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Safety culture maturity at work in a plastic packaging factory

Maturidade da cultura de segurança no trabalho em uma fábrica de embalagens plásticas

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ABSTRACT

Purpose: This study aims at analyzing the stage of the safety culture maturity at work in the logistics sector of a flexible plastic packaging company located in the South of Minas Gerais. This research aims to answer the following question: what is the stage of the safety culture maturity at work in Alfa's organization unit?

Design/methodology/approach: The research is characterized as descriptive and quantitative. The method used is the survey, based on a questionnaire developed by Gonçalves Filho, Andrade and Marinho (2011). The study sample consisted of 32 operational employees and three managers responsible for occupational safety in the sector. Data were analyzed using descriptive statistics, based on relative frequency.

Findings: It was observed that the information, communication, and commitment factors are in the constructive stage, in the highest maturity level of the safety culture at work. The other factors are in the proactive stage, transitory to the constructive stage. There is an efficient management system for work security and an effective workplace safety culture.

Originality/value: This research sought to contribute to the discussion on the maturity of the safety culture at work, due to the scarcity of research in the plastics industrial sector. The research analyzes the organization's logistics sector, the sector that has the highest incidence of accidents, allowing comparisons between the perception of the shop floor and the management.

Keywords: Culture maturity; Work security; Industry

RESUMO

Finalidade: Este estudo tem como objetivo analisar o estágio de maturidade da cultura de segurança no trabalho do setor logístico de uma indústria de embalagens plásticas flexíveis localizada no Sul de Minas Gerais. Pretende-se responder a seguinte questão: Qual o estágio de maturidade da cultura de segurança no trabalho na unidade da organização Alfa?

Desenho/metodologia/abordagem: A pesquisa caracteriza-se como descritiva e quantitativa. O método empregado é o survey, a partir de questionário baseado em de Gonçalves Filho, Andrade e Marinho (2011). A amostra do estudo foi de 32 colaboradores operacionais e três gestores responsáveis pela segurança do trabalho no setor. Os dados foram analisados por meio de estatística descritiva, a partir da frequência relativa.

Resultados: Observou-se que os fatores informação, comunicação e comprometimento estão no estágio construtivo, no maior nível maturidade de cultura de segurança no trabalho. Os demais fatores estão na fase proativa, transitória ao construtivo. Considera-se que há um sistema de gestão de segurança no trabalho eficiente e uma cultura efetiva de segurança no trabalho.

Originalidade/valor: Esta pesquisa buscou contribuir para a discussão sobre a maturidade da cultura de segurança no trabalho, devido à escassez de pesquisas no setor industrial de plásticos. A pesquisa analisa o setor logístico da organização, o setor que apresenta maior incidência de acidentes, permitindo comparações entre a percepção do chão de fábrica e da gestão.

Palavras-chave: Maturidade da cultura; Segurança no trabalho; Indústria

1 INTRODUCTION

The implementation of a system focused on safety at work and occupational health has a positive impact on the valuation of companies. This system allows the identification and control of risk factors present within the organization, thus leading to a reduction in accidents and occupational diseases. Thus, there is an improvement in the company's image in the face of society, in addition to allowing a higher level of well-being and satisfaction of employees (SANTOS JÚNIOR; BENATTI, 2019).

Work and health are related to societal changes and their contemporary discrepancies, which are intrinsically connected to the new methods of work management and coordination, enabled by the new technologies, which directly impact the collaborator's health. However, these evolutions did not extinguish the former and outdated productive procedures, which redefines the work-related problems and highlights the indispensability of solving past problems (MENDES; WUNSCH, 2007).

Work security may be understood as the science in charge of studying factors that influence incidents that occurred during a period in which the worker labors (BARSANO; BARBOSA, 2018). According to the Statistical Yearbook of Accidents at

Work (*Anuário Estatístico de Acidentes de Trabalho - AEAT*), 1.757,410 work-related accidents were registered from 2015 to 2017, corresponding to an average of 585.803 accidents per year (*MINISTÉRIO DA FAZENDA- MF*, 2017).

