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Increasing students' safety awareness in a teaching hotel

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During the past years the attention for safety and health at work has increased, partly through the influence of European law and labour agreements and by acknowledging the huge economic impact of accidents and calamities. It is notable that companies are more and more aware that it is necessary to put more energy into promoting safety awareness among their staff. Since the International Hospitality Management School is training students for future leading positions within the hospitality sector, it is of the utmost importance that safety competences are included in the curriculum. Particularly the four-star teaching hotel, which is run by students under supervision of practical instructors, offers a perfect context for training these safety competences and increasing students' safety awareness.

The following problem statement was taken to guide the research: What is the impact of safety training on the safety competences (knowledge, awareness and behaviour) of students working in the kitchen of the teaching hotel? In total, 140 students from the first, second and third years have been involved in this study, which was conducted in the kitchen department of Stenden Hotel. The results of this study indicate that training does improve safety competences of students. Since this study was limited to the kitchen, we recommend replication in other departments and other institutions. Next we suggest additional research to figure out which educational format is most effective and efficient in bringing about a significant change in safety awareness and safety-related behaviour.

Keywords: Safety, awareness, responsibility, influence, training, unconscious capability

Introduction

While Stenden works hard in order to organise industrial safety as optimally as possible, the question of how students experience this remains.

How aware is the student of this industrial safety and how is it organised? How aware is the student of the danger during a fire or evacuation? Is the student informed about all safety measures present in the building?

Stenden is an internationally oriented institute for higher education with five locations in the northern part of the Netherlands. These locations are Assen, Emmen, Groningen, Meppel and Leeuwarden. Stenden also has four locations abroad. These locations are Doha (Qatar), Bangkok (Thailand), Port Alfred (South Africa) and Bali (Indonesia). For this research the main location of Stenden was used, which is situated in Leeuwarden. There are approximately 8 000 students and 700 employees at this location.

Stenden has to meet the necessary requirements set by the Arbo law resulting from the 'Arbeidsomstandighedenwet, article 3'. These requirements cover the organising and executing of industrial safety, escape route indications (icons), evacuation maps and accessibility for government helpers (fire department, police, ambulance) and the guidance of these helpers.

The Arbeidsinspectie monitors the Arbo law and is able to enforce compliance with the law. If the legal obligations are not met, Stenden can be given a fine.

All symbols and the language have been done in English. Students are required to inform themselves (through module books) of available safety resources within Stenden University. The resources are described in article 11 of the Arbeidsomstandighedenwet.

Stenden Hotel

The research for this study was executed within Stenden Hotel in Leeuwarden. Here students obtain practical working experience and the hotel is part of the HBO study 'International Hospitality Management', one of the institutes of Stenden University in Leeuwarden. This four-star hotel is part of the International Hospitality Management (IHM) School and is meant to provide students with practical working experience and training facilities. The practice education is integrated in the first three study years and students need to attend practice in all the different departments within Stenden Hotel, known as the Food and Beverage department and the Rooms Division department. It is operated by students under supervision and with coaching by practical instructors.

Since Stenden Hotel is a real company, employing students to serve real guests, who pay with real money for real services and products, aimed at creating a superior hospitality experience, the wellbeing of both guests and staff is of the utmost importance to the operational performance of the business. A necessary prerequisite is to create and maintain a safe working environment for the students.

Since safety to a large extent depends on the behaviour and attitude of staff members themselves, it is important

to investigate the students' awareness about safety in their working environment and their own impact (influence) on it.

In practice:

An important part of the IHM study is the daily management of a four-star hotel in practice. Here they are exposed every day to a number of dangers. These dangers vary from a near crash to an evacuation which follows after an evacuation signal.

The accidents and calamities that have happened in the kitchen over the years are fainting, epileptic attacks, cutting and burn wounds. In the period 2008–2010 there were five cutting and four burn wounds, one epileptic attack and one respiration problem (Quality Stenden Hotel ISO 9001, 2009). These cases were of such nature that students were referred to hospital for further examination.

