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Occupational Health and Safety post-graduation courses in Europe: A general overview

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ABSTRACT

The education of safety professionals shows a high variety in their level of approved qualifications, ranging from a technician level up to university master courses, and more recently, doctoral programs. In European countries, it seems that there are some differences in what regards the characteristics of the courses. These may be due to national particularities and legal issues, but also to the nature of the institutions and people 'behind' the courses.

This paper presents the results of a survey carried out in the scope of an European research project and it aims to provide a basic understanding of the range and diversity of the OHS post-graduation courses. With an estimated average answer rate of 50%, the survey has only included courses with more than 120 teaching hours, from a post-graduation level, and with complete programs. Results are presented for 90 courses, from 18 countries, mainly (84.4%) from universities.

It is possible to highlight the fact that, as expected, the majority of the courses (59%) are Masters (or equivalent), and are organised primarily by Engineering, Applied Sciences and Management schools/faculties, which together accounted for nearly 65% of the courses. In what regards the adopted quality systems reported by respondents, there is a predominance (65.8%) of the use of "internal" tools, such as the students and teachers evaluations and internal audits.

One of the main conclusions is that there is a large variability amongst the analysed courses. However, it should be emphasised that these results are not representative of the situation all around Europe, as it was not possible to obtain information from all OHS courses. Considering the identified differences within all the European countries, the harmonisation of post-graduation courses on OHS, if it is to occur, has a long way to go.

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1. Introduction

The designation Health and Safety, or Occupational Health and Safety (OHS) has been used to identify a scientific and professional area that is dedicated to the analysis of the working conditions, its impact in workers' health and/or well-being, to propose solutions (Saari, 1995) to reduce occupational hazards and risk factors and measure its effectiveness. Professionals working in this domain can be very diversified in terms of education, and there is a large number of professionals carrying out tasks under different titles (Hale, 1995b; Hale et al., 2005; Garrigou and Peissel, 2008), including professionals such as physicians, engineers, psychologists, nurses, chemists and many others. However, it has been recognised that there are some professionals working in this area that are mainly dedicated to safety and, thus they are being designated as safety professionals. Often, in this group of safety professionals, a distinction is made between a safety manager and a safety technician. A safety manager is competent to give advice, support and guidance on safety policy and management to employers and others in the organisation. A safety technician is competent in technical aspects of safety.

The boundaries between the level of education and the position of a safety professional within an organisation are not very sharp. Safety technicians can fulfil management tasks, most probably in smaller companies of organisations, and by its turn safety managers will find their employment in larger and international companies, or organisations. In some countries, the tasks allocated to each of the professional profiles are defined by law, as well as the academic education requirements for each profile (Booth et al., 1991). Together with the definition of the tasks or roles for these professionals, which has been addressed by several authors (Booth et al., 1991; Hale, 1995a; Limborg, 1995; Hale and Kroes, 1997; Swuste and Arnoldy, 2003; Hale et al., 2005), it is also necessary to address the educational issues.

Courses on occupational safety are mentioned in literature from the late 1800s onwards. For example, in The Netherlands, the Safety Museum started in 1893 and was one of the first in Europe (together with France and Germany) (Swuste et al., 2010). Safety propaganda has been one of the first activities of the Museum, followed

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by training programs for employers, employees, and civil servants of the Labour Inspectorate. After World War II, when safety professionals organised their profession in a professional association (1947, Club of Safety Inspectors), there was a growing need for training of Factory Inspectors. Government was the motor behind this training, and the Safety Museum served as a platform, and a place to organise and conduct these training. In 1951 the first course started (Zwaard, 2009). The first course on occupational safety at secondary educational level started in 1968, followed 1 year later by the post-polytechnic safety education and only 20 years later (1989), a post graduate course on Safety Health and Environment was born (Hale and Kroes, 1997).

In US, as reported by Heinrich (1956), the Second World War had a detrimental effect on industrial accidents related to war production, and US Government offered safety courses in several colleges throughout he country. The author reported also the appearance of, at least one case, of a post-graduation course in safety.

The subject of OHS, also designated in some countries as Occupational Risk Prevention, has been a field of academic development through the last decades. For example, Hale and Kroes (1997), in a retrospective study about their own research group at Delft, in the Netherlands, mentioned that at the 1970s, the academic research in the topic was fragmented over several subjects. Despite this body of knowledge became more defined in some countries, it seems that in other European countries this subject is still quite fragmented by several academic schools, as its is possible to find academic groups related to OHS in almost all the academic areas, from Engineering to Management, passing by Medicine, Psychology, etc.

Hale and Kroes (1997) also mentioned that the training of safety specialists, both for governmental bodies and industry, was at that time carried out in non-academic environments. However, mainly due to legal requirements, some safety specialists' positions are now requiring people with an academic degree. Additionally, and as referred by Brun and Loiselle (2002), "modern" OHS professionals have to work in environments that are undergoing constant technological, economic, legislative, social and cultural change. Therefore, several aspects of Occupational Health and Safety are becoming increasingly complex.

