazilian city of Ouro Preto, Minas Gerais State, on October 24, 2003. The first certifications were awarded during the 2nd Certification Forum of Brazilian Ergonomics, that convened in the Brazilian city of Fortaleza, Ceará State, on September 2, 2004. To obtain certification, the candidate must submit to a written test and, if approved , may receive the title of Certified Ergonomist Senior, Level 1, 2 or 3, depending on experience and time as a professional. The SisCEB currently ia governed byABERGO.	No	http://translate.google.com/translate?hl=en&sl=pt&u=http://www.abergo.org.br/&ei=HrDfSdiUJ9iLnAeYwfyxCQ&sa=X&oi=translate&resnum=1&ct=result&prev=/search%3Fq%3D%2522ABERGO%2522%26hl%3Den%26lr%3D%26as_qdr%3Dall (inEnglish) http://www.abergo.org.br/forum.htm [in Portuguese]	103 (as of 2009)	103
CCCPE	Canada	In the past decade, there has been a growing recognition of the field of ergonomics and human factors. With this recognition has come increased demand for ergonomic services. These services are currently offered by individuals with a wide range of training in ergonomics. Certification, with its requirement to meet a set of standards in training and experience, is important both for ergonomists and for the users of ergonomic services. Certification is required to: (1) protect users of ergonomics services; (2) protect the reputation of ergonomics; and (3) improve quality of practice. The need for certification has long been recognized by the Association of Canadian Ergonomists (ACE), a professional association with over 600 members from coast to coast, established in 1968. In 1998, ACE established the Canadian College for the Certification of Professional Ergonomists. The CCPE designation is the only certification process administrated in Canada that requires certificants to meet competencies in both education and practice across the full scope of ergonomics through peer review by the CCCPE Board. Those that attain the CCPE designation must comply with the CCCPE code of ethics.	No	http://www.ace-ergocanada.ca	181 (through Spring, 2009)	128

CREE	Western Europe	CREE is a unique registration organisation within ergonomics that brings together and harmonises the views of seventeen national ergonomics societies within the European Union. CREE via those national professional bodies as its agents, specifies the standards of knowledge and practical experience, which define a European Ergonomist, and registers all applicants who are assessed as meeting these requirements. In the years prior to the emergence of the open borders on January 1**,** 1993, it was evident to the national ergonomics societies within the European Community that, for the benefit both of those wishing to use the services of ergonomists and of the members of the national societies, some common agreement on the level of expertise to be expected of a competent ergonomist was required. To this end representatives from the major societies federated to the International Ergonomics Association within the Community were invited to prepare such an agreement. In June, 1992, a final report on the Harmonisation of Ergonomics Profession (HET-PEP) was published. Following this report, the Centre for Registration of European Ergonomists (CREE) was established to provide the organization which, with the assistance of the national societies of the member states, would accredit professional ergonomists with the title European Ergonomists (Eur.Erg).	Yes	http://www.eurerg.org/index.htm	541 (up to 2009)	410
JES Certification Program for Profesionnal Ergonomists	Japan	The JES Program for Certification of Professional Ergonomists certifies ergonomics/human factors practitioners as Certified Professional Ergonomists, whose ergonomics knowledge, techniques, and problem-solving abilities satisfy a predefined set of criteria, thereby maintaining and enhancing the quality of ergonomics practices, and also disseminating the ergonomics discipline. JES started the certification program for professional ergonomists in 2003, and 126 ergonomists were certified in the first year. Development of the JES certification program dates back to 1994, with one important goal of preparing to apply for program endorsement from the IEA. In 2007, the JES certification program received IEA accreditation, and with this endorsement the program has become an international program.	Yes	http://www.ergonomics.jp/cpe/index_e.html	168 (since 2003)	160
ORI	USA	Oxford Research Institute Inc. (ORI), an IRS approved non profit corporation, has a fully instituted Certification Program In Human Factors Engineering and Industrial Ergonomics, dating back to 1992. In our view, the best measure of the qualifications and competence of professional persons in most technical fields is that obtained by the judgment of peers in that particular field and the quality of technical products produced by the professional. Given this, and the need for evidence of qualification in Ergonomics/Human Factors, the Oxford Research Institute has established a rigorous process for certification based upon a controlled peer review process. Oxford offers three certifications: Certified Industrial Ergonomist (CIE), Certified Associate Ergonomist (CAE), and Certified Human Factors Engineering Professional (CHFEP).	No	http://www.oxfordresearch.org/	784 (through FY 2007)	561
Register of Certified Professional Ergonomists	Australia	The high incidence of work related musculoskeletal injuries in the 1980s had implications for control of the quality of ergonomics practice in Australia and acted as a catalyst to establish a standard of practice for the ergonomist and to create a register of professional or certified ergonomists. The criteria which could be used for a programme of certification of professionally qualified ergonomists in Australia aroused much debate within the Human FActors and Ergonomics Societyof Australia (HFESA), and in 1985, a proposal to proceed with developing a professional certification scheme was adopted by the Society. In 1990, 21 Society members were awarded professional certification status at the first ceremony of its kind in Australia. The Professional Affairs Board remains active in updating its criteria for membership. In 1990, the Australian Government moved to introduce competency based assessment in all occupations and professions. It was realised that definition of ergonomics competencies was vital for the comprehensive review of the certification procedure, as a basis for recertification, and as a resource in planning and accrediting education programmes. Working alongside Professor Margaret Bullock, who was leading an international IEA Task Force to outline international competency standards for a practising ergonomist, the HFESA defined and published its own outline of core competencies for an ergonomist.	Yes	http://www.ergonomics.org.au	83 (as of 2009)	78

*Table 1, first column abbreviations:
BCNZE: Board for Certification of New Zealand Ergonomists

BCPE: Board of Certification in Professional Ergonomics
CCCPE: Canadian Certification Council for Profesionnal Ergonomists
CREE: Centre for Registration of European Ergonomists
JES: Japan Ergonomics Society
ORI: Oxford Research Institute
SisCEB: Certification System of Brazilian Ergonomics (SisCEB is its acronym in Portuguese)

Table 2. Number of registered professional ergonomists per million inhabitants in different countries/regions served by professional ergonomist certifying bodies.

Certifying Body*	**Country or Regions with E/HF Professional Societies Served by Certifying Body**	**Number of Professional Ergonomists Currently Registered by Certifying Body (last column of Table 1)**	**Population of Country or Region (in millions)$**	**Number of Registered Professional Ergonomists per Million Inhabitants in Country or Region**
BCNZE	New Zealand	12	4.2	2.86
BCPE & ORI	USA	2937	307.2	9.56
CCCPE	Canada	128	33.5	3.82
CREE	Western Europe#	410	399.7	1.03
JES	Japan	160	127.1	1.26
Register of Certified Professional Ergonomists	Australia	78	21.3	3.66
SisCEB	Brazil	103	198.7	0.52

*See definitions in footnote to Table 1

#The 17 western European Countries with E/HF professional societies served by CREE are: Austria, Belgium, Denmark, Finland, France, Germany,Great Britain, Greece, Ireland, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland

$Population figures are estimates as of July, 2009, taken from the following web site: https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html

Table 3. Perspectives by different certifying bodies as to what constitutes "minimum specifications" for core competencies for professional ergonomists.

IEA Basic Document. Guidelines on Standards for Accreditation of Ergonomics Education Programs at Tertiary (University Level) – Version 2, January 2003 (http://www.iea.cc/browse.php?contID=professional_standards_education_committee_2&phpMyAdmin=XPyBrlJQjtrNYKM50fpmCYvGm%2C8&phpMyAdmin=jLDUJrGUIxQ-3p3v5atPhaf1Xo8)	**Board for Certification of New Zealand Ergonomists (BCNZE)** (http://www.ergonomics.org.nz/Docs/BCNZE_FlowChart_Nov05.pdf)	**Board of Certification in Professional Ergonomics (BCPE)** (http://bcpe.org/store/list.asp?RecordID=4)	**Canadian Certification Council for Profesionnal Ergonomists (CCCPE)** (http://www.ace-ergocanada.ca/index.php?command=buildBlock&contentid=212)	**Centre for Registration of European Ergonomists (CREE) (Appendix IX)** (http://www.eurerg.org/CREE%20-%20HETPEP%20criteria%20V2%20-%20June%202007.pdf)	**Japan Ergonomics Society (JES)** [2, Appendix 7]	**Oxford Research Institute*** (http://www.oxfordresearch.org/cert_program.htm	**SisCEB Certification System of Brazilian Ergonomics** (http://www.abergo.org.br/arquivos/norma_erg_br_1001_competencias_essenciais.pdf) (in Portugese)
1. An understanding of the theoretical bases for ergonomic planning and review of the workplace	1. Ergonomics principles	1. Ergonomics principles	1. Ergonomics	1. Ergonomics principles	1. Ergonomics principles	1. Physiological psychology	1. Ergonomics principles
2. An appreciation of the effect of factors influencing health and human performance that have the potential for generating injury, disease or disorder	2. Human characteristics	2. Human characteristics	2. Human characteristics	2. Human characteristics	2. Human characteristics	2. Physiology	2. Human characteristics
3. An understanding of the requirements for safety and the concepts of risk, risk assessment and risk management	3. Work analysis and measurement	3. Work analysis and measurement	3. Ergonomic approaches to people at work	3. Work analysis and measurement	3. Measurement and evaluation of human characteristics	3. Sensory psychology	3. Work analysis and measurement
4. An appreciation of the extent of human variability influencing design	4. People and technology	4. People and technology	4. Supporting courses	4. People and technology	4. Environmental characteristics	4. Engineering psychology	4. People and technology
5. An understanding of methods ofquantitative and qualitative measurement relevant to ergonomic appraisal and design	5. Professional issues	5. Applied research and/or design	5. Application areas, including field work	5. Applications	5. Ergonomics applications	5. Anthropometrics	5. Applications in field work
6. Analysis of current guidelines, standards and legislation		6. Professional issues		6. Professional issues	6. Ergonomic evaluation	6. Statistics,	6. Professional issues
7. Identification of potential or existing high risk areas and high risk tasks						7. Experimental design	7. Analysis of a work situation

8. Ability to communicate effectively with the client and professional colleagues in verbal and written form						8. Human factors engineering	8. Written ability is evaluated only with the written test
9. Application of the principles of systems theory and systems design						9. Human reliability analysis	9. Not evaluated
10. Application of appropriate concepts and principles at an organization level						10. Industrial safety	10. Concepts and principles of organizational ergonomics are included in the written test.
11. Ability to outline and justify appropriate recommendations for design or intervention						11. Human behavior	11. Written test
12. Ability to carry out evaluative research relevant to ergonomics						12. Task analysis	12. Not evaluated

*The Oxford Research Institute does not define minimum specifications for core competencies for professional ergonomists as such. The web site indicated notes that core competencies within the field of ergonomics include the 12 specifications listed. Other core competency categories specified on the ORI web site include: human memory, decision making, problem solving, cognition, design for ease of maintainability, workload assessment, systems safety, and macroergonomics. The ORI web site also specifies that collateral disciplines such as biomechanics, systems engineering, anatomy, physics, motion analysis, and kinesthethics all have a direct applicability to ergonomics.