In the last decades, especially in companies, substantial changes in the work process have occurred, which affect the worker. New technologies, new methods of work, new products, and equipment directly or indirectly affect the employee's life. All of these innovations generate an increased flow of production and faster productive lines, which consequently demands faster workers (MARRAS, 2016).

Considering that several changes are demanded to the realization of the Work Security Management System (*Sistema de Gestão da Segurança do Trabalho - SGST*), often the cultural issues become considerable obstacles. Consequently, being aware of the cultural maturity present in the organization is essential to the conception of plans, when they are required (GONÇALVES FILHO; ANDRADE; MARINHO, 2011).

In this sense, this research is carried out a large company, which acts in the field of flexible plastic packaging, used in several industries: food, drink, dairy, distribution centers, and petrochemical. It is one of the largest companies in the industry, composed of seven units, five of which are in Brazil and the other two abroad. However, the research is limited to one of the company's units, the Alfa unit, located in the South of Minas Gerais (MG).

In this context, this research aims to answer the following question: what is the stage of the safety culture maturity at work in Alfa's organization unit? The research is characterized as descriptive and quantitative, through the survey method. The questionnaire was based on Gonçalves Filho, Andrade and Marinho (2011). Data were analyzed using descriptive statistics, based on relative frequency.

Thus, it aims at analyzing the stage of the safety culture maturity at work (pathological, reactive, calculative, proactive, constructive), as well as understanding the safety culture maturity at work from the information, organizational learning, engagement, communication, and commitment to the

management and operational level factors. Observing the background of scientific and literary production on the theme, it could be noticed the lack of studies related to this topic in Brazil, including companies of the plastic packaging field.

It seeks to understand the different perceptions about the maturity of the safety culture at work: of operational employees and management. The study focused on the understanding of work safety in the logistics sector, as it presents the highest number of occurrences of occupational accidents in the organization, this way the relevance of this investigation is highlighted. Research on the culture of safety at work can foster discussions and provide insights for improving the health and safety conditions of workers in the work environment.

This research is divided into five sections, including the present introduction. In the second section, there is a theoretical review on safety culture at work and safety culture maturity at work. In the third section, the research's methodological assumptions are presented. In the fourth section, the results' analysis and discussion are exposed. In the fifth and last section, the final remarks close the research.

2 THEORETICAL FRAMEWORK

In this section, the definitions of Safety Culture at Work and Safety Culture Maturity at Work are discussed.

2.1 Safety Culture at Work

The concept of safety culture is first shown in the first technical report produced by the International Nuclear Safety Advisory Group (INSAG) in 1988, in the analysis of the factors of the accident in the Chernobyl Nuclear Power Plant, in Ukraine (ZHANG et al., 2020).

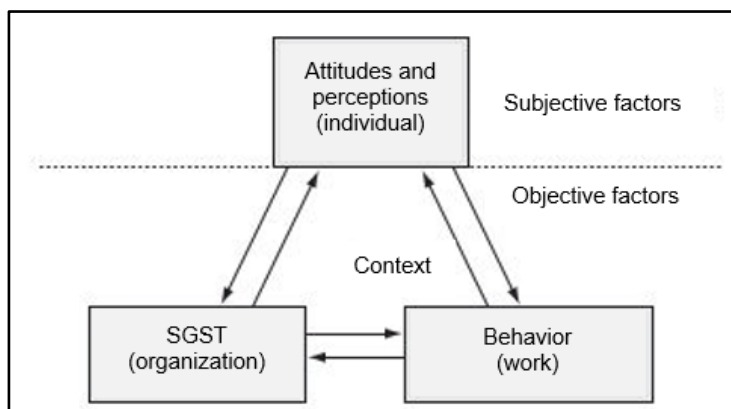
Since the emergence of the theme, there were several studies to conceptualize and elaborate a way of measuring the safety culture; however, there

is no consense in the literature yet (GONÇALVES FILHO; ANDRADE; MARINHO, 2011). As is pointed by Reason (1997), the term safety culture is widely used, but few agree on its meaning and way of measuring. In the same sense, Choudhry, Fang e Mohamed (2007) state that despite the fact that the term safety culture has been widely disseminated over the years, the concept does not present consense.