Research showed that none of these students sustained permanent injuries due to these accidents (Document 'Melding en registratie ongevallen en beroepsziekten' Arbo 1998).

While major calamities were held off, it is of the utmost importance that all cases which are not normal are directly reported to the practical instructor. This concerns both human and material irregularities. All practical instructors within Stenden Hotel are BHV certified and know how to act adequately during calamities. All facilities with respect to safety and required by law are correct and are checked every year by the authorities. But in what way is the student aware of all of this and what influence does the student himself have on this?

It is notable that companies are more and more aware that it is necessary to put more energy into promoting the awareness of safety regarding their staff. Unfortunately, information from the Arbeidsinspectie shows that this awareness of safety leaves a lot to be desired (Dijkhuis 2009).

For Stenden Hotel it is very important to give a lot of attention to this awareness. When looking critically at this matter, the question could be if students are aware of the dangers they are exposed to every day. Here we approach the following research question.

The research question

'How should Stenden Hotel make their students more aware of their own impact on a safe working environment?'

The desired behaviour should be that they will report everything that is not normal directly to the nearest practical instructor. In case there is no practical instructor available, the students should know how to make use of the means of safety which are available. This can be of crucial importance during a calamity.

A study will have to ascertain whether students are aware of this and, if this awareness is there, what the level of awareness and the behaviour after that will be. A problem statement was developed for this.

Problem statement

What is the impact of safety training in combination with experience of a critical incident on the knowledge, awareness and behaviour (safety competence) of students working in the kitchen of SUH?

The study which follows was built and developed on a conceptual model.

Conceptual model

The conceptual model is built up out of 4 phases:

- **Phase 1:** First prior knowledge has to be measured based on policies and procedures in a real-world kitchen situation. This will done by means of a questionnaire.
- Behaviour (action, reaction) will be measured by means of a video intervention. A simulation of a business calamity will take place (a big flame in the frying pan).
- **Phase 2:** On the basis of these results a course of training will be developed. This will be offered to a new group of students during their first practical day. By means of the training a change in behaviour is expected to take place. Students should change from unawareness and incompetent behaviour to more aware, competent behaviour.
- **Phase 3:** Through the training a change in behaviour will take place. Students will pass from unaware, incompetent to aware, competent behaviour.
- **Phase 4:** In this final phase the behaviour of the students will be evaluated. This evaluation could lead to adjustments for the next training session in order to obtain a higher level of output after the training.

Method

As pointed out in the conceptual model, knowledge and a change of behaviour had to be measured, therefore the research was divided into a video intervention and afterwards a questionnaire.

From both methods the data were measured in both a pre-test and a post-test phase. With the data of the pre-test phase, a training course was developed which was presented to a new group of students. These students took part in the post-test phase under the exact same conditions. The difference that arose in the data was measured and analysed.

The kitchen of Stenden Hotel was used for this purpose. The practical modules for IHM students consist of 10 weeks, both in week 1 and week 5 when new groups of first, second and third-year students start.

Week 1: the pre-test phase started; a video intervention took place during the practical lessons, and approximately 25 students will took part in this. Afterwards the student completed a questionnaire. The post-test phase took place in week 5.

Prior to this phase, training in industrial safety was given. During this training an explanation was given in the field of: types of safety, awareness, (re)sources.

Next the students were shown a short movie with a 'shocking piece of film' of a business accident (Canadian Accident Prevention Commercial Extra Brutal, 2007). In order to make students aware of the consequences in case they do not act adequately in unsafe situations, the choice was made to use shocking image fragments. At the end, everything regarding industrial safety was pointed out to the students during a guided tour in the kitchen (fire detector, escape routes).

Video intervention

In order to start this intervention, MOC Friesland (Mobiel Oefen Centrum Friesland), a professional organisation who also provides BHV training for Stenden University, was approached in order to help with organising a safe and

controlled intervention. The intervention consisted of a fixed protocol which was exactly the same for each group of students.