PERSPECTIVE OF PETER BUDNICK

Dr. Budnick's commentary focused upon the evolution of the USA-based Board of Certification in Professional Ergonomics (BCPE), from its start in the early 1990's, its IEA accreditation in 2001, and finally to its recent efforts to achieve accreditation by the National Commission for Certifying Agencies (NCCA). He shared his views on the importance of certification for the ergonomics profession, touching on the challenges created by the breadth of our profession, marketplace trends that are effecting BCPE certification, including it's new credential, Certified User Experience Professional (CUXP). He also discussed his views on the IEA accreditation process, from BCPE's own experiences obtaining the recognition, to his ideas for making the process rigorous yet obtainable, regardless of country or region.

PERSPECTIVE OF ERNST KONINGSVELD

The European certification system is owned and administered by CREE, the Centre for Registration of European Ergonomists. The system is based upon the so-called HETPEP document, which stands for Harmonising European Training Programmes for the Ergonomics Profession. The HETPEP document resulted from the efforts of a working group drawn from the ergonomics societies of France, England, Germany and the Netherlands, plus a series of subsequent meetings, from 1985 to 1992. It specifies the minimum qualification requirements for a professional ergonomists. Since then, the requirements have been updated based on growing experiences and insights.

CREE currently provides certification services for ergonomics societies in seventeen European countries. To become a European Ergonomist (Eur.Erg.), one has to fill out an extended application form specifying the education and training realised, professional status and career, a number of project summaries (according to a format), and a plan for permanent education and development. The application is evaluated by a National Assessment Board (NAB) within a given member country. The CREE Council decides on the basis of a summary provided by the NAB.

Registration is valid for a period of five years, after which renewed assessment has to take place. This guarantees a continuous professional quality both for the European Ergonomist and the employer or client.

All successful applicants will have demonstrated experience in taking full responsibility for the use and application of ergonomics knowledge and methods in practical situations over a period of at least two years beyond their main ergonomics education and training. European Ergonomists have agreed to abide by the CREE Code of Conduct (which is similar to those of its member societies).

As of March, 2009, 410 Europeans in seventeen countries have been certified. T he number of countries that have accepted the CREE system is still growing. In brief, what has been achieved with CREE may be summarized as follows:

- Development of the CREE registration system represents a notable achievement.
- There is an increasing number of countries participating, and an increasing number of Eur.Erg.s.
- Clients for ergonomics work and employers are now asking for Eur.Erg.s. Thus, being a European Registered Ergonomist is profitable.

These are accomplishments to be proud of!

PERSPECTIVE OF MARCELO SOARES

This commentary addressed the background and features of the certification system for professional ergonomists in Brazil. The Brazilian Certification of Professional Ergonomists (BCPE) program was created on September 4th, 2002. It was the first certification system for professional ergonomists to be introduced in Latin American. This presentation dealt with the background, trends, and challenges related to the BCPE program. Currently, there is a limited number of certified professional ergonomists in Brazil. To increase this number is a challenge to be faced by the Brazilian Ergonomics Society.

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The Future of Ergonomics in Education – Panel Session

Session Chair
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Discussants
Dr. Bob Bridger, Consultant Ergonomist, Lee-on-the-Solent, Hampshire, United Kingdom
Prof. Knut Inge Fostervold, Department of Psychology, University of Oslo, Norway
Prof. Karen Jacobs, Department of Occupational Therapy, Boston University, USA
Rani Lueder, MSIE, CPE,, Humanics ErgoSystems, Inc. USA
Prof. Leon Straker, Curtin University of Technology, Perth, Australia

The application of ergonomics/human factors (E/HF) principles and practices, and the implementation of ergonomics programs, have achieved proven success in improving performance, productivity, competitiveness, and safety and health in most occupational sectors. However, the benefits that the application of E/HF science might bring to promoting student learning have yet to be widely recognized. This session will address the degree to which ergonomic principles and practices currently are applied to benefit student learning and the performance of educational systems, as well as future prospects for educational ergonomics. The two basic questions underlying the session are how the ergonomic design of learning environments influences learning performance, and how the consequent benefits of ergonomic design for learning can achieve greater recognition on the part of the educational community. The future scientific challenge confronting learning ergonomics, as will be discussed in this session, is delineation of which design characteristics in the learning environment have the greatest influence on variability in learning performance. Practically, a key future challenge is to apply this scientific understanding to ergonomic interventions directed at design improvements of learning environments to benefit learning. In this regard, one particular focus of the session will be on the profound ergonomic design transformation of learning environments currently underway in the transition from a face-to-face to a web-based (e-learning) classroom design. In summary, this session will deal with these themes by addressing the origins and scope of learning ergonomics, scientific and practical implications regarding an ergonomics perspective on learning, and the future trajectory of educational ergonomics.

OVERVIEW

This session features five discussants, listed above, with extensive experience in E/HF postgraduate education, as well as interest in and dedication to educational ergonomics---the application of E/HF principles and practices to improving student learning and the performance of educational systems. Perspectives by each of these discussants on the future of ergonomics in education are provided below.

The overview offered here is framed in the mantra of why, what, and how: (1) why is the future of ergonomics in education important? (2) what is this future? and (3) how can this future be achieved.? An attempt is made to integrate the views of all panel discussants in addressing these questions.

Why is the Future of Ergonomics in Education Important?

Two sets of observations may be cited in response to this question. First are findings indicating that the learning process is prominently influenced by design factors in the learning environment (T.J. Smith, 2007). Scientific evidence for this point has its origins in an extensive body of differential learning research dating back over a century, demonstrating that much of the variability in cognitive performance and learning (whose development and refinement is a primary focus of education) is attributable, not to innate biological factors, but rather to specific design features of the learning environment. The seminal text in the field is that of K.U. Smith and Smith (1966), a work that represents the first and still the most comprehensive effort to apply a well-defined E/HF perspective to learning and education (the first chapter is entitled, "Human Factors in Learning Science"). These authors evaluate a broad range of design factors (such as audiovisual techniques, textbook design, training programme design, and programmed instruction methods) that can be expected to influence learning and educational performance. The authors also advance a behavioral cybernetic theory of learning that maintains, based on evidence for context specificity in learning performance, that learning must be understood not as a generalized, innate phenomenon, but rather as a closed-loop process mediated by interaction between behaviour of the student and learning environment design factors. Given publication of this work over four decades ago, the time is long overdue to revisit and intensify efforts to demonstrate that student learning and educational systems today can benefit from the application of E/HF principles and practices, as has been the case with many other human systems and areas of human performance.

Why have K-12 educators largely ignored the relevance of E/HF to understanding the nature of student learning? A possible reason was suggested by K.U. Smith and Smith (1966, p. 1): "*Factors of human design long have been ignored in experimental psychology. It has been believed that learning could be studied as a general process*." Although a large body of evidence regarding context specificity in performance and learning can be cited to contradict

generalized learning theory (K.U. Smith and Smith, 1966, T.J. Smith, 2007; T.J. Smith et al., 1994), there is no question that the latter viewpoint still plays an influential role in shaping the understanding of K-12 educators regarding the nature of learning. In fact, the empirical record points to a relatively balanced contribution of design factors, and of innate neurobiological and learning mechanisms, to observed variability in learning performance.

The second set of observations pointing to the conclusion that the future of ergonomics in education is important relates to extensive evidence that ergonomic design benefits the health and wellbeing of children, both generally and in learning environments particularly. In their perspectives below, Bridger points to ergonomic design of school furniture, and Fostervold and Jacobs point to quality design of school classrooms and buildings, in support of this conclusion. Although Straker does not address this issue directly in his perspective below, his research in how the designs of classroom computer workstations, and of children's backpacks, affect the health, wellbeing, and performance of children has achieved international recognition (e.g., Straker and Pollock, 2004). More recently, Lueder and Rice (2008) edited a compendium that reviewed the cross-disciplinary research relevant to applying ergonomic research and practices to the design of products and places for children and adolescents.

What is the Future of Ergonomics in Education?

As John Galsworthy once said, "*If you do not think about the future, you cannot have one.*" As evident in the perspectives below, each discussant has given some thought to what the future holds for ergonomics in education, but the conclusions vary between profound pessimism and relative optimism. The strongest pessimistic viewpoints are those of Bridger and Straker. The former points out that ergonomic principles typically are not understood in developing designs of learning environments, and that this neglect may thereby adversely affect children. Straker delineates a series of formidable barriers to the recognition and acceptance of ergonomics in education that may prove difficult to impossible to overcome, an analysis that leads him to the dire conclusion that, "*the death of ergonomics may be imminent.*"

The respective views of Fostervold, Jacobs, and Lueder are more moderate. Fostervold expresses regret at the lack of recognition in Norway of how applying ergonomic principles and practices can benefit the design of school buildings. He goes on to outline initiatives currently underway to introduce ergonomic knowledge as an integrated part of the planning phase of the building process. Jacobs opines that the integration of ergonomic principles and practices can become part of the educational community and educational systems only if it has the support of policy makers. She goes on to describe how she has been working with a state legislator in Massachusetts to promulgate a state law that mandates the Massachusetts School Building Authority to include ergonomically-friendly design into the new and rehabilitative construction of schools whose municipalities have applied for funding.

In other words, both Fostervold and Jacobs are attempting with their efforts not so much to predict the future, but rather to create the future of ergonomics in education.

In her comments, Lueder adopts a broader perspective that focuses on the relevance of ergonomic principles and practices to children generally, across all environmental design domains. She points out that, although E/HF has come to recognize ergonomics for children as a distinct sub-domain of the field, E/HF professionals must remain acutely aware that assumptions about adults either do not apply, or else must be applied in a modified or transformed manner, to children. Lueder's comments remind us that, since children spend a considerable percentage of their waking hours interacting with learning environments, there is considerable overlap between ergonomics for children and educational ergonomics for children in terms of themes, issues, and concerns.

The Chair of this session is engaged in an effort to encourage a more systematic evaluation of educational programs responsible for training professional ergonomists. In particular, a draft basic document has been developed that calls of the Professional Standards and Education Committee of the International Ergonomics Association (IEA) to assume responsibility for accrediting E/HF educational programs (T.J. Smith, 2009).

The rationale for offering E/HF educational program accreditation services through the IEA may be summarized as follows: (1) to date, only two E/HF professional bodies formerly accredit university-level E/HF educational programs, namely the Human Factors and Ergonomics Society (HFES) in the U.S, and The Ergonomics Society in the U.K.; (2) HFES accreditation services are limited to E/HF programs offered by institutions in North America, and services provided by The Ergonomics Society are limited to E/HF programs offered by institutions in the U.K.; (3) therefore, guidance for E/HF program accreditation provided by these two bodies cannot be considered international in scope---that is, there are no international standards for accreditation of E/HF programs at the postgraduate university or college level; (4) for some time, the IEA has provided accreditation services for professional ergonomist certification programs---this represents a precedent for extending the scope of such services to include formal accreditation of E/HF educational programs as well; (5) there is no existing IEA basic document that explicitly describes minimum specifications for the structure and content of an E/HF educational program at the University level; and (6) as of the date of this document, the number of IEA Federated Societies is approaching 50---as the only truly international E/HF body, the IEA is uniquely and appropriately positioned to assume responsibility for accrediting E/HF educational programs, particularly those in countries that exhibit an emerging or expanding focus on E/HF science.

How Might Predictions Regarding the Future of Ergonomics in Education be Realized

As noted above, both Fostervold and Jacobs are attempting to apply professional input or a legal mandate, respectively, in order to guide the application of ergonomic knowledge as an integral part of the planning phase of the school building process. These efforts to guide the trajectory of decision-making represent one clear strategy for realizing the future of ergonomics in education.