This knowledge is not only fragmented, but there is also an increasing complexity. According to Brun and Loiselle (2002), this change is leading to two phenomena, both a greater number of people working in OHS (engineers, managers, employees) and also an increasing expertise need for OHS professionals, which ultimately will imply a need for developing academic curricula for satisfying these needs. Therefore, the training of safety professionals and managers can be considered as a major concern and that may be due to this increasing complexity. Accordingly, there are a number of documents referring the needs for these programs, and it seems that there are some consensus around a few topics, such as the need that safety personnel must have technical knowledge of the company's field of activity, learning by doing instead of learning facts (van Dijk, 1995), to have a downstream knowledge (Saari, 1995), analytical skills, the ability to synthesise as well as personal qualities that facilitate interpersonal relations, cooperation and team work (Hale, 1995a; Brun and Loiselle, 2002).

Together with the increasing complexity and the need for establishing accurate methods and approaches, there is also a need to consider the training of OHS specialists at an university level. For example, Burdorf (1995), regarding the specific training of occupational hygienists, mentioned that it requires specific areas of knowledge and a particular level of qualification. Therefore, that education and training should be done preferably at a master's level. An academic qualification is regarded essential since those specialists must be capable to address new problems by applying knowledge and skills to situations not previously encountered. Moreover, in some cases it respects to workers' life and health, which, per se, justifies the importance of this issue (Zalk, 2010) and thus the importance of the OHS technician and manager competencies Thus, and also according to Burdorf (1995), problem-solving, in contrast to rule-following, seems to be best trained at academic level.

When considering the nature and diversity of the OHS courses, it seems important to analyse some common points in core curricula in the analysed OHS courses. In European countries, it seems that there are some discrepancies in what regards the OHS courses' programs, names, contents, research, etc. Some of these discrepancies may be related to national particularities (Verbeek and Kroon, 1995), legal issues, but also to the nature of the institutions and people behind the courses, which means that also the cultural attitudes toward OHS. It is even possible to assume that some courses content may also be influenced by the role of the safety adviser/manager in a particular country (Swuste and Arnoldy, 2003).

Previous works have focused the subjects of the education of OHS professionals. For example, Hale (1995a), reporting a survey carried out by International Social Security Association (ISSA) on the OHS professionals groups, had analysed the professionals' roles, competencies and also their training. In what regards the specific issue of OHS education, the number of papers available in the literature is not so high, as it could be expected due to the crucial role of OHS education in development of the professional domain of occupational safety. As mentioned in Verbeek and Kroon (1995), it is likely that education is not a very "glamorous" subject and, therefore, minor attention has been dedicated to this issue.

A literature review shows that there are some papers on the subject, mostly from the 1980s and 1990s, such as those from Neved and Booth (1982) and Booth et al. (1991), and also some papers focused on OHS education topics, published in a special issue of Safety Science Journal on OHS education, resulting from a conference that was held in Amsterdam in 1994 (ETOH, 1994; Safety Science, 1995). Besides this special edition, there are some papers referring some links between workers' training (for example, Heath, 1981a,b,c,d; Hale, 1984; Nolan, 1989; Montreuil, 1990; Seppala, 1995; Lacomblez, 1996; Elangovan et al., 2005) however, literature is scarce regarding OHS education, and particularly to post-graduation education. It is possible to find some references to university safety education, mainly on the discussion about the integration of safety on under/graduate curricula, such as those of Heinrich (1956), Nolan (1991), Grossel (1992), Senkbeil (1994), Phoon (1997), Hill and Nelson (2005) and HSE (2009). Some of the mentioned works are devoted to the analysis of the integration of safety in engineering education, considering that this type of integration is desirable. However, some authors, such as Culvenor and Else (1997), mentioned that this integration is difficult due to the already crowded engineering curricula.

Other previous works, such as Chow et al. (1999) and Fender (2002), focused on OHS in distance learning courses, and to learning styles of adults (D'Orsie, 2007). It is also possible to find several references dedicated to the topics, or the content, of safety courses, such as Neved and Booth (1982), Heath (1982), Senkbeil (1994), Saari (1995), Marshall and Mackey (1995), Culvenor and Else (1997), Hale and Kroes (1997), Lundin and Jönsson (2002), Swuste and Arnoldy (2003), Toft et al. (2003) and Rouhof et al. (2009). Hale and Kroes (1997), Lundin and Jönsson (2002) and Swuste and Arnoldy (2003), have addressed the issue of post-graduation courses on OHS. Garrigou and Peissel (2008) have also proposed to focus on the professionals training needs, but have not explored this issue.

Safety professionals show a high variety in their level of approved qualification, ranging from a technician level with entry at school leaving level up to university master courses, and more recently, doctoral programs. However, it is also expected that behind this

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