

CARTOONS ON OCCUPATIONAL HEALTH AND SAFETY: SEMIOTIC ANALYSIS OF WORKERS

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Construction industry is at the top rankings in developed and developing countries in terms of occupational deaths and injuries. This shows that legal regulations themselves could not decrease occupational accidents. In decreasing such incidents, the perception of the society on workers, who are a part of occupational health and safety issue, has an important indicator. Therefore, in this study, it was aimed to present the perception of the society on the responsibility of workers for occupational health and safety through cartoons. For this objective, seven of cartoons exhibited in International Construction Accidents Cartoon Contest held in Turkey were examined through semiotic analysis methodology. As a result, occupational health and safety perspectives of different countries in terms of cultural and geographical background were exposed by means of cartoons from these countries. It was observed that workers in China and in Greece share the same problems such as lack of attention and responsibility, although these countries are quite far from each other geographically and culturally. Similarly, cartoons from Turkey and Russia emphasize the extremely dangerous nature of construction works. In addition, contrary to other countries, workers in Turkey and in Greece wear casual clothes instead of overalls. All of these findings clearly indicate that construction-based occupational health and safety perceptions of countries do not change significantly and that cultural and economic differences between countries do not seem to be an important driver in this regard. Consequently, these results can have a function in guiding workers and worker unions to revise and manage the general perception of the society about them.

Keywords: cartoon, occupational health and safety, semiotic analysis, worker.

INTRODUCTION

Because of highly dangerous working conditions in the construction industry as listed at the top levels in occupational health and safety (OHS) statistics of developed and developing countries, legal regulations themselves are not adequate to reduce the number of occupational accidents. Toward this aim, it can be a better and sustainable solution to attract attention of the society at the macro level. In this regard, cartoons have impressive functions to attract society's attention through their entertaining and catchy messages. They are significant humour elements, directing the society and reflecting its perception. According to Sani *et al.* (2012), cartoons are very effective mediums in setting agenda of the society. In this context, cartoons can be basically used to identify the society's point of view to the "worker" image in occupational incidents.

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In this study, it was aimed to identify the perception of the society on the responsibility of workers for OHS through cartoons. For this objective, seven of cartoons exhibited in International Construction Accidents Cartoon Contest held in Turkey were examined through semiotic analysis methodology. The fact that these cartoons have different contents and are from various countries, each of which has a different cultural and economic background, has led to evaluate different perspectives. The semiotic analysis process was basically carried out in three stages: (i) discourse analysis, (ii) narrative analysis, and (iii) basic (logical – semantic) analysis. Using this methodology, the society's perception on the responsibility of workers in work accidents was revealed through cartoons in the present study.

SEMIOTIC ANALYSIS METHODOLOGY

In recent years, academic studies about cartoon analysis have prominently increased. Cartoons have often used in social sciences as a persuasive method for individuals and society. In this study, cartoons were analysed qualitatively using semiotic analysis method. In this analysis, systems and implications of signs are interpreted. In the academic literature, there are several studies that have made cartoon analysis using this method (Morris 1991, Morrison 1992, Warburton and Saunders 1996, Shultz and Germeroth 1998, Brilliant 2000, Everaert-Desmedt 2003, Schwartz and Rubinstein-Ávila 2006, El-Arousy 2007, Jackson 2008, Tsakona 2009, Schreier 2010, Mahmood *et al.* 2012, Sani *et al.* 2012). However, there has been no scientific research analysing OHS-related cartoons specifically. This evidence shows the originality of the present study.

On the other hand, in the literature there are two studies on visual warning materials used in construction sites, although they did not examine OHS-related cartoons specifically and did not employ semiotic analysis method. In fact, these researches are noteworthy in this domain of the literature in terms of their significant conclusions. Bust *et al.* (2008), one of them, explored how visual representations, including cartoons, can communicate critical OHS information in a construction context. They stated that visual materials for safety cautions are easy to understand for workers and have potential to develop OHS applications. Similarly, Hare *et al.* (2013) studied on communication with migrant workers. They investigated how pictorial aids can communicate simple hazards and controls, and how such images can be used during safety training, particularly for migrant workers and those new to construction. As a result, they found out that visual materials facilitate the communication with migrant workers and thereby decrease potential OHS problems.

Semiology investigates the signs in the written communication. Its purpose is to examine a meaningful communication activity. During the in-depth analysis, interpretation processes or compilation methods of signs of such an activity are revealed. The semiotic approach includes some decoding activities such as investigation of visual scanning direction of an image, interpretation of a text, and evaluation of intonation. Hence, semiology investigates visual presentation of information (Raskin 1985).