With her advocacy of the importance of ergonomics for children, as manifested most prominently in the seminal text on that topic that she and Rice have edited (Lueder and Rice,

2008), Lueder is attempting to heighten general awareness of the influence of artifact, interface, and environmental design conditions on children's safety, health, and well being. It is to be hoped that the audience for this publication will include educators and the educational community at the K-12 level, and will thereby, as another key strategy, lead to closer attention to the importance of learning environment design as a major influence on student learning.

The proposal of T.J. Smith (2009) that IEA assume responsibility for accrediting postgraduate E/HF educational programs represents a third strategy, aimed at encouraging more systematic academic professionalism in the training of professional ergonomists (a need targeted by Bridger in his perspective). It is anticipated that this proposal will be presented to the IEA Executive Council for approval consideration during the IEA 19th International Congress in Beijing in August, 2009.

Nevertheless, it must be recognized that the field of education, particularly at the K-12 level, is characterized by systemic bureaucratic and pedagogic inertia, insofar as recognizing and accepting the potential benefits of ergonomic design in supporting student learning, health, and wellbeing are concerned. The insight offered by K.U. Smith and Smith (1966), cited above, regarding the traditional viewpoint about the nature of learning represents one manifestation of this inertia. As T.J. Smith (2007) points out, there has been essentially no change in this viewpoint in the ensuing three decades.

From a broader perspective, the viewpoint of Jacobs appears particularly germane.

> "*To effect change in the consistent application of ergonomics in education (K-12) will require a multifactorial approach. It is my opinion that the integration of ergonomic principles and practices can become part of the educational community and educational systems if it has the support of policy makers. To obtain the support of policy makers will require relationship building with these individuals, sharing with them examples of successful models of ergonomics in education, and the translation of published scientific research into an understandable language which includes cost benefits.*"

It is reasonable to assume that many in our profession would agree with this view, and hold out the hope that the field of education---the last major sociotechnical systems area that has remained relatively refractory to the meaning and promise of E/HF---will ultimately reap the benefits that other systems areas already have realized. Yet the contrasting pessimism of Straker---a renowned researcher and innovator in the field of educational ergonomics---cannot easily be dismissed. It is the view of the Chair of this session that the future of ergonomics in education remains murky, and that it will take a protracted and intensive effort to ultimately make E/HF an integral part of educational systems and learning environment design planning and implementation.

PERSPECTIVE OF BOB BRIDGER

Dr. Bridger offered a brief presentation that addressed two themes: (1) Ergonomics Applied to Education (where did we go wrong and why?); and (2) Education in Ergonomics (is there such a thing as an ergonomics graduate?).

Analysis of the "ergonomics applied to education – where did we go wrong and why?" theme focused on six issues:

- modern school furniture;
- standard too low for adult use;
- schools not covered by the same regulations;
- school children not regarded as DSE users;
- result: ergonomic principles not understood.

Analysis of the "education in ergonomics - is there such a thing as an ergonomics graduate?" theme focused on three major issues:

- What do employers get for their money when they employ an ergonomist?
- Responsibilities of job negotiable to an extent;
- Contrast ergonomics graduates with psychology graduates (UK system).

An elaboration of these themes then was offered, with an emphasis on the following points.

Psychology Graduates

- 13,000/year in the UK;
- Many with 1st or upper second class degrees;
- What do you get for your money?

Psychology Graduates Skill Package

- Good at:
  - experimental design and statistics;
  - survey design;
  - questionnaire design and psychometrics;
  - relatively numerate (mainly statistics)and literate;
  - can write research protocols;
  - usually technophobic;
  - adaptable to a wide range of research tasks;
  - can learn new skills such as task analysis quite easily.

Ergonomics Graduates

- Few and far between;
- Normally, skills depend on First degree and interests;
- Often lacking skills in research design and statistics;
- In general, the variability in ergonomics graduates reflects the lack of a professional identity in the field;
- Need to establish a basic set of skills.

PERSPECTIVE OF KNUT INGE FOSTERVOLD

In Norway, as in most other countries, huge investments are spent each year on new school buildings and rehabilitation of old schools. According to the Primary and Lower Secondary Education Act (LovData, 2002) all pupils in Norway have the right to a good physical and psychosocial environment that promotes health, well-being and learning. This political intention is strengthened further in the Plan of Action for Universal Design (Universal Design, 2006), where the Norwegian government articulates that its policy is to strengthen the development and use of building designs that provide good functionality for everyone. Facing this challenging goal, one should expect politicians, educational experts, and school authorities to appreciate and utilize knowledge within the field of ergonomics in their effort to design school buildings that comply with the intentions in the legislation.

Generally, this expectation seems, unfortunately enough, not to be the case. A major problem is that empirical

knowledge about how architecture, both interior and exterior, affects learning and the learning environment seems to be relatively sparse and not very well known within the decisive and granting authorities. Instead, plans and decisions often seem to be based on a combination of economical concerns, pedagogical ideology, architectural trends, and individual conviction. In cases where ergonomic knowledge is considered in the building process, it is often used in isolated areas such as the design of stairways adapted for wheel chair users, or choice of furniture.

In order to react to this rather disappointing situation, an initiative has been taken by the Norwegian Ergonomics Society, with support from the Nordic Ergonomics Society, to launch a project where the aim is to introduce ergonomic knowledge as an integrated part of the planning phase of the building process. The project idea and the different parts of the project will be presented during the presentation.

PERSPECTIVE OF KAREN JACOBS

To effect change in the consistent application of ergonomics in education (K-12) will require a multifactorial approach. It is my opinion that the integration of ergonomic principles and practices can become part of the educational community and educational systems if it has the support of policy makers. To obtain the support of policy makers will require relationship building with these individuals, sharing with them examples of successful models of ergonomics in education, and the *translation* of published scientific research into an understandable language which includes cost benefits.

In Massachusetts, USA, I have been working with a State Representative who is supportive of such an initiative. In 2009, he brought forth legislation to address one aspect of ergonomics in education: the physical building and classroom. The submitted legislation, if approved, will add an amendment that the, "*…Massachusetts School Building Authority shall include ergonomically-friendly design into the new and rehabilitative construction of schools whose municipalities have applied for funding."… and "…to consider the feasibility of the integration of ergonomic models appropriate for classrooms and laboratories within the scope of the construction or rehabilitation of a particular proposal; the investment of brick and mortar, and its beneficial impact to the students and faculty of the school.*" This case example among others will be shared during the panel discussion.

PERSPECTIVE OF RANI LUEDER

Since the beginning of our history, humans have struggled to find ways to improve children's health, well-being, understanding and performance. Yet until fairly recently, E/HF has largely focused on ergonomics for adults; only a few years ago, many ergonomists were quite firm in their convictions that the discipline responsible for applying the principles of ergonomics was specific to adults.

In recent years there has been a sea change shift in this perspective, and the sub-discipline of ergonomics for children seems to be comfortably considered part of the larger discipline of E/HF.

But wait. We're not even close to making it out of the woods. Stumbling blocks include:

1. Don't assume the ergonomics research literature will answer all of your questions.

The research literature relevant to ergonomics for children is found in a broad range of disciplines that , in addition to E/HF, include medical, physical and occupational therapy, optometry, architecture, urban planning, education, psychology, and other fields. This tsunami of research brings forth an echo chamber, a sort of hall of mirrors, of perspectives that we must at least try to reconcile before we can provide meaningful and wise guidance.

In the United States, much of the change has historically risen through government interventions such as the Consumer Product Safety Commission (CPSC); the National Institute of Occupational Safety and Health (NIOSH), and other agencies including the Centers for Disease Control (CDC); the National Highway Traffic Safety Administration (NHTSA), and so forth. We should continue to use these resources as we rethink our common assumptions.

2. Don't assume standard principles for accommodating adults are consistently relevant to children and adolescents.

Ergonomics professionals are quite new to this topic and often try to apply the same principles that are commonly adhered to in the workplace.

Risk assumptions for adults may not apply to children. Children (particularly adolescents) report distressingly high rates of musculoskeletal symptoms – which many ergonomists compare to those of adults. But these symptoms may have quite different implications than for adults. For example, we are still trying to wrap our heads around the fact that, to date, the research literature suggests that children have little if any risk of getting cumulative trauma disorders from using computers – their health hazards are real, but lie elsewhere.

Panelist Knut Fostervold is particularly versed in the real visual issues that are often ignored among children using computers.

3. Be cognizant at all times of disadvantaged children, who most need effective ergonomics interventions.

While the ergonomics literature has emphasized the application of "ergonomic principles" to product design, there is a vast literature that attempts to address means of ensuring that users who are most vulnerable – particularly those living in impoverished communities – get special protection they require that incorporate considerations that reflect their real life situations.

4. Even if child and adolescent symptoms appear to resemble those of adults:

- Children and adults may exhibit the same symptoms despite having entirely unrelated disorders that reflect differences in their ages (Burton et al., 1996).

  For example, similar complaints may suggest a tendon disorder in an adult but a disorder affecting the growth plates of a child's bones.

- Children and adults may experience the same disorder, but the implications of these disorders may differ considerably due to age-related differences.

  That is, the same disorder may be more hazardous for growing children. For example, back pain may merit particular concern for children, whose bones are still developing.
- Exposure to the same ergonomic design factors may be differentially affected by the person's age.

  That is, the same exposure may affect children and adults differently.

PERSPECTIVE OF LEON STRAKER

This paper is intentionally provocative and argues that the future of ergonomics in education is bleak based on a number of important social trends, with potential to detrimentally impact on ergonomics.

Drivers in Underlying Disciplines.

Ergonomics knowledge has been built on the knowledge bases of underlying disciplines – such as health, psychology, design, and engineering. These disciplines remain strong and their direction and success influences the fate of ergonomics.

An example of how a driver in an underlying discipline is influencing ergonomics is the 'evidence based practice' movement in health. Originating in medicine and subsequently spreading to all health disciplines, this movement argues that evidence is required to deliver effective interventions that represent a sensible investment of community money. Classifications of levels of evidence were developed and rival interventions competed to conduct research which generated the highest level of evidence. Over the last two decades this has substantially improved the quality of health research. In contrast, ergonomics has not had this driver and thus the quality of research has been surpassed.

Another example is how aesthetics is a driver for design. This tends to be fashion driven, does not rely on evidence, nor does it rely on usability. Its drivers therefore do not enhance ergonomics.

Unique Approach is Now not Unique

A factor contributing to the early success of ergonomics was that it was multidisciplinary. However as more complex problems have been tackled by all disciplines, the need for multidisciplinary knowledge is widely recognised and used.

Critical Issues of Community Concern Sideline Ergonomics

The major issues generating community concern are not those traditionally involving ergonomics, which leaves ergonomics as a side issue in public perception. For example, climate change, the global financial crisis, religion-based terrorism, and poverty rank highly in public (and therefore political) awareness---yet ergonomics has not had a major role nor profile in any of these areas.

Education is Focussed on Measurable Fundamentals

As with design, education philosophy appears to be fashion driven, and community concerns currently being voiced are that past philosophies have disadvantaged children by not ensuring they have high levels of fundamental literacy, numeracy, and science skills. Education authorities are increasingly being judged, and funded, by how well their students perform in standardised tests of traditional skills. T his leads away from integrating concepts like ergonomics.

Summary

In conclusion, the focus of disciplinary bases of ergonomics, the lack of uniqueness in approach, the lack of profile in key international issues and the focus on traditional education outcomes are social trends which indicate the death of ergonomics may be imminent.

