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Exploring effectiveness of safety information for workplace visitors

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ABSTRACT

Providing safety information to visitors is an important task of each employer, but there is little evidence on what instructions are most effective. This study explores the effectiveness of visitor instructions that are currently in use, by identifying what objectives of visitor instruction are considered most important and assessing whether the actual instructions address these objectives.

Data for this study was gathered through a survey that was handed out in a workshop in Cyprus and a workshop in the Netherlands. Focus groups were organised during the workshops, instructions from real companies were handed out and their effectiveness was discussed.

The findings from this explorative study show that people expect a visitor instruction to provide information on emergency plans, evacuation routes and on the main risks on the worksite. In this study, the actual visitor instructions only partially matched these expectations. The study showed that in the actual instructions a larger variety of topics was addressed. Strengths and weaknesses of the instructions, according to the participants, mainly relate to the information density and to inclusion of clear, specific information. This finding suggests that the amount of information is very important for the perception of the instruction.

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1. Introduction

The importance of the communication of safety information to workers in a firm is apparent. Much effort of organisations is spent on creating a safer environment and to educating and training workers accordingly. However, the same cannot be stated for visitors and subcontractors. In practice, visitor information is often absent or the information is only presented in a written leaflet. The Council Directive 89/391/EEC (1989) however makes a clear statement that health and safety measures should be designed and applied for visitors (including subcontractors), as well as for workers, on any given premises. Moreover, the legal responsibility of employers is not limited to ensuring the safety of workers; it extends to all visitors and subcontractors on the premises. Therefore, providing safety information to visitors is an important task of the employer. Understandably this is not an easy task.

One aspect that distinguishes visitors from other target groups, such as workers, is that they generally are only present for a short time. Scientists as well legislators make a clear distinction in the degree of perceived risk by workers and by visitors; this is evident in safety codes (BSI, 2008) where a different risk category is assigned to building occupation according to the nature of the

occupation. As an example office buildings and hotels could be compared. Office buildings have many returning occupants and are therefore considered to contain a lower risk in comparison to hotels and other temporary accommodation premises where the vast majority of the occupancy is there on a temporary basis and for a limited time. In the office building, people are expected to know their surroundings and the risks, whereas in the hotel the surroundings are new to most people, thus they are expected to need more safety information. A graphic representation of this fact is the evacuation route stuck behind every hotel room door. This illustrates how safety material can assist people in guiding themselves to safety. Wayfinding (Howard and Templeton, 1966; Weisman, 1981; Piaget et al., 1960; Nilsson et al., 2009; Kozłowski and Bryant, 1979; Golledge, 1999) is made up of a number of important factors: clues, mapping, time sensing, distance sensing, memory, familiarity, self-assessment of direction, gender, age, education and sense of navigation (Boustras et al., 2013). Literature enlists various ways of examination of wayfinding. Self-assessment, pencil drawings and computer based applications have been used to assess individual differences in wayfinding. Kato and Takeuchi (2003) used 330 students to set up an experiment within the built environment of their University. They recorded with the use of a video camera the route selection as well as the voice commands that participants used throughout the

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route. Kozlowski and Bryant (1979) reported the results of a number of experiments they run with 45 students from their University. This work builds upon previous work of Howard and Templeton (1966) attempting to explain human orientation. Kozlowski and Bryant's paper provides a detailed account of the experimental work they attempted. According to Kozlowski and Bryant (1979), someone with a good sense orientation will be more likely to navigate through an unknown building. This statement shows the relevance of self-assessment in wayfinding. Kozlowski and Bryant used a 35 item questionnaire to examine this principle in detail. Theory underlines the cognitive background in making navigation decisions. Proulx and Hadjisophocleous (1993) link cognition with fire engineering and highlight the link of cognitive psychology with wayfinding. Lovas (1998) argues that "corridors with a number of corners and unfamiliar routes are experienced as being longer than straight and familiar ways out".

People that are familiar with the premises have usually incorporated the recognition of emergency routes into their routines, but visitors have not. Similarly to the hotel room information for way finding, the information handed to visitors and sub-contractors should assist them in acting safely and in guiding them in case of an emergency. Whereas regular inhabitants of a premise – in this case the workers – are trained extensively to ensure their safety, the visitors are new and lack the routines to guide their behaviour. Instructions should thus be designed to "bridge" this gap, so that also visitors know how to act. Unfortunately, despite the attention that companies give to visitor safety instructions, it remains unclear whether these instructions are effective in creating awareness and promoting safe behaviour. This study aims to contribute to bridging this gap, by studying the effectiveness of safety information that is provided to workplace visitors.