As in this study, cartoons can be analysed through the following five information sources respectively:

1. Situation, including situations, places, time, objects, participants, and activities, presented in the humorous text.

2. Language, which is responsible for the exact wording of the humorous text and for the placement of functional elements that constitute it (i.e., the distribution of information along the text and the position of the punch line and/or the jab lines).
3. Logical mechanism, presenting the distorted and playful logic that causes the script opposition.
4. Target, involving the people, groups, or institutions, ridiculed by humour (Tsakona, 2008).
5. Script opposition, which is the necessary requirement for humour. A humorous text is fully or partially compatible with two different and opposed scripts. Raskin (1985) identifies three basic types of opposition between the 'real' and 'unreal' situations evoked by the overlapping scripts of a humorous text: actual – non-actual, normal – abnormal, and possible – impossible.

ANALYSES OF CARTOONS

In this study, seven of more than five hundred cartoons exhibited in International Construction Accidents Cartoon Contest held by Anadolu University (AU) in Turkey in 2011 were chosen and examined through semiotic analysis method. These seven cartoons were chosen among the cartoons criticizing workers for incidents. Moreover, in order to increase cultural and economic diversity, a special attention was paid to choose cartoons from countries which have different levels of development. In addition, in order to provide easy communication between cartoonist and readers and to deliver the same message to people from different countries easily, non-verbal and time-independent cartoons were taken into account. These seven cartoons were analysed according to their countries as follows.

Turkey

A cartoon from Turkey was given in Figure 1.



Figure 1: Cartoon by Kursat Zaman, reproduced by permission of AU.

Situation: A plasterer working at height ties the security belt to his lunch box instead of himself.

Language: Working at a high place is described through scaffolding and the space in the background. Lack of safety precautions are symbolized through worker's daily clothes and jerry-built wooden scaffolding without railing. Despite the high risk of falling, worker prefers using the belt for his lunch box to using it for himself. Lunch box and bread are metonymies and represent financial difficulties of the worker.

Logical mechanism: The humour means is the exaggeration logic.

Target: Considering the position of the worker, the construction industry and employers are criticized. Because of financial difficulties and the fear of unemployment, workers force to endanger their lives and to ignore their health. The main themes in the cartoon are the need for improvement of working conditions and workers' rights and the need for better control of OHS precautions in the industry.

Script opposition: The normal – abnormal contrast is represented through tying safety belt to a worker – tying safety belt to a lunch box.

Belgium

A cartoon from Belgium was given in Figure 2.



Figure 2: Cartoon by Norbet Van Yperzeele, reproduced by permission of AU.

Situation: A worker draws aside his meal because a worker is falling from stairs on his meal.

Language: Stairs, partial worker image, and the out-of-hand trowel represent that a worker is falling from a high place. Both the horizontal line from cup to covering and the position of sitting worker's arms show that he draws aside his meal to protect it from the falling worker. Helmet and overalls are metonymies and represent OHS precautions. Unexpected reaction of the sitting worker to the falling worker is emphasized by his facial expression of displeasure. This denotes that the incident is usual and gives him discomfort instead of fear.

Logical mechanism: The humour is made by exaggeration and habituation logics.

Target: It is OHS practices in the industry. Especially, the falling incidents are criticized.

Script opposition: The actual – non-actual contrast is represented through being scared of seeing a falling person – showing displeasure while a person is falling.

Macedonia

A cartoon from Macedonia was given in Figure 3.

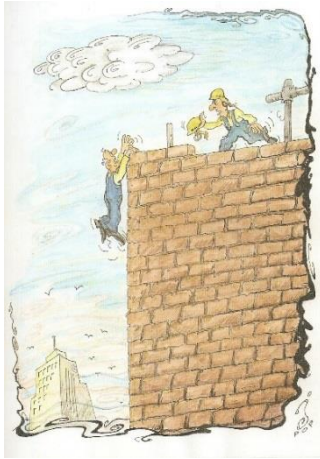


Figure 3: Cartoon by Jordan Pop Iliev, reproduced by permission of AU.

Situation: A worker at a high place hangs on to a brick to not to fall and waits for help from the other worker.

Language: The skyscraper and flying birds at the background and the close cloud indicate that workers are at a high place. Workers' overalls, shoes, and helmets are metonymies and represent OHS precautions. Lines over the left hand of the hanging worker show that he waves his hand to ask for help. The other worker coming to help is anxious and tries to give a helmet to the hanging worker. However, it is an unexpected move to give a helmet to a person who is about to fall. Here, it is emphasized that the personal protective equipment (PPE) is not adequate to avoid accidents and that accurate information on OHS should also be given to workers.

Logical mechanism: The humour is made by misapprehension, failing, and ignorance.

Target: It is OHS practices in the construction industry. The message is that if PPE is not used properly, it will be useless.

