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Mapping the relationships between work and sustainability and the opportunities for ergonomic action

Ivan Bolis*, Claudio M. Brunoro, Laerte I. Sznelwar

Department of Production Engineering, University of São Paulo, Avenida Professor Luciano Gualberto, 530, São Paulo, SP 05508-010, Brazil

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ABSTRACT

A map was drawn up of the relationships between work (in its multiple interpretations) and sustainability (sustainable development and corporate sustainability) based on a bibliographic analysis of articles that discuss these themes jointly in the current academic literature. The position of the discipline of ergonomics focused on work was identified from this map and, based on its specific academic literature, it was possible to identify where this discipline could contribute so that work and workers can be included in the discourse of sustainable development and considered in corporate sustainability policies. Ergonomics can be actively influential within the organization on issues relating to work improvements; it may boost integrated increases in the organization's performance and in workers' well-being; it can provide support for changes and new (environmental) sustainability-related work requirements to be considered; and it can contribute to the definition of the concept of work in a context of sustainable development.

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1. Introduction

The main objective of this research was to find articles in the recent literature that discuss work (in its multiple interpretations) and sustainability (sustainable development and corporate sustainability) jointly, mapping the relationships between these themes. In addition, among the articles selected in this search, an analysis was made of those related to ergonomics in order to identify the current articles that link this discipline to the theme of sustainability and to discuss other possibilities (opportunities) for ergonomic actions to contribute toward sustainable work. As contribution of this study, we hope to provide a basis for reciprocal enrichment between ergonomic actions and sustainability policies.

The theme of sustainability was first addressed in a study published in 1713 by von Carlowitz (1732), which discussed the need to consider natural resource limitations (specifically in forestry) in the economic development of a region. Since then, the theme was addressed on other occasions and has been disseminated internationally, mainly in the last four decades, through the concept of sustainable development. This concept was formally introduced in the United Nations Conference on the Human Environment in 1972 (Dresner, 2012), and its most widely recognized definition is the one proposed in 1987 by the World Commission on Environment and Development (WCED, 1987). By ensuring that the needs of the present generation are met without affecting the ability of future generations to meet their own, sustainable development can be achieved provided that environmental, social and economic aspects are dealt with jointly in the short, medium and long term.

This concept now permeates many spheres of society, and the intentions emerging from the theme of sustainable development have led to other correlated concepts. Assumptions about sustainability are increasingly being adjusted and applied by individual entities such as organizations (Figge and Hahn, 2004; Gladwin et al., 1995), which in this case is called corporate sustainability (Bansal, 2005; Montiel, 2008; Steurer et al., 2005; Van Marrewijk, 2003). Corporate sustainability (CS) is a concept that emerges in companies, leading them to adopt new ways of acting. Although the concept initially focused only on environmental issues, companies' actions today encompass the three dimensions (economic, social and environmental), as proposed by the Triple Bottom Line approach (Elkington, 1997, 1994). At the same time, several approaches to CS are identified in the literature. Montiel (2008) identifies an approach related to ecological sustainability and the environmental dimension of business and another approach referring to the definition proposed by the WCED, also discussed by Dyllick and Hockerts (2002), including the social and

* Corresponding author.
E-mail addresses: bolis.ivan@yahoo.it (I. Bolis), cbrunoro@uol.com.br (C. M. Brunoro), laertesz@usp.br (L.I. Sznelwar).

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environmental dimensions in the approach of organizations (Cannon, 1994; Elkington, 2005, 2002; Hart, 1997; Lozano, 2012; Rondinelli and Berry, 2000). Currently, this concept is closely related to another, that of Corporate Social Responsibility (CSR), which usually covers similar issues (Ebner and Baumgartner, 2006; Kleine and von Hauff, 2009; Montiel, 2008; Steurer et al., 2005; Van Marrewijk, 2003). The distinction between these two concepts is not clearly defined; Kleine & von Hauff (2009) and Montiel (2008) propose that they converge to a certain extent, although they are not equivalent concepts. This deserves a deeper discussion, above all with regard to the analysis of corporate practices. This article does not analyze this distinction in depth; however, because the two concepts relate to internal issues of firms, the terms CS and CSR are used as equivalents in many passages.