The calamity was: 'Fire in the frying pan'.

Before starting the calamity a video camera had to be installed a few hours before the students were present, so as to prevent suspicion among the students. A practical instructor (the author of this research) prepared a meal together with the employee of the MOC. During this preparation both the practical instructor and the employee of the MOC left the floor, but at a distance the employee of the MOC made sure that there was a flame in the frying pan. For this a special burning gel was used which burns spontaneously at a certain temperature.

The practical instructor and the MOC employee monitored events from a distance, in order to ensure safety, and see what the reaction of the students was.

After that the video images were analysed with respect to: the time between the start of the fire and the first handling; the time between the fire and the warning of a BHV'er (practical instructor); what actions were taken; and how many students were actually involved in (fighting) the fire.

Note: The video recordings made were reviewed by one practical instructor. This gives a one-sided picture of the observation which could lead to a distorted image.

Questionnaire

As indicated in the conceptual model (fore)knowledge, knowledge of resources, knowledge of available information, awareness and experience with accidents were tested by means of a questionnaire. The goal of this test was to create a clear picture of the students' level of safety awareness.

Measures /sample profile

For this questionnaire a total of 140 students were approached. All these students completed the questionnaire correctly. Valid percentage: 100%.

The questionnaire contained three questions with the following answering possibilities: 1) not good, 2) average, 3) good, 4) excellent. These questions refer to the feeling students can have during work in the kitchen. With the possibility of choosing 'yes' and 'no' the student could indicate what their actual knowledge was at that moment in time.

Two questions offered the student the possibility to indicate exactly what action they would take during a calamity. Four possibilities were given per question. Since the IHM is an international institute of higher education, all questions were in English. The fact that more languages are spoken within the school was not taken into account. The language during the video intervention was English.

Note: In the pre-test phase of the video intervention more practical instructors were present during the investigation than with the post-test phase. This may have influenced the behaviour of the students (Hawthorne effect).

Result

Video intervention pre-test

The results of the video intervention were analysed and reviewed by one person (the practical kitchen instructor). During the calamity 21 students were present in the kitchen. Five of the students were standing with their backs to the stove, ten students were working on the other side of the kitchen and four students had a clear view of the part of the stove where the calamity took place. Two students were walking around, one of whom stood next to the place of the calamity.

In the first phase of the outbreak of the fire (a severe development of light grey smoke) there was no one who responded.

During the outbreak of the flame in the frying pan only one student reacted with the words: 'Hello! There is a fire … is that normal?' These words were directed to a practical instructor who was further away in the kitchen. Since this instructor did not respond directly, the student walked away from the fire and did not take any action. Another student walked past the fire, looked at it but did not act either. Not one of the students involved acted adequately during this calamity. Here and there students laughed a little while the fire started to get more and more serious. All students had a wait-and-see attitude. The fire was extinguished by the practical instructor in a professional way. The results comparing the indicators: there was no handling (see page 10); no one warned a BHVer (practical instructor); no action was taken and no students were actually involved in fighting the fire.

Video intervention post-test

One week prior to the video intervention students followed a lecture in the field of industrial safety and how to act in case of a calamity. The goals of this lecture were 1) to make students aware of the dangers and how they can show desired behaviour regarding adequate handling during a calamity and 2) to make students aware that they need to report all situations that are not normal (both equipment and human) to a practical instructor.

At the moment of the calamity 18 students were present in the kitchen, 5 of whom were near to the calamity.

During the first phase (a severe light grey development of smoke) a slight commotion broke out and students consulted with each other. Before the actual outbreak of the fire a practical instructor was warned directly. He was able to extinguish the fire at an early stage.

Before the fire could set flame it was extinguished from the first development of smoke, five seconds after the first development of smoke to be exact. The practical instructor was already warned at the first development of smoke. One student was in the direct neighborhood of the calamity and three of them were in the background.