In the view of some researchers, safety culture may be a component part of the organizational culture. Thus, safety culture exists when the company's organizational culture is focused on this aspect, prioritizing it. In this case, safety culture is similar to the organizational culture, being a set of values, beliefs, and rules shared by the organization members (ZHANG et al., 2020).

However, other authors conceptualize safety culture in an independent way from the organizational culture. This defines safety culture in three aspects: 1) the perceptions and attitudes; 2) the behavior and actions; and 3) the organization's SGST. In this view, safety culture is considered a state, which may be modified provided that there is acting upon the organizational aspects. All of these aspects may vary in intensity and time of dissemination inside the organization, bearing in mind that in the application of a SGST, it may take some time for the suggested changes to start influencing the attitudes and behaviors of the individuals (COOPER, 2000).

Figure 1– Model of safety culture mutual interactions



Source: Cooper (2000)

In front of these aspects, the perceptions and attitudes are how people feel the organization and it is an intrinsic aspect to the individual; the behaviors and actions are what people do in the organization and they are related to work. SGST is composed of the policies, procedures, information flow, among other elements (GONÇALVES FILHO; ANDRADE; MARINHO, 2011).

As Figure 1 shows, the attitudes and perceptions are properly subjective factors, not being possible to objectively measure them. On the other hand, the behavior and SGST are objective factors, therefore, they can be observed and lately measured. In this context, it is possible to measure safety culture through these two factors (COOPER, 2000).

Another definition is presented by the Health and Safety Commission (HSC), in which safety culture is defined as values, attitudes, perceptions, and competencies (psychological aspects), behavior pattern (work-related aspects), and, lastly, work security programs (organization-related aspects) (COOPER, 2000).

In this concept, it can be highlighted the importance of the awareness of the work-and-individual-related aspects present in the organization, for them to construct an efficient SGST. Besides, it is highlighted the importance of the communication and sharing of work security for a positive safety culture, in addition to being necessary that the people involved trust the adopted measures (REASON, 1997).

All things considered, for the present work the concept proposed by Cooper (2000) was adopted as the definition of safety culture. From these definitions, the next section explores the aspects related to the Safety Culture Maturity at Work.

2.2 Safety Culture Maturity at Work

The concept of maturity was firstly presented in the 1980s, in the United States by the Software Engineering Institute (SEI), to address the American governmental necessity of evaluating the hired companies' capacity of developing informatics systems. Due to the high demand, at that time, for the data informatization, several hired companies did not

have the necessary know-how, causing loss to the American government. Such a system predicted five necessary stages of organizational maturity for the choice of the companies capable of offering services of software development: initial, repeatable, defined, managed, and optimizing. In the effective choice of the companies, such stages were used as determinant factors in the identification of their capacities (PAULK, 1993). Over the years, the maturity concept started to be used in other activity fields, for instance, project, quality, and human resources management (FLEMING, 2001).

The Table 1 presents a model for the identification of the stage of the safety culture maturity at work by means of five stages.

Table 1 – Model for the identification of the stage of the safety culture maturity at work

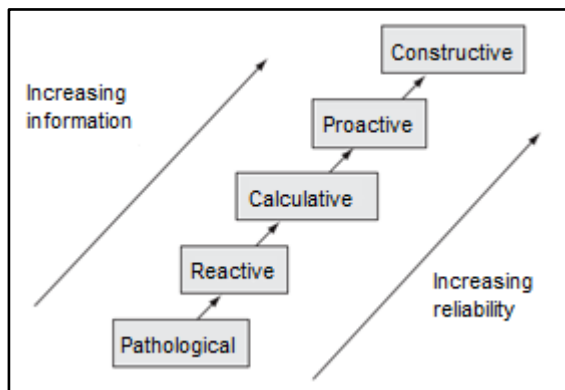
Stage	Description
Pathological, Vulnerable	There are no security actions at work. The actions taken are only concerned with meeting labor legislation.
Reactive	This is characterized by health and work security actions only in case of the occurrence of an accident. Thus, it only aims at answering the event, without sequential actions.
Calculative (bureaucratic), Compliant	The organization has a risk management system in the workplace. However, the actions are more concerned with the quantification of risks.
Proactive	This is a transitory stage towards the constructive culture stage. The organization leader takes into consideration the values of the company, performs continuous improvements for security and health at work, and searches for anticipation of problems.
Constructive (sustainable), Resilient	There is an integrated system of health, security, and environment, in which the organization is based, in order to orient and perform its actions. The organization carries the necessary information to manage work security and constantly aims at improving and constructing an environment with fewer labor risks.