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Appendix 2

Standards for Accreditation of Post-Secondary Ergonomics/Human Factors Educational Programs at the University or College Level

Basic Document, Version 1

Draft

June, 2009

International Ergonomics Association

Professional Standards and Education Standing Committee

Standards for Accreditation of Post-Secondary Ergonomics/Human Factors Educational Programs at the University or College Level

Basic Document, Version 1

Draft

June, 2009

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Background

For many years, the International Ergonomics Association IEA has evinced concern about the qualifications of professional ergonomists, and the quality of post-secondary ergonomics/ human factors (E/HF) educational programs responsible for training these professionals (for purposes of this document, a post-secondary educational institution is defined as a university or college-level institution). Basic documents promulgated by the IEA providing guidance for core competencies for professional ergonomists represent a manifestation of this concern (References 2-6 below).

In 2003, the IEA promulgated a basic document delineating guidelines on standards for accreditation of ergonomics education programs at the university level (Reference 1 below). This document contained guidelines only, with no compliance authority. Subsequently, the IEA Professional Standards and Education (PSE) standing committee, under the leadership of Prof. Stephen Legg (Massey University, Australia), promulgated a draft document presenting guidelines on the minimum specifications for a Masters degree in ergonomics/human factors (Reference 7 below). The premise of this draft is that minimum specifications for a post-secondary E/HF educational program could be identified, and that a Masters degree was the most appropriate degree level for such a program.

The present draft document represents an outgrowth of these earlier efforts. The major difference is that a formal accreditation process for post-secondary E/HF educational programs is delineated in the document, accreditation criteria are specified, and the IEA is specified as the accrediting authority. In particular, this document explains the approach used by the IEA to accredit post-secondary E/HF educational programs at the university or college level, and the criteria used by the IEA to evaluate applications for program accreditation. The document is organized as follows.

- Introduction and Purpose
- Rationale and Terms of Reference
- References

- E/HF Educational Program Degree Level Best Suited for Positioning Graduates for Career Pursuits and Certification as Professional Ergonomists
- General Principles
- Post-Secondary E/HF Educational Program Institutional Support, Organization and Resources - Accreditation Criteria
- Minimum Specifications for the Content of Post-Secondary E/HF Educational Programs - Accreditation Criteria
- Minimum Performance Specifications for Professional Ergonomists Trained by Post-Secondary E/HF Educational Programs - Accreditation Criteria
- Distance Education/E-Learning in E/HF
- A Roadmap for Accreditation Criteria and the Accreditation Application Process

Introduction and Purpose

1. As part of its concern for quality performance on the part of practising ergonomists, the IEA has established a program for accrediting ergonomics/human factors (E/HF) educational programs at the post-secondary university or college level. An accreditation process serves to indicate whether a particular E/HF educational program meets specified criteria for preparing graduates appropriately for E/HF research and practice, and for attaining accreditation standards specified by the IEA as a professional accrediting body. That is, the process provides an assurance to the profession that professional standards have been met by the educational program.

2. As an accrediting authority, the role of the IEA is to evaluate E/HF educational programs that apply for accreditation, as well as the capacity of the Institution offering an E/HF degree or award to do so according to specified standards. Accordingly, the accreditation process should consider not only the curriculum and the process of education, but also the mechanisms employed to ensure quality outcomes, the resources and facilities available (including laboratories, libraries, and computer access), and the performance of graduates. Issues relating to student selection and progression, faculty expertise and development, and arrangements for supervised work experience also need to be addressed.

3. Responsibility for the process of and standards for accreditation set forth in the remainder of this document rests with the Accreditation Subcommittee, constituted as a subcommittee of the PSE. This subcommittee provides oversight for accreditation or re-accreditation of existing E/HF programs and for accreditation of new proposed E/HF programs, through analysis of qualifications of and adherence to procedures to be followed by applicants in moving through the accreditation process. Members of the Accreditation Subcommittee will be appointed by the PSE Chair, and will comprise internationally recognized E/HF professionals with records of experience in and contributions to E/HF education.

Rationale and Terms of Reference

4. The rationale for offering E/HF educational program accreditation services through the IEA, as described in this document, may be summarized as follows: (1) as of the date of this document, only two E/HF professional bodies formerly accredit university-level E/HF educational programs, namely the Human Factors and Ergonomics Society (HFES) in the U.S, and The Ergonomics Society in the U.K.; (2) HFES accreditation services are limited to E/HF programs offered by institutions in North America, and services provided by The Ergonomics Society are limited to E/HF programs offered by institutions in the U.K.; (3) therefore, guidance for E/HF program accreditation provided by these two bodies cannot be considered international in scope---that is, there are no international standards for accreditation of E/HF programs at the post-secondary university or college level; (4) for some time, the IEA has provided accreditation services for professional ergonomist certification programs---this

represents a precedent for extending the scope of such services to include formal accreditation of E/HF educational programs as well; (5) there is no existing IEA basic document that explicitly describes minimum specifications for the structure and content of an E/HF educational program at the University level; and (6) as of the date of this document, the number of IEA Federated Societies is approaching 50---as the only truly international E/HF body, the IEA is uniquely and appropriately positioned to assume responsibility for accrediting E/HF educational programs, particularly those in countries that exhibit an emerging or expanding focus on E/HF science.

5. The accreditation process described in this document assumes that the E/HF educational programs that apply for accreditation through this process, through the academic training and practical experience that they provide, will lay the groundwork for their graduates to go on to seek certification as professional ergonomists. The IEA has approved the following definitions of an ergonomist and a certified ergonomist:

   > "An ergonomist is an individual whose knowledge and skills concern the analysis of human-system interaction and the design of the system in order to optimize human well-being and overall system performance.
   >
   > An IEA-recognised Certified Ergonomist is a professional ergonomist whose practice and training have met the quality criteria set by an IEA-endorsed certifying body."

   The implications of these definitions for the accreditation process described in this document are as follows: (1) in the spirit of the first definition, criteria set forth in this document for E/HF educational program accreditation will emphasize that the program meets minimum specifications (Point 6) for preparing graduates for pursuing careers as professional ergonomists; and (2) the quality criteria alluded to in the second definition are delineated in other IEA basic documents (next section, References 1-6), that describe IEA specifications for professional ergonomist core competencies, and criteria that a professional ergonomist certifying body must meet to achieve IEA certifying body accreditation.

6. As noted in Point 5, criteria set forth in this document for E/HF educational program accreditation will emphasize that the program meets minimum specifications for preparing graduates for pursuing careers as professional ergonomists. As detailed in following sections, this emphasis will focus on minimum program content specifications and on minimum performance specifications for ergonomists trained by E/HF educational programs.

7. This document combines relevant material from a series of IEA basic documents, coupled with documentary material and informed judgments from different internationally recognized E/HF professionals.

8. The IEA will assess an application fee of $300 for any E/HF educational program applying for IEA accreditation, and $200 for any program seeking re-accreditation. The fee is payable in $U.S.

References

9. This document, in part, draws upon documents published previously by other authors pertaining to the topic of ergonomics education, E/HF educational programs and core competencies to be expected of graduates of such programs. References to these prior publications are listed below. To provide appropriate credit for these other authors in the remainder of this document, these references are cited using numbers in brackets ([ ]).

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E/HF Educational Program Degree Level Best Suited for Positioning Graduates for Career Pursuits and Certification as Professional Ergonomists

10. There are a number of degree options that an E/HF educational program might offer to position their graduates for pursuing careers and certification as professional ergonomists. These conceivably could include a 2-year or 4-year undergraduate degree, a Masters degree, or a doctoral degree. However, Legg [7] has offered a compelling rationale for the conclusion that it is a Masters degree that is best suited for this purpose. The substance of his argument is summarized in Points 9-20 below.

11. A Masters degree in E/HF is generally recognised as the major route for an individual to progress towards becoming a professional (certified) ergonomist, either as a practitioner, researcher or academic.

12. It is therefore essential that a Masters degree should provide students with all or most of the core knowledge, competencies, research training and preferably some (or possibly all) of the supervised professional practice experience required of a professionally certified E/HF specialist.

13. The core competencies required for professional certification as an E/HF specialist that are not included in a Masters degree are normally acquired through the experience of independent professional practice. Such experience typically is beyond the scope of an E/HF Masters degree program, although it is recommended that Masters degree programs lay the groundwork for such experience by requiring enrollees to acquire a basic degree of practical experience through some sort of professional development program requirement (i.e., such as Practicum, Intern, and/or Continuing Education options).

14. A series of IEA Basic documents are available that contain a considerable amount of material relevant to a E/HF Masters degree [1-6].

Possible Routes to Earning an E/HF Masters Degree

15. A Masters degree typically requires one to two years of full time (or equivalent) post-secondary study, usually requiring prior completion of a relevant undergraduate degree requiring three to four years (or equivalent) of full time study.

16. A number of possible routes to earning an E/HF Masters degree potentially may be acceptable, as follows:
    a) Completion of a post-secondary university or college level E/HF degree program, with a minimum of one to two years (or equivalent) of full time study, following prior completion of a college or university undergraduate program in a relevant specialist field involving a minimum of three years of study.
    b) Completion of a post-secondary university or college level major E/HF project (by research or equivalent), following prior completion of undergraduate study in a related field of a minimum duration of four years (or equivalent) of full time study, which has included a major component of E/HF content and has addressed a comprehensive set of core E/HF competencies.

    c) Completion of a post-secondary university or college level continuing education program that ensures comprehensive (Masters level) preparation in: (1) E/HF core knowledge; (2) competencies; (3) substantial supervised experience in conducting research; and/or (4) the practice of ergonomics. This preparation assumes prior completion of undergraduate study in a related field of a minimum duration of three years (or equivalent) of full time study.

    d) Completion of post-secondary university or college level E/HF full time study, with a minimum of one to two years (or equivalent) duration, following prior completion of undergraduate study in a field unrelated to E/HF, and successful completion of a suitable "bridging introductory" E/HF course of study or professional experience that is considered equivalent to the appropriate level of a relevant undergraduate qualification.

    e) The terms "related field" or "relevant specialist field" referred to in Point 16 above refer to any professional field that prepares the student in a substantial set of basic E/HF core knowledge and competencies.

General Requirements for an E/HF Masters Degree

18. An E/HF Masters degree should provide students with an appropriate level (extent and depth) of:
    a) E/HF knowledge;
    b) E/HF competencies;
    c) supervised E/HF research training, experience and expertise; and
    c) supervised E/HF professional practice which might assist progression to pursuit of a career and certification as a professional ergonomist.

    and should provide academic preparation consistent with internationally accepted:
    a) definitions of "ergonomics," "ergonomist" and "certified ergonomist" (Point 5 above);
    b) core competencies in E/HF [3-5];
    c) accreditation standards for E/HF educational programs at the post-secondary university or college level (this document); and
    d) criteria for Masters level degree qualifications.

19. It is necessary that a university or college level institution has the capacity to offer an E/HF Masters degree according to specified national or international standards. These standards include many non-curriculum issues that should be adequately addressed, such as: (1) faculty/academic staff characteristics and quality, such as professional qualifications, publications, relevant experience, degree of accountability, professional standing, participation in professional activities, professional development activities, support staff services, and faculty/academic staff student consultive arrangements; (2) student administrative support and management, such as prerequisites for entry, student to faculty/ academic staff ratios, policy on progression and graduation, course workload, access to information and technology; (3) evaluations and assessments; (4) quality management; and (5) facilities and resources. One section of the IEA Basic document, "Guidelines on Standards for Accreditation of Ergonomics Education Programs at Tertiary (University) Level" [1], provides more detailed guidance on these matters. These details are included in a section below.

20. A Masters degree in E/HF should not normally be expected to cover the level of research competence required of doctoral training, nor the level of independent practice experience that is additionally required for full certification of an individual as a professional ergonomist.