Questionnaire

From measuring three of the indicators (Table 4) the following conclusions can be made:

Although there was a very slight increase (shown in Table 4), there was no significant difference in safety awareness between pre-test and post-test (t = –1,120; df = 138; p = 0.264).

There was a significant difference in the 'current safety awareness' between thee pre-test and the post-test (t = –3.386; df = 124.031; p = 0.001). As shown in Table 4, the largest significance between the pre-test and

Table 1: Type of test

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Pre-test	70	50.0	50.0	50.0
	Post-test	70	50.0	50.0	100.0
	Total	140	100.0	100.0	

Table 2: Academic year

		Frequency	Percent	Valid percent	Cumulative percent
Valid	1st year	93	66.4	66.4	66.4
	2nd year	41	29.3	29.3	95.7
	3rd year	6	4.3	4.3	100.0
	Total	140	100.0	100.0	

Table 3: Age and gender of students

		Frequency	Percent	Valid percent	Cumulative percent
Valid	16–18	44	31.4	31.4	31.4
	19–22	81	57.9	57.9	89.3
	23–28 >	15	10.7	10.7	100.0
	Total	140	100.0	100.0	
Valid	male	53	37.9	37.9	37.9
	female	87	62.1	62.1	100.0
	Total	140	100.0	100.0	

post-test was the 'quality of information concerning safety' (t = –4.516; df = 136.787; p = 0.000).

As shown in Table 5, there is a significant relationship between knowing the location of the evacuation plan and the moment of measurement. As shown in Table 2 as well, many more students know the location of the evacuation plan after the intervention (84%/70) than before (23%/70).

Table 6 shows that after the intervention more students were aware of what they should do during a calamity (pre-test 60%/70, after the intervention 81%/70). There were fewer students who undertook action themselves (pre-test 36%/70 after the intervention 17%/70). The number of students who did not know what they should do decreased (pre-test 4%/70, after the intervention 1%/70). These values do not show a significant difference

There is a significant relationship between knowing the location of security resources and the moment of measurement As shown in Table 7, many more students knew the location of the evacuation plan after the intervention (70%/70) than before (17%/70).

Discussion

During the past years attention to safety and health at work has increased, partly through the influence of (European) law and Arbo covenants. Therefore it is of the utmost importance that Stenden Hotel is aware of this looking at the target group with which is worked with. The training IHM educates people who will at a certain moment in time fulfill an advisory role within the hospitality sector.

This study shows that 57.9% of all students who took part in the investigation were between 19 and 22 years old. Within this age category (28%) is where most accidents happen during work in the hospitality sector (CBS 2009).

Another fact is that 60% of the students pointed out that they would inform the practical instructor during a calamity and 36% pointed out that they wanted to extinguish the fire themselves. The video intervention in the pre-test, however, demonstrated the opposite. No one took any action; they adopted a wait-and-see attitude. This was also supported by the fact that only 17% of the 70 students questioned did not know where all security resources are located.

Now the research question is approached: 'How should Stenden Hotel make their students more aware of their own impact on a safe working environment?'

First, the students must be aware of the elements involved in industrial safety. The goal here is to have students go from unawareness to awareness in unsafe situations.

The fact that many of us act unconsciously does not take away the fact that we should act consciously as well. 'Wanting something consciously' is not a synonym for 'exercising your own free will' – so from the fact that people often have no knowledge of their motives does not follow that free will is an illusion.

Acting voluntarily is indeed possible and can overrule unconscious motives (Kolk 2009). According to Kolk, attention is the key word.

The attention of students during training was gained from the shock effect of the displayed video fragments. Showing the serious consequences in the absence of adequate handling during an unsafe situation had a lot of impact on the students.

