Visual Management: Source of Motivation or a Hindrance?

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Abstract. The paper focuses on the topic of visual management and its elements. The theoretical part characterizes its basic methods and attributes. The empirical part gives information about the results of the survey with the aim to examine whether the selected elements of visual management in workplace are motivational or hindering factor for its people in performing their work and whether they can actually learn from these elements.

1. Introduction

Visual management is one of the management lines that have existed for a long time, but it has gained importance over time not just as a management tool, but also as a learning tool for employees. Visual management is most often associated with a company of different focus, but most often it is a manufacturing company. Not only in Slovakia, but also in the world, businesses grow more and more every day. Businesses not only employed domestic employees, but it is becoming increasingly common for foreigners to start working in businesses. And this is one of the reasons why companies introduce visual management.

This paper focuses on exploring the possibilities of visual management utilization in selected manufacturing company. Therefore, its results strive to provide a clear image of how visual management affects employees either as a source of motivation or a hindrance.

2. Literature Review

Visual management can be characterized as a method of providing information and instructions about individual elements of work tasks in a clearly visible way to maximize employees’ productivity. It can also be described as a collection of graphical tools, images, and tools to help make the process more transparent and to enable all stakeholders to understand the situation and processes. It helps to create and maintain competitive advantages for the company and a systematic approach in the company. It transports business requirements into visual incentives that cannot be ignored and that are used to explain, communicate, clarify and integrate the mission, vision, goals, values and culture in the business. It visualizes problems, making them clearly visible so that they can be solved [1]. It employs the means by which employees can understand more quickly the state of the process, standards, deviations and many other facts.

Visual management also includes a visual workplace, which forms a substantial part of visual management. It is a workplace that is a place of work, i.e. a place of creation of added value. By using individual principles of visual management at workplaces, it is possible to achieve an environment that can independently regulate, organize and also convey important information. Among other things, a sophisticated visualization system is used to transmit information in businesses. Knowing the goals, results, correctly identifying problems and showing the sources of waste are the basis for improving the
efficiency of the business. According to Jurina, the goal of visualization is mainly to define how the product should be manufactured—work rules, how it should look like and how it should be checked [2].

According to [3, 4, 5, 6, 7] in companies, visualization is used mainly in the following cases: alerting to abnormalities (machine malfunctions, poor quality, etc.), preventing errors (ANDON, JIDOKA), simplifying processes (KANBAN boards, floor marking, and limited territories), better communication (team boards, improvement boards), and goal management. Other authors [8, 9] explain the process as a series of steps to create a product or provide a service. The goal is to keep the process as simple as possible. A very good method to do this is to use visual control as it helps us improve our orientation in the process state.

Various color labels, stickers or stops are used to visualize errors (abnormalities) that indicate, for example, machine failures, high stocks, and poor quality. JIDOKA is a method or principle that is used to stop production when any abnormality is detected. ANDON in Japanese means lantern and is a visual aid that signals an abnormality—either a human’s error, or a quality problem, or failure to observe process parameters. It is also used as “Color management”, which helps to clearly identify products, changes or projects. It helps employees to know quickly in a flood of information. KANBAN means Japanese card or visual signal. Kanban boards or kanban cards placed on the board signal the movement of the material and its immediate position. HEIJUNKA is a method for scheduling product quantities and product mix over a defined period of time.

Territory designation—the workplace zone, is the definition of workplace boundaries and responsibilities within the workplace. The workplace becomes more organized, transparent. Everything owned by the respective team is inside the zone and is properly labeled. Color codes, boards, lines and signs are used [10]. Floor marking such as aisle marking, marking of pallet and supply places clearly defines the space or position or level of supplies. Floor marking is an easy and inexpensive way to have your workplace organized and without wasting material or time (excessive inventory in the aisle, unnecessary transports). The information element of the workplace visualization is a team or scoreboard. It serves to present actual goals and results of the team. It contains all the necessary information to carry out the activities of workers. The work team takes care of updating it and is responsible for the accuracy of the data [11, 12, 13].

The specific elements listed are not merely informative. They also fulfill a motivational role that stems from ownership of processes and their results. This means that the actions of employees will be affected in some way. Individual elements of visual management can encourage employees to achieve higher or lower performance in the workplace. This paper strives to provide evidence from a specific company that supports these assumptions.

3. Methodology

The main aim of this paper is to explore whether visual management and its individual elements are motivators or hindrance for employees when performing their work tasks in selected company.