Script opposition: The normal – abnormal contrast is represented through giving a hand to a person who is about to fall – giving a helmet to a person who is about to fall.

China

A cartoon from China was given in Figure 4.



Figure 4: Cartoon by Zhang Xin Hua, reproduced by permission of AU.

Situation: The cartoon consists of three parts. The first two parts show that the helmet of worker saves him against small falling materials. However, in the last part, worker faces a danger in which a helmet cannot protect him.

Language: Cartoon has been drawn in the direction of reading from left to right. Although there is no number on the parts, their orders can be estimated by the habit of reading from left to right. In other cultures where the habit of reading is from right to left, their orders can be estimated by means of sizes of the falling materials. Thin vertical lines denote that materials are falling. Worker's facial expressions and the broken materials show that the falling materials did not hurt him. In the last part, worker's mouth shape and musical notes indicate that the worker is self-confident because of the past two experiences even if the falling material is big and heavy.

Logical mechanism: The humour is made by over-confidence and analogy logics.

Target: It is workers. Besides all OHS precautions taken, workers themselves should pay significant attention to potential risks in job-sites.

Script opposition: The possible – impossible contrast is represented through being protected by helmet against small falling materials – being protected by helmet against all occupational incidents.

Greece

A cartoon from Greece was given in Figure 5.



Figure 5: Cartoon by Grigoris Georgion, reproduced by permission of AU.

Situation: A worker, who has built a swing between two incomplete columns, is observed by another two workers with usual glances.

Language: It is clear swings are entertaining tools and for use in free-times. Helmets of two people at the foreground denote that they are workers. In addition, their daily clothes and the scattered bricks show that OHS precautions were not taken adequately in site. Lines on these workers' faces indicate that they are middle-aged and experienced employees. Given their facial expressions, they observe the other worker with usual glances.

Logical mechanism: The humour means is the logic of bringing contrasts together.

Target: It is workers. The message is that workers should avoid making unnecessary activities in site even if they do not seem to be dangerous actions.

Script opposition: The normal – abnormal contrast is represented through obeying OHS precautions – behaving improperly against OHS precautions.

Italy

A cartoon from Italy was given in Figure 6.

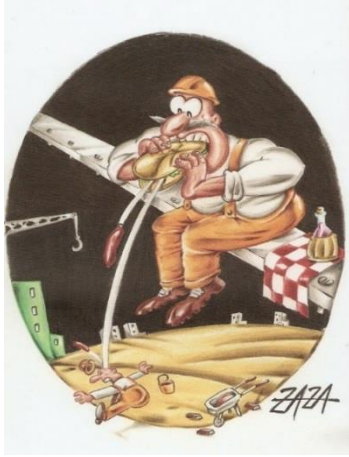


Figure 6: Cartoon by Zaza Leonardo, reproduced by permission of AU.

Situation: While a worker has lunch at a high place, sausages fall from his sandwich and hit another worker's head.

Language: Sausage is used as a metaphor to represent the falling objects and unexpected events. Although helmet, overalls, and shoes symbolize OHS precautions taken, the worker sits on a steel beam at height as a contradiction. In fact, this represents dangerous working conditions in site. Wheelbarrow, bricks, crane, and bucket show that the incident occurs in a construction site.

Logical mechanism: The humour means is the exaggeration logic.

Target: It is the construction industry. According to the cartoon's message, it is necessary to be ready and careful against unpredictable incidents.

Script opposition: The possible – impossible contrast is represented through a worker who is not injured by a falling sausage – a worker injured by a falling sausage.

Russia

A cartoon from Russia was given in Figure 7.

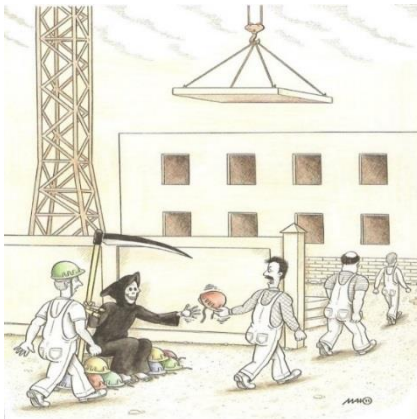


Figure 7: Cartoon by Alexander Markelov, reproduced by permission of AU.

Situation: Workers give their helmets to the angel of death.

Language: Crane and the hanging material symbolize potential risks in the construction site. Lines around the worker's hand show that he gives his helmet to the angel of death, and the lines around the worker's mouth denote that he talks to the angel of death. Helmets in different colours, on which the angel of death sits, indicate that all workers give their helmets before accessing to site. Helmet is a metonymy and represents OHS precautions. The message in the cartoon is that the results of occupational incidents may be fatal without taking OHS precautions.

Logical mechanism: The humour means is the exaggeration logic.