The goal was that the student, during an irregular situation, will act in a desired way and is able to do so as a result of the

Table 4: Pre-test and post-test scores on three indicators

		How safe do you feel in the kitchen?	Current safety awareness	Quality of information concerning safety
Pre-test	Mean	2.91	2.56	2.13
	N	70	70	70
	SD	0.558	0.605	0.588
Post-test	Mean	3.01	2.86	2.60
	N	70	70	70
	SD	0.496	0.427	0.646
Total	Mean	2.96	2.71	2.36
	N	140	140	140
	SD	0.528	0.543	0.659

Table 5: Knowledge of the location evacuation plan

	Location evacuation plan		Total
	no	yes	
Pre-test	16	54	70
Post-test	59	11	70
Total	75	65	140

Table 6: Response to a scenario

	What would you do in case a pan catches a big flame?			
	i don't know	I will notify the practical instructor about it and stay away from the fire	I will try to stop the fire myself	Total
Pre-test	3	42	25	70
Post-test	1	57	12	70
Total	4	99	37	140

Table 7: Awareness of location of security resources

	Location of security resources		Total
	yes	no	yes
Pre-test	12	58	70
Post-test	49	21	70
Total	61	79	140

training. The primary goal of the training is that the students will report all matters that are not normal in both a human and material way directly to a practical instructor. Another goal of the training is to have students become instinctively competent. In the post-test phase this produced significant differences.

After the training, 81% of the students indicated that they would warn a practical instructor in case of a calamity and 70% of them knew the location of the security resources. This is proven by the video intervention after the training. Before an actual fire started in the frying pan, students reacted adequately and warned the practical instructor, who could take action and prevent the fire from happening.

It is shown that training students in this way has a positive impact on industrial safety. This is very likely, but keep in mind however that no significant difference was shown in the feeling of safety which a student has! In both phases of the investigation, the students indicated that they felt safe. One cannot automatically draw the conclusion that the student will show appropriate behaviour while having this feeling. Students are obliged to inform themselves regarding all available safety means and escape routes (module books, Bello intranet, school emergency plan, 2009), however, this does not happen in practice. Up to 23% of all students who took part in this investigation did not know the evacuation plan. Only after the training did 84% know the location of safety features.

Students are strongly influenced by the behaviour of others. They tend to need a leader, but this does not mean that they always follow the right leader. Therefore it is important that practical instructors are experts and will take the lead during calamities. They are able to urge the students to use the escape routes and to gather themselves at the appropriate places (Arbo verslag, nr. 5, 2003).

It is of the utmost importance to keep informing and training students with respect to safety. In order to take safety within Stenden Hotel to a higher level and to guarantee this safety, it is important to not train students only once but to

repeat this regularly. The power of repetition is to repeat an observation in order to emphasise the fallibility of knowledge.

This has two reasons: first to learn new knowledge and second to expand adequate knowledge (Lenin 2000). The frequency of this depends on several factors: the time available within the educational concept and the financial means. The degree of urgency and the setting of priorities for this will have to be further investigated.

From the data of the study it is possible to conclude that training of every grade and all associated functions is important since the study showed that one grade does not control more information than another grade. At the same time it was not shown significantly that students behaved with instinctive competence during the calamity. This will have to be investigated further.

The investigation took place in the kitchen department of Stenden Hotel. Of course it is very important that training be given in every department. In total practical students will have to be trained three times per department. Handing out a small BHV certificate after obtaining a positive result for a small BHV examination could stimulate students to give more attention to this topic. Maybe there is a possibility to insert this topic in the regular educational programme. This connects with the campaign Healthy Workplaces 2010–2011. The spin-off of this campaign might make a positive contribution to the image of Stenden Hotel.

In the meantime, recording of unsafe situations during these lessons can be used as an instrument for feedback to students. At the same time, these recordings can also be used as a training tool during the annual repetition of BHV trainings for practical instructors. Of course, safety is not specifically meant for one target group (students) but for everybody. Being aware of your own influence in regard to this is of the utmost importance and not only in the working environment. Reacting alertly and adequately can be of vital importance. Prevention is better than cure.

Note

For more information regarding the video intervention and the images, please contact Mr J. Bossema by e-mail; bossemajan@gmail.com

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