Source: Foster and Hoult (2013), Stern et al. (2019) and Corrigan et al. (2019)

From Table 1 it is possible to see that one of the prime factors for security at work is information access and dissemination. In most cases of major accidents, there was a flaw in communication or information dissemination. As Figure 2, according to the increase in information, there is a linear increase in reliability,

taking the organization to more elevated stages of safety culture maturity at work (WESTRUM, 2004).

Figure 2 – Model of safety culture maturity at work proposed by Hudson (2001)



Source: Hudson (2001)

However, in order to make it possible for an organization to consider safety culture an organizational value, the maturity level must be in the final stage. There are no weak or strong safety cultures, but maturity or culture stages in evolution (HOPKINS, 2005).

In this sense, it is possible to construct a safety culture, by means of changes in the practices of the organization in relation to labor security, changing its values. Thus, the safety culture gradually develops by means of repeated practices and actions. It is developed based on a constant learning process, involving interaction of the organization members, sharing information, thoughts, and management commitment (REASON, 1997).

Thus, in order to be possible the analysis in relation to the stage of the safety culture maturity at work in which the company is met, five defining factors will be considered, according to the Table 2.

Table 2 – Factors of the safety culture maturity at work

Factors	Description
Information	Refers to the reliability of the collaborators in reporting possible flaws or processes that caused or can cause accidents or occupational diseases.
Organizational learning	Represents the way in which the organization uses information related to work safety, its analysis, improvement proposals, and actions facing events.
Involvement	Deals with the level of engagement of collaborators facing subjects related to work safety inside the organization, referring to the analysis of incidents, improvement proposals, and procedures implementation.
Communication	Indicates the form, opportunity, and convenience in which information related to work safety is explained, if there is an effective communication channel between leaders and subordinates, and if this information is perceived by them.
Commitment	Refers to the resources employed in work safety, by the status of work safety in relation to the factory floor and the existence of an Occupational Safety Management System which contains the vision and objectives of the organization.

Source: Gonçalves Filho, Andrade, Marinho (2011) and Musonda, Lusenga, Okoro (2021)

In the following section, the main methodological aspects of the research are outlined.

3 METHODOLOGICAL PROCEDURES

The present research has as objective to analyze the degree of safety culture maturity at work in a large industry, active in the field of flexible plastic packaging, used mainly in the field of foods and drinks. For this, a quantitative approach was employed, based on numerical measurement and statistical analysis, seeking to define patterns and prove theories (COLLADO; LUCIO; SAMPIERI, 2006).

The research is characterized as descriptive, which aims at describing characteristics of a population, phenomenon, or experience. This approach allows the researchers to choose the most relevant techniques and questions to the investigation, considering that it permits a larger familiarization with the topic (COLLADO; LUCIO; SAMPIERI, 2006; SEVERINO, 2016).

The method employed for the research is the survey. It is one the most common procedures for data collection, as its strengths are guarantee of anonymity; objectivity, and simplicity required to mark the questions, which are the same for all respondents, thus guaranteeing uniformity in answers; the possibility of respondents to think about answers before signing them; the easiness in converting data obtained to computerized means and the low cost required to perform the research (BARBOSA, 2008).

The data collection technique is the application of a structured questionnaire given to the collaborators of the logistics sector of a unit of the organization Alfa. In order to analyze the stage of the safety culture maturity at work, the questionnaire elaborated and adopted by Gonçalves Filho, Andrade e Marinho (2011) was used, which is based on the model by Hudson (2001). The questionnaire was adapted to meet the objectives of this study. A pre-test was carried out with four management specialists.