The aims of this study were:

- Assessing the drivers or goals for providing safety information to visitors.
- Studying the effectiveness of the safety information that is provided.

2. Literature review

Little was found in the safety literature on the question of effectiveness of visitor safety instructions. Also the effect of visitor instructions on safety awareness and safety behaviour has not been examined yet. However, there have been several studies that investigated strategies to promote certain behaviour, for instance in consumer behaviour studies. In addition, several studies have been performed on the effectiveness of safety information and warning signs in a medical context, in traffic or in food safety. These studies provide valuable insights into aspects of effective information that may apply also to visitor safety instructions.

Firstly, marketing strategy can be used to promote safety and safe behaviour. The visitor information is not something the recipient is searching for himself; it is therefore something that may need to be presented attractively, something that needs to be 'marketed'. Vecchio-Sadus and Griffiths (2004) combined marketing and safety into a study that investigated whether safety culture could be enhanced through marketing strategies. They used marketing theory to explain the three main objectives when promoting certain behaviour (which thus is also safety behaviour): informing, persuading and reminding. They emphasised that in promoting certain behaviour, it is especially important to know and to address the target group and their needs, which they label 'customer focus'. The importance of customer focus also applies to visitor safety

instructions, since different information may apply for visitors in comparison to contractors or employees.

Hypothesis 1. An instruction that specifically addresses visitors is most likely to be effective.

Vecchio-Sadus and Griffiths (2004) explain in their paper also that when marketing Occupational health and safety (OSH), as is the case when presenting visitor safety instructions, it may be necessary to provide forms of motivation and encouragement. Such forms of motivation include reasons related to ethical/moral issues, legal/social issues or financial issues. The authors underline that the most persuasive risk communication must involve 'a combination of emotional and rational appeal'. The importance of providing motivation is also underlined in studies on the effectiveness of safety campaigns, which are described in the following paragraphs.

Whereas the previous section discussed possible insights from marketing strategies, a second perspective that may provide insight into the effectiveness of visitor safety instructions is the comparison of such instructions with other information that aims to raise safety awareness. Examples of information to raise awareness are safety campaigns, safety symbols, signs and leaflets. The enforcement of use of safety instructions can increase the levels of safety (Geller et al., 1989).

The following paragraphs compare several studies on the effect of safety information, starting with studies on warning signals. Research into warning signals has a long history. Warning signals include both visual and audio signs to provide an alert. Since their main aim is to provide a warning for hazardous situations, so that behaviour can be adapted, they are relevant aspects of visitor instruction. Wogalter et al. (1987) list the main features of effective warnings into two groups: criteria addressing the content of the warning message; and criteria for conveying the message. The first group of criteria, about the content of the message, contains four key aspects: it should contain a signal word, a hazard statement, the potential consequences – being the reason to adapt the behaviour-, and instructions on how to act or not to act. The signal word and hazard statement clarify what the warning is about, and the potential consequences and actions address the reasons why someone should memorise the warning, which aligns with the finding from Vecchio-Sadus and Griffiths (2004) that motivation for certain behaviour should be provided.

Another study that underlines the importance of motivating the recipient through adding reasons and explanations, and that thus provides support for Hypothesis 2, is that of Saarela et al. (1989). They identified positive reinforcement and feedback mechanisms as important elements of an effective safety campaign. These aspects are expected to translate into effective safety instructions, since they increase the motivation to behave safely.

Hypothesis 2. An instruction that provides motivation through emphasising the benefit for the visitor is most likely to be effective.

Now, returning to the study by Wogalter et al. (1987), the second group of criteria they identified, in addition to criteria about the content, refers to the characteristics of warnings. They mention four aspects of effective information: it should be attention-getting (meaning that it should stand out), comprehensible, concise, and durable. Many studies on traffic signs aim to investigate what aspects increase sign comprehension. Ng and Chan (2007) show for instance that symbols should be familiar, specific and meaningful. Specificity and conciseness refer to rational aspects of comprehension. However, some unconscious aspects also influence warning comprehension. Bazire and Tijus (2009) showed for instance that the context in which a road sign is presented is also

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