General Principles

(Material in this section is drawn, with only minor modifications, from both [1] and [7]. The sequence of specifications in the General Principles sections in these two documents is different---the sequence used by Legg [7] is adopted here.)

21. This document does not provide detailed prescriptive specifications about the content of different E/HF educational programs. Rather, as noted earlier, it is aimed at providing broad guidance about minimum specifications for both program content and for the performance of graduates of these programs. This approach is intended to allow different programs considerable latitude in the educational strategy they choose to deploy to ensure that appropriate E/HF knowledge, competencies, research, and professional practice capabilities on the part of their students is achieved.

22. The following general principles are applicable as guidance for an E/HF educational program.

Philosophy and Objectives

a) The program must have a clearly stated mission and objectives.

b) There is recognition that excellent educational programs may differ in many respects, and that educational objectives may be achieved quite flexibly and in a variety of ways.

c) Innovation in achieving educational objectives should be encouraged.

Approaches to Teaching/Learning and Problem Solving

d) The program should use a range of teaching and learning methods that are appropriate for a post-secondary degree, for the achievement of program objectives, and for the learning styles of the students.

e) Learning experiences should include, at least, the integration of:
   i) problem definition – such as task analysis, error analysis, operational analysis;
   ii) the design of experiments and/or equipment;
   iii) the collection of data on operational users;
   e) statistical analysis and interpretation of data; and
   f) the presentation of findings to operational personnel.

f) An interdisciplinary learning environment should be provided to offer opportunities for students to learn from, and be influenced by, knowledge from outside as well as from within the E/HF field. Students should be made aware of multiple styles of thinking, diverse social

concepts, values, and ethical behaviours that will prepare them for identifying, redefining and fulfilling their responsibility to society and the profession.

g) The program should include opportunities for students, supervised or mentored by E/HF academic faculty/staff, workplace supervisors or certified ergonomists, to participate in such activities as field trips, guest lectures and/or seminars, professional meetings, and/or internships/practica at industrial, institutional or governmental work sites. In addition, wherever possible, opportunities should be provided for students to participate in laboratories where E/HF programs are planned and implemented and/or where ergonomics research is performed.

h) The program should be structured to include classroom (or equivalent distance or e-learning) laboratory, field, and research experiences, and the timely and progressive exposure of students to a variety of work place problems of increasing complexity.

i) Through interdisciplinary instruction and assigned projects, students should be exposed to research and practice issues which provide a holistic appreciation of the scope of the E/HF field.

j) The program should provide opportunities for both independent and group/cooperative learning experiences.

Curriculum Content and Structure

k) Educational content and structure is likely to reflect the diverse and unique character of different individual academic programs and institutions.

l) The curriculum should be organised in a sequential and integrated manner to ensure effective learning, and should be designed to ensure the progressive development of skills of independent thinking, ethical and value analysis, communication, reasoning, problem solving skills, and decision making.

m) The program should identify the scope and level of E/HF knowledge, competencies, research skills, and professional practice capabilities for which it prepares students, by making reference to widely recognized competencies for E/HF specialists [1-6].

Taught Component

n) The program should include all, or an appropriate subset of, E/HF core knowledge and competencies within its taught curriculum [1-6]. This could be formulated, for example, as a separate but related or integral qualification such as a “taught” Post-Secondary Diploma.

Research Training and Scholarship

o) To the extent possible, the program should include an element of supervised research training, including the preparation of a research report, thesis, or equivalent (a human-focussed design report also may be acceptable), in which students are introduced to the integrative, interactive, social, and iterative nature of applying ergonomics.

p) The relationship between research activities and the content and delivery of the program should be well recognised and demonstrated by faculty/academic staff and student involvement in research and scholarship related to the E/HF profession. The nature of such research should reflect the principal objectives of the program.

q) The approach taken to encouraging research should ensure that students gain an adequate understanding of research methodology so that they may accomplish applied studies in relevant professional positions. Faculty and students should be actively involved in research activities integral to the program objectives. Faculty/academic staff should act as effective mentors for students.

Professional Issues and Supervised Practical Training

r) The program should be consistent with professional issues and practice relevant to the time and needs of the marketplace, society, industry, commerce, organisations, trade unions, governments, academia, legislation, and ethics. The regional Ergonomics Society should be consulted to ensure that all relevant issues are fully addressed.

s) The program should facilitate the student's potential for gaining certification as an ergonomist. It is desirable, but not essential, that the program should include an opportunity for students to have appropriate periods of ergonomics practice, supervised and validated by a practising ergonomist, so that students are able to achieve competency in specified core areas. Where this is not possible (for example in small countries where there may be only a few professionally certified practicing egonomists), part(s) of the program should be designed to simulate supervised professional practice as closely as possible.

t) Any practical experience should have sufficient breadth, depth, and coverage to ensure that the objectives of the program are met, that the students have the opportunity to integrate theoretical concepts into E/HF practice, to assume professional responsibilities for E/HF applications under appropriate levels of supervision or mentoring, to observe professional role modelling, and to practice their skills and reasoning with timely and constructive feedback.

u) In workplace environments, specific procedures should be established for communication between mentors and students so that issues of E/HF design may be fully addressed. Specific procedures should be established for communication between workplace mentors and the faculty on professional, curriculum, and administrative matters.

v) The program should encourage the development of student portfolios which contain high quality work products that could form a basis for application by the student for professional certification as an ergonomist.

w) The content of the curriculum and the organisation of the learning experiences should foster a commitment to continuing professional development, including learning through self-directed independent study.

Post-Secondary E/HF Educational Program Institutional Support, Organization and Resources - Accreditation Criteria

(Material in this section is drawn, with only minor modifications, from both [1] and [7, Annex B]. The sequence of specifications pertaining to post-secondary E/HF educational program organization and resources in these two documents is different---the sequence used by Legg [7, Annex B] is adopted here.)

Institution

23. The university or college providing the degree should be accredited by an appropriate government agency in the geographic area, if such an agency and process exists in that country. Where such arrangements do not exist, the Institution should be accredited by an appropriate professional body according to international standards.

Faculty/Academic Staff

Characteristics and Qualifications

24. Faculty/academic staff as a whole should have E/HF experience in:

- teaching;
- research;
- professional practice;
- publishing outcomes of research;
- systems development or applications; and
- supervising masters and/or doctoral theses/dissertations.

These qualifications are delineated in more detail in Points 25-57 below.

25. Each faculty/academic staff member should have documented expertise in their area of teaching, demonstrable effectiveness in teaching and evaluation of students, and a record of involvement in scholarly research and**/**or professional practice in E/HF consistent with the philosophy of E/HF post-secondary education and the needs of the ergonomics community.

26. Collectively, the faculty/academic staff should have a sufficient mix of qualifications to support a post-secondary E/HF educational program, including diversity in areas of expertise, diversity in academic qualifications relevant to E/HF, and experience in curriculum design and development.

27. Each faculty/academic staff member customarily should possess a Ph.D. in an appropriate cognate field. A Masters degree may be acceptable when combined with a record of quality work in an applied domain.

28. It is desirable that some staff have special experience in E/HF practice.

29. The publication record of each faculty/academic staff member should reveal productivity and quality in research and demonstrate active contribution to refereed journals or presentation of technical or other such reports**,** in the fields of E/HF and/or related cognate disciplines. Equivalent evidence should be required of non-academic practitioner staff members.

30. .Faculty/academic staff should be members of appropriate professional societies and should abide by the professional standards and codes of ethics of these societies.

31. Faculty/academic staff should demonstrate their commitment to the advancement of the profession and to discussion of professional issues relevant to the time by participating in leadership positions and on professional committees.

32. Faculty/academic staff should demonstrate an interest in remaining up-to-date by participating in continuing education or professional development programs, where relevant.

Accountability for Program

33. There must be a clearly defined person with explicit responsibility for the post-secondary E/HF degree program, for faculty/academic staff evaluation, and to whom faculty/academic staff report their activities.

Program Support Staff

34. The post-secondary program should have adequate support staff and services, including a library and computing and laboratory facilities, to meet the needs of students, faculty, and academic staff.

Faculty-Student Consultation

35. There should be adequate time and access available with faculty/academic staff for students to consult on progress and course content.

Provisions for Student Support

Prerequisites for Student Entry into Program

36. Entry into the program should be offered on an assurance of equal opportunity with respect to race, creed, color, national origin, gender, age, disability, religion, and socioeconomic and marital status.

37. The academic prerequisites and any other specific criteria for student entry into the program must be clearly stated, compatible with the requirements of a post-secondary degree and equivalent to the completion of an undergraduate degree in a relevant field.

38. Where an institution chooses to admit students without all of the academic prerequisite training that it has prescribed, arrangements must be made for students to rectify these deficiencies.

Ratio of Students to Faculty/Academic Staff

39. The post-secondary degree program should be viable in terms of the ratio of students enrolled in the program to faculty/academic staff. For class work, ratios should be appropriate for the subject, to ensure quality of supervision appropriate for post-secondary study.

Policies on Student Progression and Graduation

40. Policies and procedures regarding student progression and graduation should be relevant to repeat enrollments after failure, competencies and levels of assessment required for progress, and maximum time allowable for course completion and final graduation These policies must be clearly stated, appropriate for post-secondary study, and made available to students at the commencement of the program.

Student Workload

41. There must be a clear outline of the expectation of study (workload) in relation to each component of the program, including course work and research projects and theses.

Access to Information

42. Policies, procedures and degree program information should be current and readily available to students, particularly as related to the aims and objectives, assessment, progression and requirements for graduation, appeals processes, costs, and academic review processes

Evaluation and Assessment

43. The standards of achievement expected must be clearly stated to students, and should be related to specified core competencies for ergonomists [1-6].(or similar set of competencies).

44. The program should utilise a range of assessment methods appropriate to the objectives for both formative and summative purposes. Evaluations should match the competency being assessed, and include written, oral, and practice formats. Students should receive regular feedback on performance. Final evaluations should provide an opportunity to assess overall and comprehensive knowledge, attributes, and skills relevant to E/HF practice and professional behaviour.

45. Assessment methods should be reviewed and evaluated regularly in terms of student load, and also in terms of their validity, reliability, emphasis, balance, appropriateness, and relevance to specified E/HF core competencies [1-6], or a similar approved set of competencies.

Quality Management

46. The program must be offered in a recognised educational institution accredited at the post-secondary level, which is supportive of E/HF both as an academic and a professional discipline. Programs must be approved by the institution and should comply with regional academic regulations. There should be an ongoing program of evaluation of the performance of the faculty/academic staff, which includes the assessment of teaching ability, scholarly activity, and administrative competence. The organisational structure should provide a career path for faculty/academic staff, and should support an ongoing program of professional development for all faculty/academic staff which is linked to evaluation of performance.

47. The program should have established mechanisms of accountability to the institution and to the E/HF profession. There should be a clear and accessible description of the academic governance of the program, with demonstrated lines of accountability and responsibility. The program should maintain records of attrition, pass rates, failure rates, graduations, honours received, and professional recognition.

48. There should be clear and comprehensive policies on course development.

49. There should be clear and comprehensive policies for periodic review of course goals, content, relevance, and quality. The curriculum should be developed and regularly reviewed at an institutional level by the faculty/academic staff for the program, with input from representatives of the profession, the student body, and other interested groups.

50. There should be a clearly defined organisational structure for overview of the program. Faculty/academic staff should regularly review the admissions criteria, including prerequisite subjects, as part of the evaluation of the effectiveness of the program in preparing graduates to be competent E/HF professionals.