In order to fulfill this aim we conducted a survey in selected company that is currently one of the leading manufacturers of freight wagons and bogies in Europe. It has more than 90 years of experience in the engineering industry, where it has found a firm place thanks to modern, constantly evolving technologies, high-quality construction, skilled workforce and a stable business partners. The main line of business are activities such as development, production and marketing of freight and passenger rail vehicles and their parts, maintenance and repair of rail vehicles, metalworking, crane and excavator work and road freight transport. The market share accounts for more than 30% of the European market. It is interesting that the company works exclusively with domestic capital.
The company has been using visual management and its elements for more than 15 years. At the specific workplace in the company where we conducted the survey, there were the following visual elements utilized:

- gradient aisles filled with a continuous blue color and painted strips around them in yellow;
- material storage area marked in yellow, where material is stored in pallets;
- space for nonconforming products marked in yellow;
- kanban boards and cards—some employees use these cards in their work and are also called "birth certificates" of wagons or "guides" in the workplace;
- welding programs;
- technological instructions and procedures;
- word markings of workplaces, printed exclusively on bold yellow paper;
- hazard warning lights or hazard warning lamps on rotating jigs higher than 1.5 meters;
- red labels used to mark non-conforming products;
- color management—especially visible on kanban, notification boards, also on employees (employees, masters, managers, technology have color differentiation of work coats);
- Japanese systems—specifically the 5S method, while the pokayoke method was also considered, but due to insufficient funds, this method was not implemented and put into practice.

The main method of our survey was a questionnaire, as additional methods we chose interview (individual and group) and observation. An individual interview was held with the staff, especially when filling in the questionnaire. The group interview was held with the administrative staff and the technologist throughout the research data collection phase. We also observed whether visual elements in the workplace were actually used and how employees manipulated them.

A questionnaire was used to collect the majority of data from members of sample file. The questionnaires were submitted by 93 respondents. Since it is a manufacturing company, respectively, 94% of men and only 6% of women of different professions such as welders, machine locksmiths, assemblers, straighteners, technologists, operators, employees of the economic department participated in the survey. The ages of employees ranged from 36 to 50 years, accounting for about 45% of employees. The second largest representation is between the ages of 51 and 64, which accounts for 29% of employees. The length of experience of these employees was an interesting finding. Most employees have experience from 1 to 6 years, with 26% of the total. They are employees with very short experience in such a manufacturing sector. Employees with experience ranging from 31 to 36 years (23%) rank second.

4. Results and Discussion

In the introduction of our questionnaire, we looked at specific visual elements that employees use at their workplace every day. Their types, together with the percentage utilization, are shown in Table 1. Employees use the visual element of the aisle (15%), material storage areas (14%), technological procedures (13%) and technological guides (12%) most in their work. Then we wanted to find out which of the visual elements are the most beneficial, important, and necessary for them. Table 1 shows this information.

In the first place of importance, employees placed the gangway and material storage area. As the reasons for the importance and assistance provided by the gangways, they were most often cited as safety (69%), knowledge of movement in the production hall (14%), rapid escape from danger (10%) and transfer from production hall A to production hall B (7%). They labeled these elements as helpful in their work. Other important visual elements were technological procedures, technological instructions and welding programs. Technological procedures and instructions are an essential part of production in the
company. Without a technological procedure and instructions, it is difficult for employees to start their work. They need these elements every day to start production, continue production or finish production. These elements can be considered as integral part of the production process in the company. In particular, we could call them not as helpful at work but as necessary.

| Visual management element                     | % of employees who utilize the element | % of employees who consider element important |
|-----------------------------------------------|---------------------------------------|---------------------------------------------|
| gangways/visual element of the aisle          | 15                                    | 15                                          |
| material storage areas                        | 14                                    | 14                                          |
| space for nonconforming products              | 7                                     | 3                                           |
| kanban cards and boards                       | 8                                     | 3                                           |
| technological procedures                     | 13                                    | 13                                          |
| technological guides                          | 12                                    | 12                                          |
| welding program                               | 10                                    | 10                                          |
| workplace word mark                          | 8                                     | 6                                           |
| color management                              | 6                                     | 5                                           |
| Japanese warning systems                      | 1                                     | 0                                           |

Employees stated that, in particular, these visual elements have enough information to avoid time delays during the work. Employees argued that these elements could not be said to motivate them to perform better, but they certainly enabled them to do their job and make it easier. These states of motivation are closely related to Herzberger's two-factor motivation theory. From this motivational theory we would point out the hygienic, resp. maintenance factors. In our survey, the hygienic factors are specifically visual elements such as technological processes, technology guides, gangways and kanban boards. The visual elements listed do not create a strong motivation for the employee to perform better through these elements. We assumed that these visual elements keep the employees at the level of standard work performance or they assist them and provide sufficient information to carry out their work.