Target: It is workers since their improper actions can lead to fatal incidents.

Script opposition: The normal – abnormal contrast is represented through workers wearing their helmets while accessing to site – workers taking off their helmets while accessing to site. Also, the actual – non-actual contrast is represented through the fact that the angel of death is out of this universe – the fact that workers are talking and delivering their helmets to the angel of death.

DISCUSSION

Considering seven cartoons in this study, three cartoons (Turkey, Belgium, and Macedonia) are about falling from height, three (China, Italy, and Russia) about falling materials, and the remaining one (Greece) about off-the-job actions in site. This shows that these are among typical reasons of accidents in the construction industry.

In the sample of Turkey, despite the high risk of falling, a casual-dressed worker, who works on jerry-built wooden scaffolding, prefers using a belt for his lunch box to using it for himself. This indicates that construction workers in Turkey have serious financial problems and prioritise economic safety than OHS. Therefore, they ignore fatal working conditions.

The cartoon from Belgium shows that occupational incidents by falling from height are very frequently encountered in this country. An eating worker's reaction of displeasure to a falling worker reflects that this kind of incidents is common in Belgium. Another remarkable issue is that the falling worker has basic PPE such as helmet and overall. However, he does not have a safety belt, although it is a must for those who work at height. Even in a developed country like Belgium, the procurement and usage of PPE are questionable.

The cartoon from Macedonia is a sample which stresses both the importance of OHS trainings and workers' responsibilities on them. OHS trainings are compulsory by law and must be provided by the employer. Also, workers must behave according to these trainings. In the cartoon, a worker tries to deliver a helmet to a worker hanging at a high place. This clearly shows the lack of OHS trainings and the related knowledge. Similarly, in the samples of Turkey and Greece, workers do not behave according to OHS trainings. However, in Turkey the reason of this mistake is financial difficulties while in Greece it is the worker's irresponsible behaviour.

Cartoons from China and Greece illustrate workers' irresponsible behaviours in job-sites. Chinese worker's incautious actions to the falling materials lead to a serious incident at last. Although there is no occupational incident in the sample of Greece, it is implied that a worker's careless behaviour can cause safety problems. These two samples indicate that workers in China and in Greece share the same problems such as

lack of attention and responsibility, although these countries are quite far from each other geographically and culturally.

Given the cartoon from Italy, it is observed that unexpected events may cause occupational incidents in construction. It is an exaggeration that a worker may be hurt by a piece of sausage. However, this metaphor emphasizes that unexpected events may lead to unpredictable results. According to the cartoon's message, workers always have to be careful and on the alert against occupational incidents and follow work instructions in site exactly.

The sample of Russia is about workers' improper acts with safety precautions in site. In the cartoon, workers give their helmets to the angel of death while entering to the construction site. This emphasizes the vital importance of PPE and its proper usage. Through helmets, problems experienced in the use of PPE are told to readers. As a conclusion, without PPE, workers in the construction industry are very prone to fatal incidents.

Considering the samples of Russia, Italy, and China, incidents by falling items can occur in two different ways. The first one is the ignorance-focused incidents. In China, PPE is not adequate to protect workers against occupational incidents. Despite all precautions taken, workers themselves should pay significant attention to potential OHS risks. The second one is the attention-focused incidents. In Italy, it is necessary to be ready and careful against unpredictable incidents. In contrast to these two samples, the cartoon from Russia reflects a different approach to safety precautions. It stresses that safety precautions and PPE can be efficient only when workers follow the given instructions and behave carefully in site.

CONCLUSIONS

In the construction industry, occupational incidents and OHS-related problems show similarities in different countries around the world. It was observed that workers in China and in Greece share the same problems such as lack of attention and responsibility, although these countries are quite far from each other geographically and culturally. The finding that worker in Turkey ignores fatal working conditions is very similar to the finding that lives of workers in Russia are in a serious danger. In addition, contrary to other countries, workers in Turkey and in Greece wear casual clothes instead of overalls. This reflects these countries' points of view to the OHS issue. Also, in most of the cartoons, helmet was used as a metonymy for OHS precautions. According to the cartoons, different countries have common OHS problems: (i) unexpected events, (ii) careless actions, and (iii) ignorance may cause occupational incidents. The common theme in cartoons was "*falling from height*". This shows that such accidents are among the most common incidents in industrial practices as well. All of these findings clearly indicate that construction-based OHS perceptions of countries do not change significantly and that cultural and economic differences between them do not seem to be an important driver in this regard.

Consequently, these results can have a function in guiding workers and worker unions to revise and manage the general perception of the society about them. This can be performed by depicting the results properly in workers' trainings that can be organized by unions, universities, or the related public institutions. In other words, such cartoons can be used in OHS trainings of workers owing to their impressive functions.

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