Facilities and Resources

51. The program should have adequate funding available per student to provide sufficient numbers of staff and resources to achieve program goals.

52. The students and faculty/academic staff should have access to sufficient equipment relevant to E/HF and to human-system interface technology, as well as sufficient access to consumables to provide the means for effective learning and research.

53. Sufficient computing facilities and space should be available for students to have appropriate access over a prolonged period of the day. Appropriate and up to date computing packages relevant to E/HF applications and to data analysis should be available for student use. The students should have ready access to informational resources including the World Wide Web and E-mail.

54. There should be sufficient classrooms, laboratories, work place facilities, offices, and space for students, faculty, and support staff to provide an environment conducive to learning and research.

55. Faculty/academic staff and students should have ready access to a well maintained and catalogued library of appropriate media and holdings that are current and sufficient in number and breadth to support the content of the curriculum and to meet the needs of the program. There should be database and bibliographic search facilities sufficient to identify appropriate information not held at the library, and inter-library loan facilities in order to obtain these resources.

56. Students should have ready access to those support services that will facilitate their successful completion of the degree, including student counselling, educational support including language instruction, health and residential facilities, and financial aid.

57. There should be occupational health and safety policies relating to a safe working environment, sexual harassment, and disability.

Minimum Specifications for the Content of Post-Secondary E/HF Educational Programs - Accreditation Criteria

Overall Objectives

58. The content of the post-secondary E/HF educational program curriculum should address the following overall objectives (taken from [1]).
    a) The curriculum content should address E/HF theory, practice, and professional issues, customized where applicable to the time, to the capabilities of the program, and to issues and needs germane to the region.

    b) The curriculum (or accepted credit for prior learning) includes opportunities for the student to appreciate E/HF theoretical concepts and gain practical experience which would provide a breadth of knowledge across core areas, and a depth of knowledge in a specialised applications of E/HF consistent, where applicable, with the focus of the institution and the program, demonstrated (for example) by a thesis or project.

Differing Perspectives on Minimum Specifications for the Content of a Post-Secondary E/HF Educational Program

59. A number of sources offer differing perspectives on what constitutes minimum specifications for the content of a post-secondary E/HF educational program. These sources are summarized in Table 1, and cited in [1,8-12]---web site addresses for all sources except Bridger (Table 1, Column 6; [12]) are included.

Table 1. Differing perspectives on minimum specifications for the content of a post-secondary E/HF educational program.

IEA Basic Document. Guidelines on Standards for Accreditation of Ergonomics Education Programs at Tertiary (University Level) – Version 2, January 2003 [1] (http://www.iea.cc/browse.php?contID=edu_accreditation&phpMyAdmin=XPyBrlJQjtrNYKM50fpmCYvGm%2C8&phpMyAdmin=jLDUJrGUIxQ-3p3v5atPhaf1Xo8)	Board for Certification of New Zealand Ergonomists (BCNZE) [8] (http://www.ergonomics.org.nz/Docs/BCNZE_FlowChart_Nov05.pdf)	Board of Certification in Professional Ergonomics (BCPE) [9, p. 3] (http://bcpe.org/store/list.asp?RecordID=4)	Centre for Registration of European Ergonomists (CREE) [10] (http://www.eurerg.org/CREE%20-%20HETPEP%20criteria%20V2%20-%20June%202007.pdf)	Human Factors and Ergonomics Society (HFES) [11, pp. 9-11] (http://www.hfes.org/web/Students/accreditationreport.pdf)	Bridger [12] (Bridger, R.S. (2009). *Introduction to Ergonomics – Third Edition.* Boca Raton, FL: CRC Press)
13. An understanding of the theoretical bases for ergonomic planning and review of the workplace	2. Ergonomics principles	1. Ergonomics principles	1. Ergonomics principles	1. Knowledge about properties of people	1. Introductory ergonomics
14. An appreciation of the effect of factors influencing health and human performance that have the potential for generating injury, disease or disorder	2. Human characteristics	2. Human characteristics	2. Human characteristics	2. Research methodologies	2. Posture and biomechanics
15. An understanding of the requirements for safety and the concepts of risk, risk assessment and risk management	3. Work analysis and measurement	3. Work analysis and measurement	3. Work analysis and measurement	3. Analysis and design methodologies	3. Anthropometry
16. An appreciation of the extent of human variability influencing design	4. People and technology	4. People and technology	4. People and technology	4. Skills (4A. Communication) (4B. Mathematical and Statistical) (4C. Computer)	4. Seating/ workspace

17. An understanding of methods ofquantitative and qualitative measurement relevant to ergonomic appraisal and design	5. Professional issues	5. Applied research and/or design	5. Applications	5. Research experience	5. Repetitive work
18. Analysis of current guidelines, standards and legislation		6. Professional issues	6. Professional issues	6. Practical experience	6. Manual handling
19. Identification of potential or existing high risk areas and high risk tasks					7. Physiology/stress/ work load / work capacity
8. Ability to communicate effectively with the client and professional colleagues in verbal and written form					8. Work environment /assessment
9. Application of the principles of systems theory and systems design					9. Physical environment (vision/lighting/ hearing/noise)
10. Application of appropriate concepts and principles at an organization level					10. Human infor-mation processing
11. Ability to outline and justify appropriate recommendations for design or intervention					11. Displays and controls
12. Ability to carry out evaluative research relevant to ergonomics					12. Basics of HCI
					13. Accidents and error
					14. Macroergonomic factors

60. Except for the specifications of the IEA basic document (Table 1, Column 1; [1]) and of Bridger (Table 1, Column 6; [12]), the remaining sources in Table 1 represent three certifying bodies---BCNZE, BCPE, and CREE---for professional ergonomists (Table 1, Columns 2-4; [8-10]), and one accrediting body---HFES--for post-secondary E/HF educational programs (Table 1, Column 5; [11]).

61. For each source cited in Table 1, the elements listed for that source represent broad categorical content specifications. In the original source, under each broad category, a series of more specific topic areas are recommended for the educational program to cover, to provide the ergonomist in training with knowledge and skill necessary to achieve understanding in each of the broad categorical areas.

62. The information in Table 1 prompts three conclusions. First, there are similarities in the minimum specification categorical topic areas cited by BCNZE, BCPE, CREE, and HFES, in that across these four sources 5 to 6 broad categories are specified. These specifications are either drawn directly from, or inspired by, recommendations contained in a working group document published by Rookmaaker and colleagues in 1992 [13], aimed at harmonising European training programs for the ergonomics profession ---the BCPE and CREE documents explicitly cite this source. With two specifications emphasizing acquisition of research knowledge and skill, and more explicit delineation of skill requirements, the HFES specifications show some distinct differences from those for the three certifying bodies.

63. Second, the most detailed specifications are those of Bridger (Table 1, Column 6)---these reflect the layout of chapters in his introductory ergonomics text [12]. Bridger's specifications in Table 1 reflect the explicit guidance he has provided to the IEA PSE regarding the minimum specifications for the content of a post-secondary E/HF educational program.

64. Third, the specifications cited in Table 1 for the IEA basic document (Column 1; [1]) contrast with those cited for BCNZE, BCPE, CREE and HFES, in that they are less concise and lack a precise categorical framework evident in specifications cited for these other four sources. In this sense, the IEA specifications are not as "minimum" as those for these other four sources.

Accreditation Criteria for the Content of a Post-Secondary E/HF Educational Program

65. Information in Table 1 is provided to enable a given post-secondary E/HF educational program to customize the content of its curriculum, using detailed guidance from selected sources listed in Table 1, and in line with capabilities, interests, and needs of the institution, the program, and the region. A program wishing to secure IEA accreditation shall provide documentary evidence that the following minimum specifications for curriculum content are addressed---these specifications are distilled from those listed in Table 1.
    a) Introduction to Ergonomics – Ergonomic Principles and Theory

    b) Skills in Communication (Written/Verbal), Statistical Analysis, and Use of Computers

    c) Human Characteristics – Knowledge About Properties of People

    d) Analysis and Measurement Methods---for Design and Performance of Artifacts, Work and Systems

    e) Human Safety and Health, in Relation to Design Conditions and Risk Factors

    f) Human-Technology Interaction, with Emphasis on Computer and System Interaction

    g) Research Design and Methods Relevant to Ergonomics

    h) Practical Experience

Table 2. Differing perspectives on minimum performance specifications for professional ergonomists trained by post-secondary E/HF ergonomics educational programs.

IEA Basic Document. Summary of Core Competencies in Ergonomics: Units and Elements of Compentency - Version 3, October 2001 [4] (http://www.iea.cc/browse.php?contID=edu_competencies&phpMyAdmin=XPyBrlJQjtrNYKM50fpmCYvGm%2C8&phpMyAdmin=jLDUJrGUIxQ-3p3v5atPhaf1Xo8)	Human Factors and Ergonomics Society of Australia (HFESA)and New Zealand Ergonomics Society (NZES) Competency-Based Standards Project [14] (http://www.ergonomics.org.au/documents/CompetenciesErgonomistsNov97.pdf)	Daniellou [15]
Unit 1. Investigates and analyses the demands for ergonomics design to ensure appropriate interaction between work, product and environment, and human needs, capabilities and limitations.	Unit 1. Demonstrates professional behaviour and conduct in practice.	1. An ergonomist must be able to negotiate his/her mission.
Unit 2. Analyses and interprets findings of ergonomics investigations.	Unit 2. Uses relevant information appropriately for ergonomics practice.	2. An ergonomist must manage his positioning.
Unit 3. Documents ergonomics findings appropriately.	Unit 3. Assesses the degree of match between people and their activities, equipment, environment and systems.	3. An ergonomist must understand the context in depth.
Unit 4. Determines the compatibility of human capabilities with planned or existing demands.	Unit 4. Designs and implements interventions to enhance the match between people and their activities, equipment, environment and systems.	4. An ergonomist must be comfortable with observing workplaces.
Unit 5. Develops a plan for ergonomics design or intervention.	Unit 5. Evaluates ergonomics interventions.	5. An ergonomist must be prepared for unexpected findings.
Unit 6. Makes appropriate recommendations for ergonomics changes.	Unit 6. Imparts ergonomics skills and information.	6. An ergonomist must be in one's element in design processes.
Unit 7. Implements recommendations to improve human performance.		7. An ergonomist should be prepared for reflective practice.
Unit 8. Evaluates outcome of implementing ergonomics recommendations.		8. An ergonomist should be prepared to handle pedagogical situations.
Unit 9. Demonstrates professional behaviour.		9. An ergonomist must be familiar with different media of communication.
		10. An ergonomist should be prepared for assessment issues.

Minimum Performance Specifications for Professional Ergonomists Trained by Post-secondary E/HF Educational Programs - Accreditation Criteria

Overall Objectives

66. The true test of the efficacy of a post-secondary E/HF educational program is how well graduates trained by that program perform, upon assuming responsibility for teaching, research and/or practice as professional ergonomists once they leave the program. Clearly, responsibility for the professional performance of a given ergonomist following graduation from a post-secondary E/HF educational program cannot be assumed by that program. However, a program can and should take responsibility for introducing its trainees to principles and criteria of professional performance that are likely to enhance the likelihood of professional success by these trainees, once they graduate from the program. These principles and criteria are here termed performance specifications. This section delineates minimum performance specifications for professional ergonomists trained by a given post-secondary E/HF educational programs that should be emphasized by the program for purposes of IEA accreditation.