The organization is considered one of the largest in its performance niche, comprehending 1,600 employees distributed in seven units, five present in Brazil and two abroad. However, the research is limited to the logistics sector of one of the units of the company, the Alfa unit, located in the south of Minas Gerais, Brazil.

The scope of analyzing the logistics sector of the company is justified for the fact that it presents the largest number of annual occurrences of labor accidents in the organization. The sample of the research was constituted of 35 respondents, 32 operational employees, and three of the management area of the company - the logistics manager, the raw material warehouse coordinator, and the occupational safety technician.

The data were obtained between the months of February and March of 2021, in the morning shift. The collection was divided into two parts. The first, by means of the application of the questionnaire to the operational employees present during the moment of collection. The second part was the application of the questionnaire to the managers.

During the treatment of the results, the analysis of the calculation of measures of central tendency and the indication of the region of maximum frequency in relation to the five defining factors of the stage of the safety culture maturity at work take place. Thus, it is possible to evaluate the most predominant stage of safety culture maturity at work for each factor (COSTA NETO, 2002). After the discussion of the methodological procedures employed here outlined, in the next section, the main results found in the study are presented and discussed.

4 RESULTS ANALYSIS AND DISCUSSION

4.1 Stages of the safety culture maturity at work according to the operational level

The data analysis was performed by means of the calculation of measures of central tendency and indication of the maximum frequency region regarding the five defining factors of stages of safety culture maturity at work, which are: information, organizational learning, involvement, communication, and commitment (COSTA NETO, 2002). Table 1 presents the main results found at the operational level.

Table 1 – Stage of the safety culture maturity at work in the operational level

Factors	Pathological	Reactive	Bureaucratic	Proactive	Constructive
Information	0%	10.94%	18.75%	32.81%	37.50%
Organizational Learning	0%	14.06%	10.16%	28.90%	46.88%
Involvement	15.62%	12.50%	21.88%	29.69%	20.31%
Communication	0%	8.33%	21.88%	19.79%	50%
Commitment	9.38%	6.64%	19.92%	23.83%	40.23%

Source: Elaborated by the author

According to Table 1, in the information factor, it is possible to observe the incidence of maximum frequency at the constructive level (37.50%), followed by the

proactive level (32.81%). This proximity of values demonstrates the reliability of operational employees in reporting accidents and possible causes of labor problems, an essential factor for an informed culture (REASON, 1997).

Regarding organization learning, it is possible to verify greater incidence in the constructive stage (46,88%). This percentage denotes that the information collected by the team responsible for work safety, according to the operational employees, is transformed and used as a form of continuous improvement in their safety processes (ASTRAND, 2002; REASON 1997).

In the involvement factor, even though there is a greater incidence in the proactive level (29.69%), it is not possible to affirm the organization is met at this stage, considering the pathological level (15.63%) represented by the respondents, a very significant value given the disparity of both stages. We believe this occurrence is due to the fact that there are only two questions for the factor, causing this incongruence. Moreover, by analyzing both questions, multiple answer combinations can be inferred, given that one of them questions if the employees participate in matters related to work security, while the other one questions if they are interested in participating. Thus, it is viable for the respondent to mark that they participate in matters related to work security, even if they are not interested in doing so.

Regarding the communication factor, the greatest incidence is measured at the constructive stage (representing 50% of the respondents). This data demonstrates the presence of means of communication between those responsible for occupational safety and the operational level of the sector under analysis, as well as the effectiveness of both parts in informing subjects related to work security to the collaborators (COOPER, 1998).

Another factor that presents itself at a constructive level is the commitment with a maximum frequency of (40.23%) at this stage. Thus, for the sector analyzed, the organization has resources available for the safety and well-being of employees, as well as having a Work Security Management System (Sistema de Gestão da

Segurança do Trabalho - SGST), including the company's points of view and purposes. (DEJOY et al., 2004; FLIN et al., 2000).

