

[1863] AN ATTEMPT TO STUDY THE EVOLUTION OF FRENCH-SPEAKING ERGONOMICS

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The French-speaking Ergonomics Society (SELF) was founded in 1963. Since the 2000s, it includes a commission in charge of the history of ergonomics in France and in other French-speaking countries, mainly Belgium, Switzerland and Quebec: the SELF History Commission, SELFHC. It is in charge of gathering, archiving and analysing all kinds of relevant documents and making these archives accessible to everyone interested in ergonomics. The SELFHC includes a small group of highly motivated persons, who use to meet and communicate frequently.

SELFHC carries out individual interviews of ergonomists just retired, in order to trace their professional life. The interviews can be either a classical face-to-face dialogue, or an interactive thread of questions / answers sent by email. A hundred interviews were completed till now, and more than sixty were already published on the SELF website. They are elements of an exhaustive "memory" of French-speaking ergonomics, already useful for students, and also available for further systematic historical investigations. A lexical analysis of the contents is in progress with the Prospero software tool, in order to illustrate the various points of view developed in these interviews.

Another work, achieved in 2013 at the occasion of the SELF fiftieth anniversary, consisted in publishing a cooperative book on the SELF history and, more generally, on the history of French-speaking ergonomics, which includes a significant list of pioneers- physiologists, physicians, psychologists, engineers-, who worked during the former centuries, that is, before ergonomics was identified by its current name. In this book, many topics were analysed from a historical point of view, such as: creation and development of the SELF; particular social and industrial context of its birth, after the Second World War; links with ergonomics in progress in other countries; the increasing number of French-speaking ergonomists and progressive changes of their initial educational and professional background; various changes in terms of research and practice; creation of specific academic degrees in ergonomics, in addition to the emergence of an autonomous profession, gradually organized and strengthened. Some distinguished pioneers were highlighted by their biography. Also the history of ergonomics, developed and practiced by French- speaking ergonomists in Belgium, Switzerland and Quebec, were reported.

This historical approach was largely based on archives from the SELF and proceedings of the annual conferences from 1963 to 2013, as well as main thematic symposia or major seminars. The links with current international ergonomics were underlined, particularly with IEA and FEES, and the organization of a label of European Ergonomist.

Finally, a large part of the book is devoted to a dozen themes of current researches or practices, chosen to express the diversity of contemporary French-speaking ergonomics, in different areas of activities, such as work, transport, handicap, school, military or daily life.

[2610] Ergonomics at 60

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The journal *Ergonomics* has reached the milestone of 60 years of publication. *Ergonomics* was the first scientific journal in the field in 1957, followed shortly in 1958 by *Human Factors*. *Applied Ergonomics* came along 10 years later. There are other ergonomics and human factors (EHF) journals today, but these are the leading publications, as per the JCR 'Ergonomics' listing.

The origins of *Ergonomics* were very 'British'. Arrangements between the Ergonomics Research Society (now the Chartered Institute for Ergonomics and Human Factors, CIEHF) and publisher Taylor & Francis arose from after-dinner conversations at St John's College Cambridge, between Professor Alan Welford and Dr Henry Banister. Welford was Chair of Council of the Ergonomics Research Society, set to become founding Editor-in-Chief of *Ergonomics*; Banister was a fellow academic of Welford's at Cambridge and a shareholder and director of Taylor & Francis. The warm relationship between the Institute, journal and publisher exists to this day as more than just a commercial business collaboration. Although *Ergonomics* emerged from the Ergonomics Research Society and the founding of the discipline in the UK, the contents of the journal had a strong international flavour from the start.

The contents of *Ergonomics* have mirrored and set the trends in EHF research over the past six decades. Early papers covered topics familiar today: human work capacity, physical and cognitive; equipment interactions; interactions with the physical environment etc. The contents of the first issue, for example, covered driving and vehicle design (McFarland, 1957); effects of noise on behaviour (Broadbent, 1957); reducing physical demands on foundry workers (Scholz, 1957); results of different methods of worker training (Belbin et al, 1957); effects of increased skill on task cycle time (de Jong, 1957); experience of flicker sensation with lighting (Collins and Hopkinson, 1957); train driver fatigue and stress with only one driver present (Schwab, 1957); and, chiming with developments in recent years, "determining the preference of users for new technical devices ... in the course of telephone-user research" (Karlin J E, 1957).

Among the most influential papers published during the course of the past 60 years have been the work of Waters et al (1993) on the revised NIOSH equation; Reason et al (1990) on errors and violations; Snook and colleagues' work on the psychophysical determination of maximum acceptable limits for manual handling (Snook, 1978; Snook & Ciriello, 1991); Lee and Moray (1992) on allocation of functions; Marras et al (1995), with their research on the biomechanical risk factors for occupation related low back disorders; Dul et al (2012) on the future of EHF.