Since the advent of the sustainable development concept, the issue of work, in its different interpretations, has been included among the aspects to be upheld by mankind. Even so, the theme of work has never been central to the debate on sustainability and the issues regarding the content and organization of work have rarely been discussed, except in a few references to working conditions and decent work. Since 1972, the United Nations documents that underpin the actions of companies in the area of sustainability (UN (United Nations), 2005, 2000, 1992, 1972; WCED, 1987) have addressed issues on the theme of work (e.g., job security and stability, aspects of work health and safety, and contents of the Universal Declaration of Human Rights and of the Declaration on Fundamental Principles and Rights at Work). For example, the first and fifth principles of the Declaration of the United Nations Conference on the Human Environment proclaim that "man is both creature and molder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. […] Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights, the right to life itself" and "of all things in the world, people are the most precious" (UN (United Nations), 1972), and twenty years later, the first principle of the Rio Declaration proclaims that 'human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature' (UN (United Nations), 1992). At the Rio 92 Earth Summit it was explicitly stated that the need to satisfy material desires should not come at the expense of generating negative impacts on health (Scott, 2008, p.498), which obviously also refers to humans in a work situations. More recently, the latest documents mention the concept of decent work, which involves the creation of employment for men and women; the extension of social protection; the promotion of social dialogue; and the Fundamental Principles and Rights at Work (Ghai, 2003). The introduction of this concept proved to be especially necessary to oppose poor working conditions, especially in developing countries. Sweatshops are notorious cases that led to the emergence of work monitoring systems and NGOs (e.g., Fair Labor Association, Social Accountability International, Worldwide Responsible Apparel Production, and Workers Rights Consortium) as a way of tackling issues related to poor working conditions (Block et al., 2001; Chan, 2001; O'Rourke, 2003).

However, the concept of corporate sustainability is still being defined according to multiple interpretations and approaches, some of which mention the theme of work and its issues explicitly (Epstein, 2008; Littig and Grießler, 2005; Lozano, 2013; Van Marrewijk and Werre, 2003). What currently emerges is the introduction into the routine of companies of sustainability guidelines that mention social issues (GRI, 2013; ISO, 2010; UN (United Nations), 2013) in which work-related aspects are addressed (e.g., employment and labor relations, working conditions and social protection, social dialogue, work health and safety, human development and job training, and issues related to human rights). Lozano (2013, p. 1) argues that "internally, leadership and the business case are the most important drivers, whilst the most important external drivers are reputation, customer demands and expectations, and regulation and legislation," which reinforces the need to examine work and workers.

Because ergonomics is a discipline strictly related with the theme of work, it is also related with sustainability (be it sustainable development or corporate sustainability). In the words of Haslam and Waterson (2013, p. 343) "There exists, it would seem, a natural synergy between these areas [the sustainability ones] and ergonomics, with its goal of understanding and optimizing the outcomes of human–system interactions." This discipline began to formally incorporate concerns about global issues of sustainability, starting in the 12th Triennial Congress of the International Ergonomics Association (IEA) in 1994 (Haslam and Waterson, 2013). Since then, the connections between these areas of knowledge have increased, and in 2008 the IEA established the Human Factors and Sustainable Development Technical Committee.

2. Material and methods

2.1. Establishing the literature base

In order to structure current knowledge linking the themes of sustainability and work, a bibliographic review of academic articles in the Scopus database on themes relating to sustainability, ergonomics and work was made in February 2012. The set of articles was created by means of a process comprising the following steps:

- Choice of keywords related to work and sustainability (Fig. 1).
- Retrieval of articles from the Scopus database by means of a structured search using the predefined keywords (Table 1). Only publications such as articles, articles in press, reviews, books, and business articles in English were extracted. The search fields were "all fields," except for those related exclusively to sustainability (S, SD and SR), to which the search for keywords was applied only in the fields of "title, abstract and keywords."
- The title, keywords and abstracts of identified papers were read. The articles were previously classified according to their pertinence to this study, resulting in the refinement of the literature base to a subset of 167 articles.
- The remaining papers were read in full for subsequent refinement. Thus, the final literature base comprised 112 papers.

2.2. Classification of articles using taxonomy available in the literature

From the set of selected articles, each paper was read in full and classified by means of the following parameters:

- Job type, adapted from Westgaard and Winkel (2011).
- Industrial sector, based on the "International Standard Industrial Classification of All Economic Activities" proposed by the UN (http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27).
- Concept of sustainability described in each articles, which could be one or more, among: Sustainable Development (SD), Corporate Social Responsibility (CSR), Corporate Sustainability (CS), Triple Bottom Line (TBL), Environmental Sustainability (ES), Social Sustainability (SS), Economic Sustainability (ES), Stakeholder theory (STK), and Sustainability - Generic (S).
- Classification 1, which divides articles among those that discuss: public policies and local development; theoretical; companies

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