Thus, within the five factors analyzed, four of them pointed to the stage considered ideal regarding the maturity of the safety culture at work, the constructive stage. This indicates that there is an integrated health, safety, and environment system that the organization relies on in carrying out its processes and doing business, constantly seeking to find and control risks. Thus, a company can only consider the safety culture a value when it reaches the last stage of security maturity, as there are no strong or weak cultures, but stages of an evolving safety culture (HOPKINS, 2005). After analyzing the maturity of the workplace safety culture at the operational level, the next section refers to the managerial view.

4.2 Maturity stages of the safety culture at work according to the management

Leadership is seen as strategic regarding influence on the decision-making of employees, thus, taking voluntarily and routinely there are correct actions that increase the long-term viability of the company (ROWE, 2002). In this way, a dynamic and effective leadership differentiates an organization from the others, leading it to business success (HERSEY; BLANCHARD, 1986).

When applying the questionnaire to management, it became possible to identify the maturity of the safety culture at work in their view, as well as providing a comparative analysis between the perception of management and the sector's operational area.

The results of applying the questions to the manager, coordinator and occupational safety technician are shown in Table 2. The tabulation of the data, carried out using descriptive statistics, demonstrates the stage maturity stages of the safety culture at work according to the view of the administration of the sector.

Table 2 – Maturity stages of the safety culture at work according to the view of the administration of the sector

Factors	Pathological	Reactive	Bureaucratic	Proactive	Constructive
Information	0%	0%	8,33%	25%	66,67%
Organizational Learning	0%	0%	8,33%	58,33%	33,34%
Involvement	0%	0%	16,67%	83,33%	0%
Communication	0%	0%	11,11%	33,33%	55,56%
Commitment	8,33%	4,17%	0%	25%	62,50%

Source: Elaborated by the author

When analyzing the information factor, considering the management point of view, there is a predominance of the constructive stage (66.67%), indicating that there is an effective transmission of information related to safety at work, in addition there are indicators generated by the organization to monitor the performance of safety at work (HUDSON, 2003; IAEA, 2002).

In relation to organizational learning, the highest frequency point is observed in the proactive stage (58.33%), unlike the perception of operational employees, at the constructive level (46.88%). The proactive level represents the maturation of the transition stage to a sustainable culture; thus, it indicates that the organization's leader seeks to anticipate incidents through continuous improvements for health and safety at work based on organizational values. (HUDSON, 2001).

For management, the involvement factor is presented in a proactive stage (83.33%), indicating that there is the participation of employees in issues related to safety at work, as well as having an analysis of accidents and incidents that occurred, however, it demonstrates in the view of the managers that there is still a degree of improvement to be achieved to reach the sustainable stage. (CHOUDHRY; FANG; MOHAMED, 2007).

In the assessment carried out by the managers, the communication factor is in a constructive stage (55.56%). This data indicates that there is an open channel of communication between employees and their superiors in the logistics sector, as well as having the inverse way, communication leaving superiors and reaching employees of lower hierarchy with an understanding of the message (COOPER, 1998; GLENDON; STANTON, 2000).

Finally, the commitment is exhibited in a constructive stage (62.50%), thus, it demonstrates that, in the view of the management, there is expenditure on resources such as: time, money and people, to support the management of work safety, in addition to there is an SGST (Work Security Management System - Sistema de Gestão da Segurança do Trabalho) that contains the vision and objectives of the organization, definition of responsibilities, procedures, training and qualification policies, sanctions and audits (DEJOY et al., 2004; FLIN et al., 2000). From the analysis of the maturity of the safety culture at work from the perspective of the operational and management levels, a comparison of the two views is necessary, which will be detailed in the next section.

4.3 Comparison between the maturity stages of the occupational safety culture according to the operational and management level

Considering the data presented in Tables 1 and 2, there is a certain disparity between the perception of the operational level and the perception of management regarding the information factor. Because, despite having also configured at a constructive level, for shop floor employees this stage represents only (37.50%). In the view of operational collaborators, the proactive level represents (32.81%), such proximity, according to Gonçalves Filho, Andrade and Marinho (2011), makes it impossible to determine the exact boundary where each stage begins or ends, thus, each factor can influence the other.