Differing Perspectives on Minimum Performance Specifications for Professional Ergonomists Trained by Post-Secondary E/HF Educational Programs

67. Three sources offer differing perspectives on what constitutes minimum performance specifications for professional ergonomists trained by post-secondary E/HF educational programs. These sources are summarized in Table 2, and cited in [1,14,15]---web site addresses for the first two of these sources also are included. The three sources cited in Table 2 are (1) the IEA basic document summarizing recommendations for core competencies for professional ergonomists (Table 2, Column 1; [4]); (2) the Human Factors and Ergonomics Society of Australia (HFESA) and the New Zealand Ergonomics Society (NZES) (Table 2, Column 2; [14]); and Daniellou (Table 2, Column 3; [15]). The first two of these sources represent professional E/HF bodies. The specifications of Daniellou [15] are based on: (1) experience as a Professor of Ergonomics at the University of Bordeaux (France); (2) management of a Masters program in Ergonomics at this institution senice 1994; and (3) work carried out by the French College of Academics in Ergonomics. Daniellou's specifications in Table 2 reflect the explicit guidance he has provided to the IEA PSE regarding the minimum performance specifications for professional ergonomists trained by post-secondary E/HF educational programs.

68. For each of the three sources cited in Table 2, the elements listed for that source represent broad categorical performance specifications. Under each category a series of more specific performance objectives are indicated relevant to the broader performance category. In the original documentation for the first two sources, under each broad category, a series of more specific performance topic areas are recommended for the educational program to cover, to provide the ergonomist in training with knowledge of performance goals necessary to achieve understanding in each of the broad categorical areas.

69. The information in Table 2 prompts four conclusions. First, performance specifications for professional ergonomists provided by the three sources cited in Table 2 are reasonably comparable. With 6 elements, the HFESA/NZES specifications (Table 2, Column 2; [14]) are the most concise, whereas the number of elements for the remaining two sources is almost identical.

70. Second, there is a reasonable degree of overlap in the performance specifications provided by the first two sources. In contrast, the Daniellou specifications are broader and less explicit than those for the first two sources.

71. Third, there are some evident shortcomings among specifications for the first two sources listed in Table 2. For the IEA basic document specifications (Table 2, Column 1; [1]), it can be argued that: (1) Units 1 and 4 are more or less redundant; (2) Units 6, 7, and 8 readily could be combined into one element; and (3) the Unit 7 specification may be unrealistic in some instances---a professional ergonomist may have no opportunity or latitude for "implementing recommendations to improve human performance," given that

decisions governing such implementation may be the prerogative of the client or employer. For the HFESA/NZES specifications (Table 2, Column 2; [14]), it can be argued that the meaning of the Unit 6 specification---"imparts ergonomics skills and information"---is somewhat vague. Compare with the more explicit specification of Unit 3 of the IEA basic document (Table 2, Column 1; [1]): "documents ergonomics findings appropriately."

72. The final conclusion regarding the performance specifications provided by the three sources in Table 2 is that each of the three lists of elements could be construed as providing "minimum specifications," but that a more compelling set of minimum specifications might be compiled by combining the best elements from each of the three sources.

Accreditation Criteria for Minimum Performance Specifications for Professional Ergonomists Trained by Post-Secondary E/HF Educational Programs

73. Information in Table 2 is provided to enable a given post-secondary E/HF educational program to customize its curriculum with regard to educating trainees about performance criteria and expectations that they are likely to confront as professional ergonomists. Program customization can be accomplished using detailed guidance from the sources listed in Table 2, Columns 1 and 2, and in line with capabilities, interests, and needs of the institution, the program, and the region. A program wishing to secure IEA accreditation shall provide documentary evidence that the following minimum performance specifications are addressed by its curriculum---these specifications are distilled from those listed in Table 2.

    a) Understands the need for professional and ethical behavior and conduct as a professional ergonomist.

    b) Understands how design features of performance environments influence variability in human behavior and performance.

    c) Understands the design and implementation of ergonomic interventions.

    d) Capable of evaluating findings from ergonomics investigations and interventions.

    e) Capable of making appropriate recommendations for design modifications/changes.

    f) Demonstrates mastery of different modes and media of communication, for purposes of effectively negotiating and accomplishing his/her mission as a professional ergonomist.

Distance Education/E-Learning in E/HF

74. As of the date of this document, the degree to which distance education or web-based courses (otherwise termed E-learning) have been adopted in the field of E/HF has been fragmentary and relatively infrequent. However, it can be argued that a promising avenue for developing countries to establish academic rigor in post-secondary E/HF education is distance education. Access to E-learning environments creates the opportunity for students enrolled in a given post-secondary E/HF academic program with limited resources to interact remotely with recognized E/HF professionals around the world. There are entire virtual universities built around distance education and E-learning, and there are a growing number of academic science programs in mainstream colleges and universities with major distance education and E-learning content. These points argue for the conclusion that a post-secondary E/HF educational program could be offered with a major distance education content emphasis.

75. Given the current uncertainty surrounding the status and acceptability of distance education and E-learning in post-secondary E/HF education, accreditation criteria for distance education/E-learning components of a given post-secondary E/HF educational program will not be specified here. However, it is recommended that a program choosing to incorporate such components into its curriculum should address the following specifications.

    a) Documentation for a given post-secondary E/HF educational program should clearly and explicitly specify what elements and content of the program can satisfactorily be addressed through distance education/E-learning.

    b) There should be sufficient administrative, printing, computing, and communication support facilities and resources to support any distance education/E-learning elements of the program (taken from [7]).

    c) Once a given post-secondary E/HF educational program incorporates one or more distance education/E-learning courses into its curriculum, the program should undertake a systematic effort to document and demonstrate both the usability, and the learning environment validity, of the course or courses.

A Roadmap for Accreditation Criteria and the Accreditation Application Process

76. This section outlines the process that a post-secondary E/HF educational program should follow to apply for IEA accreditation, and the accreditation criteria for the program that should be documented in the application.

IEA Accreditation Process for a Post-Secondary E/HF Educational Program

77. A post-secondary E/HF educational program choosing to apply for IEA acceditation should observe the following steps.

    a) Prepare documentary evidence that the program adheres to accreditation criteria specified by the IEA (Point 78).

    b) Submit the application to the current Chair of the PSE, along with a check made out to the IEA for $300 for an initial accreditation application, or $200 for an application for reaccreditation. Contact information for the PSE Chair may be obtained from the IEA web site by first clicking on “About IEA,” and then on “Executive Committee” (see web site address below). It is anticipated that a reaccreditation application by a given program may be deemed advisable if the program undergoes a substantive change in size, scope, or emphasis.

    (http://www.iea.cc/browse.php?contID=executive_committee&phpMyAdmin=XPyBrlJQjtrNYKM50fpmCYvGm%2C8&phpMyAdmin=jLDUJrGUIxQ-3p3v5atPhaf1Xo8)

Criteria for IEA Accreditation That Should Be Documented in an Accreditation Application From a Post-Secondary E/HF Educational Program

78. Criteria that should be documented in an application for IEA accreditation by a post-secondary E/HF educational program are detailed in Points 23-57, 65, and 73 above. To assist applicants in organizing this documentation, the checklist on the following pages is provided. This checklist sequentially summarizes the criteria that should be documented in an IEA accreditation application. The checklist is categorized into three sets of criteria, namely those dealing with: (1) program institutional support, organization and resources; (2) minimum specifications for program content; and (3) minimum performance specifications for professional ergonomists trained by the program. The checklist is designed to enable reviewers of an accreditation application to readily reference accreditation criteria against contents of the application documentation. Applicants should refer to original sources (Tables 1 and 2; [1,4,8-12,14,15]) for detailed guidance on options for achieving compliance with the minimum content and performance specifications listed in the checklist.

International Ergonomics Association Accreditation of Post-Secondary Ergonomic/ Human Factors Educational Programs

Compliance with Accreditation Criteria

Compliance Checklist

Post-Secondary E/HF Educational Program Applicant:

Reviewer:

Date(s) of Review:

Degree of Compliance with Accreditation Criterion			**Accreditation Criterion. The applicant shall provide with their application documentary evidence that the program complies with each criterion specified.**	**Comments**
Fully Complies	**Partially Complies**	**Does Not Comply**		
Section of IEA Reference Document			*Program Institutional Support, Organization and Resources*	
			1. The university or college providing the degree should be accredited by an appropriate government agency in the geographic area. Programs must be approved by the institution and should comply with regional academic regulations. The organisational structure should provide: (a) for oversight of program effectiveness; (b) a career path for faculty/staff; and (c) support for an ongoing program of professional development for all faculty/staff.	
			2. Collectively, program faculty/staff customarily should hold Ph.D. degrees (or Masters degrees accompanied by evidence of quality work), and should have E/HF experience in teaching, research, professional practice, publishing outcomes of research, systems development or applications, and supervising masters and/or doctoral theses/dissertations.	
			3. There is a clearly defined person with explicit responsibility for the program, for faculty/staff evaluation, and to whom faculty/staff report their activities.	
			4. The program should have adequate support staff and services.	
			5. There should be adequate time and access available with faculty/staff for students to consult on progress and course content.	
			6. Entry into the program should be offered on an assurance of equal opportunity.	
			7. The academic prerequisites and any other specific criteria for student entry into the program must be clearly stated.	
			8. The program should be viable in terms of the ratio of students enrolled in the program to faculty/staff.	
			9. Policies and procedures regarding student progression and graduation should be clearly stated, and made available to students at the commencement of the program.	
			10. There must be a clear outline of the expectation of student workload in relation to each component of the program.	
			11. Policies, procedures and degree program information should be current and readily available to students.	
			12. The standards of achievement expected must be clearly stated to students, and should be related to specified core competencies for ergonomists.	

			13. The program should utilise a range of assessment methods appropriate to program objectives.	
			14. Assessment methods should be reviewed and evaluated regularly.	
			15. The program should have established mechanisms of accountability to the institution and to the E/HF profession.	
			16. There should be clear and comprehensive policies on course development.	
			17. There should be clear and comprehensive policies for periodic review of course goals, content, relevance, and quality.	
			18. The program should have adequate funding available to provide sufficient numbers of staff and resources to achieve program goals.	
			19. The students and faculty/academic staff should have access to sufficient equipment and consumables relevant to E/HF and to human-system interface technology.	
			20. Sufficient computing facilities and space should be available for students to have appropriate access.	
			21. There should be sufficient classrooms, laboratories, work place facilities, offices, and space for students, faculty, and support staff to provide an environment conducive to learning and research.	
			22. Faculty/staff and students should have ready access to a library of appropriate media and holdings that are current and sufficient in number and breadth to support the content of the curriculum and to meet the needs of the program.	
			23. Students should have ready access to those support services that will facilitate their successful completion of the degree.	
			24. There should be occupational health and safety policies relating to a safe working environment, sexual harassment, and disability.	
Section of IEA Reference Document			*Minimum Specifications For Program Content*	
			25. A program wishing to secure IEA accreditation shall provide documentary evidence that the following minimum specifications for curriculum content are addressed. • Introduction to Ergonomics – Ergonomic Principles and Theory • Skills in Communication (Written and Verbal), Statistical Analysis, and Use of Computers • Human Characteristics – Knowledge About Properties of People • Analysis and Measurement Methods---for Design and Performance of Artifacts, Work and Systems • Human Safety and Health, in Relation to Design Conditions and Risk Factors • Interaction of People with Technology, with Emphasis on Computer and System Interaction • Research Design and Methods Relevant to Ergonomics • Practical Experience	

Section of IEA Reference Document			*Minimum Performance Specifications for Professional Ergonomists Trained by the Program*	
			A program wishing to secure IEA accreditation shall provide documentary evidence that its curriculum addresses the following minimum specifications, directed at educating trainees about performance criteria and expectations that they are likely to confront as professional ergonomists. • Understands the need for professional and ethical behavior and conduct as a professional ergonomist. • Understands how design features of performance environments influence variability in human behavior and performance. • Understands the design and implementation of ergonomic interventions. • Capable of evaluating findings from ergonomics investigations and interventions. • Capable of making appropriate recommendations for design modifications/changes. • Demonstrates mastery of different modes and media of communication, for purposes of effectively negotiating and accomplishing his/her mission as a professional ergonomist.	

