

BRIDGING THE GAP: SHOULD THERE BE MORE COLLABORATION BETWEEN RESEARCHERS AND PRACTITIONERS?

Daniel P. Jenkins¹, Steven T. Shorrock^{2,3} & Amy Z.Q. Chung³

1. DCA Design International, Warwick, UK

2. Eurocontrol, Brétigny sur Orge, France

3. The University of New South Wales, Sydney, Australia

Most people within the IEHF community would acknowledge that there are differences between the challenges that researchers and practitioners face on a day-to-day basis. Furthermore, most would probably agree that there is much benefit from collaboration between the two groups. In this paper, we contend that more could be done to increase the level of collaboration between researchers and practitioners. A discussion session is proposed to discuss (1) in which areas collaboration is needed, and (2) the appropriate mechanism for supporting this collaboration.

Introduction

Most people who associate themselves with the discipline of human factors and ergonomics (HF/E) have similar goals, regardless of whether they are academic researchers or practitioners. These goals can be clustered into two main areas, adapted from the International Ergonomics Association's definition of HF/E:

1. The fundamental understanding of the interactions among humans and other elements of a system; and
2. The application of theoretical principles, data and methods to design in order to optimise human well-being and overall system performance.

The balance of focus will invariably depend on the individual and the demands of their employment. However, the stereotypical view is that those in academia are more focused on the former, and those working in industry are more interested in the latter. This difference in focus has contributed to a research - practice gap in HF/E (Meister, 1999; Waterson and Sell 2006). The challenges that practitioners face often differ from the challenges faced by academics,

especially in the application of research, where the barriers to research application are very different for those who work in universities and research organisations versus those who work in industry (Shorrock and Chung, 2010; Chung and Shorrock, 2011).

It is contended that the challenges facing academia are, comparatively at least, much better understood by the wider IEHF community. Many of these challenges are captured in academic reports and papers and disclosed to the world. Conversely, many of the challenges facing practitioners are not often discussed outside their respective organisations for commercial or political reasons.

A cursory flick through the ergonomics and human factors journals reveals a strong focus on proposals for new tools and techniques that allow the HF/E community to meet Objective 1. One only has to look at the contents page of one of the human factors methods books (e.g. Stanton et al 2004; Kirwan and Ainsworth, 1992; Stanton et al, 2005; Sanders and McCormick, 1993; Wilson and Corlett, 2005) to understand that we have a wide range of tools at our disposal. However, when faced with the challenges of Objective 2, practitioners do not necessarily want new tools, theories or data as a priority.

Still, if HF/E is a discipline which comprises fundamental understanding as well as application in the real world, then it is important that research remains applicable. Practitioners need to remain up-to-date with substantial advances in thinking and researchers must demonstrate the application of their research. As such, the application of research has clear advantages to researchers, practitioners, policy makers, and the public.

Increasing collaboration, communication and networking between researchers and practitioners was the most cited suggestion by human factors and ergonomics practitioners in the largest study conducted on the research-practice relationship in HF/E (Chung and Shorrock, 2011). If this is to be realised, then two questions naturally follow.

1. In which aspects of application and practice is more collaboration needed?

There are several potential areas in which researchers and practitioners could cooperate. The ten next most cited suggestions made by HF/E professions for improved research application in Chung and Shorrock's (2010) study were:

- ensuring that research focus and methodology are relevant to the organisational environment;
- providing clearer implications/applications and more definitive conclusions in articles;
- increasing awareness of research among practitioners and policy-makers;

- seeking support from decision makers and stakeholders;
- applying research findings to real problems and organisational experience;
- reporting research in different media;
- report research in a more understandable, clear and readable manner;
- increasing research and publication among practitioners;
- improving availability/accessibility of research articles and providing better compilation of research; and
- understanding the value of research for practice.

There may well be other areas, which are further removed from the application of research and concern more the process of change, such as:

- communicating what HF/E is to decision makers;
- communicating its value in the design cycle or in management;
- combating resistance to change (such as impacts on cost, resource, and time); and
- working with other disciplines (sometimes conflicting) aims.

2. What is the best format for collaboration?

The research community have well-established mechanisms for sharing their work. These include:

- peer reviewed journals such as those affiliated with the IEHF (Ergonomics and Theoretical Issues in Ergonomic Science);
- conference papers;
- books;
- articles in the IEHF magazine ‘The Ergonomist’;
- blogs;
- microblogs (e.g. twitter); and
- discussion boards (e.g. LinkedIn).

Significant challenges facing practitioners are the availability of research articles and time to read research articles (Chung and Shorrock, 2011). Articles are currently spread in dozens of different journals, mostly behind paywalls, and it takes a significant investment in time to determine which are relevant and useful to a current project or area of work.

There are two ways of communicating research information to practitioners (and policy makers), by push and pull. Where practitioners have a specific question, they may ‘pull’ information from a search of journal papers, conference papers and books. However, many practitioners also want findings and new approaches and theories to be ‘pushed’ to them, for instance through conferences, workshops, seminars, articles in ‘The Ergonomist’, and social media such as blogs, microblogs (e.g. twitter), and discussion boards (e.g. LinkedIn).

However, research communication is not enough: more active collaboration is required to ensure that: 1) research questions are relevant in the first place, 2) there is access to organisations and key stakeholders for research and application, and 3) implications are clear.

The question remains, however, how ergonomics and human factors specialists (whether research- or application-focused) want to collaborate – assuming that there is sufficient motivation to collaborate in the first place.

Conclusions

The aim of this paper is to set the scene for the discussion, using this as a template, the aim will be to discuss (1) in which aspects of application and practice is collaboration is needed, and (2) the mechanisms for supporting this collaboration.

References

- Chung, A.Z.Q. & Shorrock, S.T., 2011. The research-practice relationship in ergonomics and human factors - surveying and bridging the gap. *Ergonomics*, 54 (5), 413–429.
- Kirwan, B. & Ainsworth, L.K., 1992. *A guide to task analysis*. London: Taylor and Francis.
- Meister, D., 1999. *The history of human factors and ergonomics*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Sanders, M. S., & McCormick, E. J. 1993. *Human factors in engineering and design* 7th ed. (New York: McGraw-Hill).
- Shorrock, S. and Chung, A., 2010. Human factors research and practice. Part 2: Bridging the gap. *The Ergonomist*, 477, 4–5.
- Stanton, N. A., Hedge, A., Salas, E., Hendrick, H. & Brookhaus, K. (eds) 2004. *Handbook of Human Factors and Ergonomics Methods*. (Taylor and Francis London).
- Stanton, N. A., Salmon, P. M., Walker, G. H., Baber, C. & Jenkins, D. 2005. *Human Factors Methods: A Practical Guide for Engineering and Design*. (Ashgate: Aldershot).
- Waterson, P. and Sell, R., 2006. Recurrent themes and developments in the history of the Ergonomics Society. *Ergonomics*, 49 (8), 743–799.
- Wilson, J.R. and Corlett, E.N., eds., 2005. *Evaluation of human work* 3rd ed. (CRC: Boca Raton).