Furthermore, organizational learning for the management is at a proactive level (58.33%), unlike what was observed in the perception of operational employees who had a perception focused on the constructive level (46.88%).

When observing and comparing the involvement factor between shop floor employees and managers, the reason why there is a difference between the values is clear. The involvement factor is presented in a proactive stage (83.33%) for the management, whereas for the operational employees, it was not possible to say at which stage there was a predominance, considering that the values were spread among all stages.

The communication factor indicated the maximum frequency in the constructive stage (55.56%). Which demonstrates similarity in relation to the perception of employees on the factory floor (50%). So, there is satisfactory communication regarding safety at work in the company, both in the view of managers and operational employees.

The commitment factor is in the constructive stage (62.50%) for managers, as well as for shop floor employees (40.23%). In this sense, this unit has an occupational safety management system, as well as constant investments related to the subject.

In this way, it is possible to suggest that the organization makes efforts to establish a culture of safety at work, since the logistics sector has a higher incidence of work accidents and has high levels of maturity. This fact is corroborated by the quantitative analysis carried out through the factors information, organizational learning, involvement, communication and commitment, which indicate a certain level of maturity of the safety culture at work, both by employees and by management. Thus, it is expected that the maintenance and strengthening of this culture will provide technical and managerial mechanisms so that the accident rates in the sector are increasingly reduced, in favor of the quality of work and safety of workers. The next section revisits the main contributions of the study.

5 CONCLUSIONS

The purpose of this study was to analyze the degree of maturity of the safety culture at work in the unit of the Alfa organization, located in the south of Minas Gerais. More specifically, we aimed to analyze the stage of occupational safety maturity in the operational and managerial area of the company's logistics sector, as well as to understand the maturity of the workplace safety culture from the factors proposed by Hudson (2001): information, organizational learning, involvement, communication, and commitment.

The data pointed out similarities between the perception of management and operational employees regarding the stage of maturity of the safety culture considering the five factors. Both for the factory floor and for administration, the information, communication, and commitment factors are at the highest stage of the workplace safety culture, the constructive.

The organizational and involvement factors remained most frequently in the proactive stage reported by the management, demonstrating that managers are concerned about possible work accidents that may occur in the organization, seeking to prevent incidents, thus moving towards the constructive stage. That said, there is an efficient work safety management system within the organization and an effective work safety culture. This culture may have been developed precisely with the aim of reducing accidents at work in the sector with the highest incidence in the organization, that of logistics.

The theoretical contribution of the study consists of investigating the maturity of the safety culture at work in the plastics industrial sector, in the sector that has the highest number of accidents, the logistics. The analyzes were realized about perception of the shop floor and the management. As a practical contribution, the discussion about safety at work can strengthen practices that eliminate or minimize these occurrences of accidents, in addition to strengthening the culture of safety in operations and at work.

This research has some limitations, since it deals with the analysis of only one organization and a specific sector. In this way, their results refer to a specific context, not

allowing generalizations. Finally, as suggestions for future research, it is possible to analyze the maturity of the culture safety at work in other sectors within the Alpha organization, as well as in its entirety, to understand safety at work in the organizational culture. In addition, it is suggested the application of this tool in other industrial sectors, to corroborate the results found in this research, such as agriculture, mining, textiles, among others.

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Contribution	[Author 1]	[Author 2]	[Author 3]	[Author 4]
1. Definition of research problem	√	√	√	
2. Development of hypotheses or research questions (empirical studies)	√	√	√	
3. Development of theoretical propositions (theoretical work)	√	√	√	
4. Theoretical foundation / Literature review	√	√	√	
5. Definition of methodological procedures	√	√	√	
6. Data collection	√	√		
7. Statistical analysis	√	√		√
8. Analysis and interpretation of data	√	√		√
9. Critical revision of the manuscript	√	√		√
10. Manuscript writing	√	√		√

Conflict of Interest

The authors have stated that there is no conflict of interest.

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