Subsequently, we asked respondents if they considered visual elements as a "hindrance" in their work. Over 65% of employees agreed that visual elements are not a "hindrance" to employees. On the contrary, they consider them helpful. The rest of the employees reported that visual elements slow them down at work. Specifically, it was aisles (40%) and space for nonconforming products (40%). Although many respondents have previously stated that crossing aisles is one of the most important visual elements that helps them both at work and at the same time speed their work, some of them may perceive the crossing aisle as a slowdown at work. This is particularly apparent in terms of time. If employees really walked down the aisles and did not create shortcuts, the work time could indeed be extended. This may be one of the reasons why some employees find the aisles helpful and others unnecessary. We can also look at this visual element from the perspective of the employer. We assume that the employer considers crossing aisles to be an important visual element, as it is located in every production hall. He believes that the passageway speeds up the movement of employees across the production hall. From the employer's point of view, the gangway can create safety conditions for the employee to prevent injury. The reasons why aisles are considered to be an important visual element may be different. However, the most important reason why this visual element is in the company is mainly the safety of employees.

On the last question, we wanted to get information from employees on which elements would motivate them to perform better in the workplace. This question was directed to the visual elements they work with every day. The aim of this question was to find out what motivation employees have in order to improve their performance and quality. In particular, we demanded the introduction of visual elements
that are motivating or hindering for employees and that could potentially improve their performance at work.

According to the data provided in Table 2 it is obvious that the employees did not provide any of the visual elements. This implies that employees are not motivated by visual elements to perform better in their workplace. In this question, we used the method of face-to-face conversation to get more detailed information about why employees are not motivated by visual elements in the workplace. "We are extremely exhausted from using so many visual elements." was the employee's response was the most remarkable answer to this question. Therefore, as shown in Table 2 itself, it is understandable why there are no visual elements in it as an incentive to improve performance. Up to 62% of employees stated that the motivation for better performance would be salary or better pay conditions. On the other hand, the group of employees with a significantly lower percentage of votes (19%) states the opposite. These employees would not change anything about their work and performance. With this neutral response from employees, it is not clear whether visual elements are motivation or hindrance at work. Other forms of motivation for better performance in the workplace were the following: regular supply of material (11%), better work organization (3%), sufficient workload (3%) and efficiency at work (2%). Regular supply of material is currently a frequently discussed topic among employees. The irregular supply of material complicates the work to be done by employees during the shift. Only 1% of employees believe that visual management enables their learning process.

| Motivation element                                      | % of employees who consider element important |
|---------------------------------------------------------|----------------------------------------------|
| better payment system                                   | 62                                           |
| no change needed                                        | 19                                           |
| regular supply of material to their work station /      | 11                                           |
| uninterrupted flow of material                          |                                              |
| work task organization                                   | 3                                            |
| sufficient workload                                      | 3                                            |
| efficiency at work                                      | 2                                            |
| ability to learn                                         | 1                                            |

The survey shows that visual management and its elements are helpful to employees rather than unnecessary. However, it is clear from the answers of the employees themselves that the visual elements are not sufficiently motivating to perform better at work. Although they are necessary or helpful for employees, it is not possible to ascertain whether or which visual elements could provide a higher motivation to perform above-standard performance. Therefore, there is still a room for further research.

5. Conclusion

The company has been using visual management and its elements for more than 15 years. We can say that it is a long-term implementation of visual management and its elements into the practice of the company. Obviously, the company has implemented visual management mainly because of employees and speeding up the work process. The analysis shows that the visual elements in the workplace can be divided into two groups according to how employees perceive them. The first group is the visual elements that employees absolutely need in their work. Working without these elements would significantly affect the quality of the work of employees. These are mainly technological procedures, technological instructions and welding programs. The second group consists of visual elements that are helpful to
employees but are not essential to their work. These visual elements only assist in carrying out a particular work activity. These include for instance kanban cards and boards, aisles, space for storing material. The survey did not identify which visual elements we could really consider to increase motivation for better performance. These visual elements only make it easier to maintain standard performance.

Last but not least, we also note that although visual management is a current issue, especially for manufacturing companies, it is still not mature enough to overcome the biggest incentive factor for employees, which is money. Visual management offers various visual elements that may seem at first sight motivating. However, employees can look at it from a completely different perspective. It is likely that time and financial considerations are important to employees. So far, the company only has to accept the fact that despite the latest and state-of-the-art technologies of this advanced age. Money is still the top priority for employees.

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