Since its early days, *Ergonomics* has become a respected, important academic journal in the field of EHF and beyond. Raise a toast to its next 60 years!

[1479] Ergonomics and design in Brazil: The ergonomic concept of Itiro lida

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Ergonomics in Brazil has been studied in different disciplines, such as psychology, engineering and design. In the area of product design, its study started thanks to the work of several people; one of them was the professor Itiro lida, who played a fundamental role in the consolidation of the importance of the teaching and application of the ergonomics in the area of product design due to its diverse efforts and actions of promotion and research of the discipline.

lida was the first to write an ergonomics book in Brazil (together with his colleague J. Wierzbicki) and the first to defend a doctoral thesis dealing with the subject of ergonomics [thesis in which established an ergonomic methodology "with special emphasis on the influence of handle design on work performance" (lida1971)].

Since the work of the professor has opened a gap in the integration of ergonomics in the area of design, it is relevant to investigate what were the foundations according to which the professor worked the ergonomics to carry out the pioneering task in Brazil to propose an ergonomics methodology applied to the national context.

This research aims to contribute to the professional design activity, and the relevance of ergonomics in it, specifically, in the area that constitutes the construction of its history.

The main objective will be to understand the concept of ergonomics around which the professor lida worked during his first years as a teacher and as a PhD student.

The geographic cut will be in Brazil, specifically in Sao Paulo and Rio de Janeiro, (USP, ESDI), these regions where lida developed as a student, teacher and professional in the area of ergonomics applied to product design.

The temporary cut we are going to work on covers from 1961 (the year in which he began his undergraduate studies), until 1973 when he published the book of ergonomics *Notas sobre aulas* (Notes on classes).

Inscribed in the field of history of ideas, the research approach will be through the micro history and we will work with the methods of interview and analysis of the Oral History

The theoretical reference we use will be LaCapra, which proposes a research in relation to different contexts where the sociological point of view directly affects the idea to be studied. In other words, he proposes to draw an intellectual history in relation to a social history, where there is a correspondence between texts and contexts.

[2750] Montessori discover of ergonomics

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Montessori was the first woman graduated in Medicine at Roman University Sapienza (1896). Many Italian and European universities were not open to women because of « infirmitas sexus ». Her University teachers were among the best Italian positivistic scientists affiliated at the Roman Society of Anthropology (1893): the anthropologist Giuseppe Sergi (1841-1936), the hygienist Angelo Celli (1857-1914), fighter against malaria and swamps in Agro Pontino. At the beginning of twentieth century she was a scientist on children's and dedicated herself to their emancipation through education. Her observations were also enriched by French medical predecessors: Itard and his follower Seguin who she will quote as his scientific references.

Montessori ergonomics approach

Montessori children's observation, her manufacturing of useful materials for sensory stimulation and logical representation such as the alphabetical letters and numbers to be touched, all colours variation to be named, mathematics in pearls to be counted, etc., will be part of the innovative experience of the Children's House of San Lorenzo (1907), a poor environment out of old Roman walls. Her innovative education was fifty years before the birth of ergonomics as a science (KH Murrell, 1949) and few years later Wojciech Bogumił Jastrzębowski (1799-1882) contribution. Primary prevention, scientific method, interdisciplinarity, children at the center of education process and outcome with education needs not anticipated by adults, were the foundation of the new method published in the « Discovery of the child » (1909), a world wide best seller translated by her friend Alice Hallgarten Franchetti (1874-1911). Montessori will work for the rest of his life on healthy children leaving medicine (cure) for pedagogy (prevention).

Her *physical and cognitive ergonomics* were based on anthropometry and on psychological issues. Light chairs and table fit for children to let them do by their own. Montessori *social ergonomics* was based on peer relationships between teacher and children no hierarchy together with no gender differences. Boys and girls activities did not differ, they both had to contribute to cleaning, washing and all other hygiene activities within children's house. Level of attention and rest were also self-managed by children as well as the choice of materials and activities. Learning was a natural condition and monotony and repetitiveness, so frequently adopted in education work, represented stressful conditions for children's health and should be avoided. No fixed posture such as sitting, no school desks but freedom of movements to help mind and body communication in the education process where hands had a particularly important role as a way to explore the environment. She was aware of the hands representation within human brain. Open air education activities were also promoted.

Montessori should be considered the first ergonomist and place her contribution in the history of our discipline.