Summary Comments and Recommendations of Reviewer:

Appendix 3

Covering Letter Used to Solicit Feedback From Presidents or Representatives of Federated Societies Regarding the Merits of the Draft IEA Basic Document (Appendix 1) Advocating Accreditation of Post-Secondary E/HF Educational Programs by the IEA PSE Committee

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June 10, 2009

IEA Federated Society President or Representative:

I am writing in my capacity as Chair of the IEA Professional Standards and Education (PSE) Standing Committee.

One of my initiatives with this committee has been to advocate that the PSE assume responsibility for accrediting ergonomic/human factors (E/HF) educational programs at the post-secondary (i.e., university or college) level. This initiative builds upon earlier exploration of the idea by Prof. Stephan Legg at Massey University in New Zealand, my predecessor as PSE Chair.

A proposal supporting this idea accompanies this letter as an attached Word file. A draft version of the proposal was presented during a meeting of the IEA Executive Committee in Amsterdam in March, 2009. The proposal will be introduced for consideration by IEA Federated Society representatives attending the upcoming IEA World Congress in Beijing in August, 2009.

The rationale for this proposal may be summarized as follows: (1) currently, only two IEA Federated Societies---The Ergonomics Society in the UK, and HFES in the U.S.---accredit post-secondary E/HF educational programs, and both of these societies essentially limit applicants to institutions in their respective countries; and (2) the IEA PSE currently accredits bodies in different countries that certify professional ergonomists---the proposal therefore would extend the PSE accreditation role to E/HF educational programs that train such ergonomists.

A third rationale, clearly missing from this list, is evidence that there is an expressed need for the IEA PSE to assume the proposed accreditation role. This is one reason that I am contacting you. Namely, I request any feedback that your Federated Society may be prepared to offer regarding the merits---or flaws---of the attached proposal. A second reason is that the proposal will be considered for approval by Federated Society representatives attending the upcoming IEA Congress. Introducing the proposal to you at this time therefore provides ample time for deliberate consideration to take place.

Finally, I would greatly appreciate any guidance you might be able to offer about E/HF post-secondary educational programs within your country or region that might be contacted, in order that I can also solicit feedback from educational programs themselves regarding the merits of the attached proposal.

I will thank you in advance for any assistance you can offer with the requests set forth in this letter.

Yours sincerely,

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Appendix 4

Advocacy for Mutual Recognition of the Credentials of Certified Professional Ergonomics by Different Certifying Bodies

Sample Memorandum Supporting this Idea to Chris Hamrick, President of the Board of Certification in Professional Ergonomics (BCPE)

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MEMORANDUM

Subject: Mutual Recognition of the Credentials of Certified Professional Ergonomists by Different Certifying Bodies

To: Chris Hamrick
President
Board of Certification in Professional Ergonomics (BCPE)

From: Thomas J. Smith, Ph.D., CHFP
Chair, IEA Professional Standards and Education Standing Committee
Research Associate, Human Factors
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University of Minnesota
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Minneapolis, MN 55455

Date: June 11, 2009

I am writing to request that BCPE consider formally adopting a policy pertaining to mutual recognition of the credentials of certified professional ergonomists (PE) who may have been certified by another certifying body.

I am making this request in my capacity as Chair of the IEA Professional Standards and Education Standing Committee.

The rationale for this request rests upon at least four basic considerations.

1. Across different certifying bodies worldwide, there is considerable overlap in the criteria that these bodies use to certify professional ergonomists.

International Ergonomics Association

2. For this reason, the core competencies that a professional ergonomist is required to demonstrate to earn certification in one jurisdiction likely will substantially satisfy required criteria in another jurisdiction.
3. Certifying bodies that have earned IEA accreditation (including BCPE) by definition have demonstated compliance to a common set of criteria in securing accreditation approval. It therefore can be argued that a PE who is certified by one of these bodies has satisfied a certification process that has a reasonable degree of commonality across different bodies. From this perspective, a PE certified by one accredited body who seeks recognition of his/her professional credentials by another accredited body can claim---again with reasonable assurance---that he or she has demonstrated and has achieved recognition for a set of professional core competencies that should satisfy criteria set forth by other accredited bodies.

4. The idea of mutual recognition of the credentials of certified professional ergonomists by different certifying bodies already has received attention in a discussion between BCPE and CREE (Western Europe). I am taking the liberty of accompanying this letter with a second Word file containing the perspective of Ernst Koningsveld, President of CREE, on the question of mutual recognition.

The premise of the request set forth here is as follows: (1) a PE who has been certified by one certifying body moves into the jurisdiction of another certifying body with the intention of initiating/maintaining a work activity and/or residence for which recognition of the certification credentials of this individual might prove advantageous; and (2) the PE therefore applies to the new certifying body for recognition of these credentials.

With the objective of providing a concrete basis for this premise, let me be so bold as to propose the following general clause as a mutual recognition framework for BCPE to consider:

“A professional ergonomist who has been certified by a certifying body other than BCPE, and who wishes to have her/his certification credentials recognized by BCPE, is eligible for an expedited certification review by BCPE for this purpose.”

Obviously, this general clause provides latitude for BCPE to specify in detail what such an expedited review might in fact entail.

International Ergonomics Association

I would greatly appreciate hearing whatever feedback you are prepared to offer, on behalf of BCPE, regarding the request pertaining to mutual recognition set forth in this Memorandum.

Thomas J. Smith

APPENDIX K - Report on the IEA'2015 Congress

Report ad hoc committee to evaluate bids for IEA2015 congress

The officers of the International Ergonomics Society have formed an ad hoc committee to evaluate the three bids that were submitted for the organization of the 2015 triennial congress. The committee consists of Ernst Koningsveld (chair), Hal Hendrick, Ken Laughery, Eric Wang (members).

The task of the committee was to:

- evaluate if each of the bids meets the criteria, specified in the document IEA Triennial Congress_Bid_2015.pdf, which is based on the IEA Basic Rules;
- highlight strengths and weaknesses of the proposals based on the criteria identified in the bid process.

To perform this task, the committee has made a list of all nearly seventy criteria that can be derived from the mentioned document. In an Excel file the findings are presented; for each of the bids a sheet is filled out. Next to a rating in one or a few words, further information is provided where applicable. We choose to use three colours:

- green: item is sufficiently filled in;
- yellow: item could be filled in in a better way;
- red: no information provided, or an choice made is not in line with IEA policies.

By doing so, a fair and efficient procedure could be followed.

As a principle, it is important to state that only the IEA Council can select one organizer out of these three[1]. In August 2009, in the IEA council meeting in Beijing, this selection will be made.

As a consequence the ad hoc committee will not show any kind of preference or disfavour. If this report would suggest so, please be sure this is not what we intend. We only intend to indicate which information is yet poor or missing, and a few strong and weaker points in each bid.

Results

Over all we think that IEA received three very good bids. In the perspective of the last three decisions where to hold IEA congresses[2] it is a luxury to be able to choose out of three options.
Nevertheless, all three proposals can benefit from the evaluation. A critical review of their bids could enhance each of these even further.
A critical remark must be made at this moment. We sincerely wonder if IEA councillors will be able to make a sound choice when proposals have an extent of 100 pages or more. This report and the attached evaluation tables may help IEA council members to prepare their standpoint with the board of their society. Of course each of the bidding societies will get the opportunity of a brief presentation at the council meeting to highlight the specific features of their bid.
Below we give in three brief paragraphs our findings. For the full evaluation results we point at the attached tables per bid.

Australia-New Zealand Proposal

This is a well thought out proposal that meets many IEA requirements in outstanding fashion. Much information is provided in detail, with one important exception: it does not include a proposed budget. On several other (not critical) points no information is provided. It would have been good if the formal IEA meetings had got attention in the bid.
However, given the relative lower cost of living and the good prognosis for sponsorship, it might have the lowest expenses and lowest registration fee of all three bids. We think that the expected participation of at least 1,500 is very optimistic. Drafting a budget based on a break even of max 1,100 attendees would have been safer.

---

[1] IEA Basic rules
[2] For IEA2006, 2009 and 2012 there was only one bid per triennial congress.

The two societies have a combined membership of over 600 ergonomists and one has previously hosted a successful IEA Congress (1988) with a very warm atmosphere.
The proposal has outstanding governmental, airline, and other organizational support. The venue has a major international airport. Direct flights are possible from many major world cities.
The technical and other tours look outstanding. One significant disadvantage is that a congress in Australia probably would draw several hundreds less participants than a European Congress. However, lower costs could enable it to be as successful financially.

Italian proposal.
In general, it is a well worked out proposal at a place that will be appealing to many. Like the other proposals, also this one has several points that are not indicated as clearly as we would have liked.
Though being one of the founding members of IEA, the Italian Ergonomics Society never hosted a triennial IEA congress. The technical and other tours look outstanding.
On one major factor we are critical about the proposal. The budget is based on 1,400 attendees. As a break even this is optimistic and a financial risk. The budget also has some high fixed expenses that will not be reduced if there are significantly less attendees (e.g. congress rooms). The only solution then is more sponsorship, which is contradictory to a reduced number of participants. The organizers are optimistic about sponsorship.
Should the world economy be like it is now, the advanced registration fee of 600 Euro for IEA members could be prohibitive and result in a significantly lower attendance than expected by the organizers. It would have been more careful when the draft budget was based on e.g. 1,200 attendees and still show at least a small surplus after paying the IEA capitation fee.
The location of Florence has a certain disadvantage. For persons not in Europe, they will have to fly to a major international airport and then transfer to a local flight into Florence or commute by train. This not only adds flying time, but may also have cost consequences. However, over the years such a location is not unusual for IEA: Tampere, San Diego and Maastricht had similar connections, and to certain extent this counts also for Edinburgh.
The fact that the congress will be in two buildings is not the best option, but as these buildings are neighbouring, it is not a serious point.

UK Proposal
Of the three proposals, this is by far the most concise, and as a consequence the less detailed. The level of effort that went into preparing this proposal looks lower than in the other proposals. To their credit the Ergonomics Society has had excellent experience over decades organizing national conferences, including the successful 1985 IEA Congress. And important topics are clearly worked out, like the committee (highly experienced), venue (excellent) and a promise to meet IEA requirements and to try and keep costs and registration fees down (which in the UK, still are likely to be substantial, even despite the recent low rate of the Pound Sterling). Nevertheless, a budget proposal is missing and no indication is given what will be done with a potential surplus.
The venue is very well located, but has limited capacity for the auditorium (1,200) and a limited number of smaller rooms. The latter may be a bigger problem than the auditorium, as only for the opening ceremony a hall of over 1,200 could be required.
Though better in airline connections than Florence, Edinburgh is not so easily accessible for people from outside Europe. But, as stated under Florence, this disadvantage has not hampered previous IEA-congresses.

28 March 2009
Ernst Koningsveld, Hal Hendrick, Ken Laughery, Eric Wang