

# The (Re)Building of The Electronic Round Activity By The Intermediary Objects Application: Approaching The Assignment To The Real Activity

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### **Abstract**

The private security is a growing sector in Brazil, as can be observed in the last years, with the companies and workers' development in this department. Although its growth, few are the studies that approach the work conditions which these workers are submitted. Following this bias, it was done a research centered in the study of security guard's work in a Federal University, in the interior of Minas Gerais state. It was used and applied the presumed ideas of ergonomics analyses and the concept of intermediary objects, that offers the possibility to workers contrast the represented situations lived by themselves. These way, they could participate. As result, it was possible to verify that the intermediary objects could bring up to surface as much the identify of real works' contradictions - Like the number of electronic points that exists in the labor camp, as the active participation of these workers in the changes, that offered new relevant ideas, for example the building of more applicable places to put these electric points, resulting in a better formulation of a round to follow, now located in pertinent position, different than the purposed by the managers.

**Keywords:** Private Security, Security Guard, Intermediary Objects, Electronic Round, Efficiency.

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## **1. INTRODUCTION**

The growing demand for productivity in today's enterprises puts workers at risk (SILVA, 2018). In the private security sector it is no different. It is considered a supply service, which purpose is to guarantee the security and protection of public, private and individual establishments, in the way to assure physical integrity of persons and their property (BRASIL, 1983).

The people and property's security service is mostly, realized through outsourced companies. These companies are responsible to do all the labor obligations, as the payment of salary and benefits, provide norms and ways to be followed to achieve the work purposed, supply the correct

training when demanded by the activity, promote health and security protection of people and labor places, besides answering all the labor's lawsuits, while the hirer answer in a subsidiary way to these rights. In other words, the hirer just answers in the impossibility of the outsourced to answer for (BRASIL, 2017).

The real activity lived by these workers go beyond all that is prescribed to them- by the hired or hiring companies, via contracts, rules, or procedures, due to countless variabilities that influenced the realization of their tasks, such as the oscillation in the flowing of people "guarded", the unpredictable in the realization of electronic rounds, the climate changes, etc. (OLIVEIRA, 2004). Although these contradictions are present in the security guards' work, few are the studies that approach this question of efficiency, and the private security's activity (ZANETIC, 2005).

Following this point of view, it was realized a research centered in the study of the securities guard's work. It was used the presumed ideas ergonomics analyses of work (GUÉRIN et al., 2001) and applied the concept of intermediary objects (BITTENCOURT; DUARTE; BÉGUIN, 2014), with the aim of developing participatory approaches (as SASONGKO; PURNOMO, 2018), building new conditions of work, and improvement their day by day work. In a first stage, it was comprehended how the vigilance service was being realized - observing all the difficulties, embarrassments, nuances and regulations, so that, could be done in a second time, the construction and application of a scale model, in the way to provide to the workers the chance to contrast the represented situations lived by themselves, participating these way, actively of the improvement's building.

The first objective of this article, by the way, is to demonstrate how the use of intermediary objects can contribute in the work's improvement in this production sector, through the activity study of electronic round, in the security guard's labor life.

## **2. THE PRIVATE SECURITY GUARD'S WORK**

The sector of the private security emerges when the state presents inefficiencies promoting public's security. In this activity, the companies become responsible by provide equipment and trained operators- in this case called security guards, that have as its objective the protection of any citizen or intuition that can pay by their services (PINTO, 2004). Although the principal security guard's activity has its foundations in security of possessions and person, these professionals are also connected to other activity areas, related with guidance to the public, flow control of people and car, administration's support and general services (MUSUMECI, 1998).

These workers' job become essential to the society, due to the collective necessity of promoting security 24 hours per day. To realize this services, these professionals are susceptible of working shift, that are organized in different kinds and models of scheduling work, been diurnal, nocturnal or in 12 consecutive hours of working, by 36 rest hours (FISCHER, 2003).

In the same time, the security guard sector is in constantly growing, as by the social protection's necessity, as well by the development of the technological process, that constantly transforms and renews the possibilities of protection. Actually, there is in the trade, a Market strategy that is directly connected to the existence of different models of protection equipment as electronic round's mechanism, car tracking, with the purpose of complement and expand the private security's segments (ZANETIC, 2005). One of these marketing strategies concretize in a mechanism control that uses the electronic round, objecting to help and control the security guard's round inside an industrial, commercial or patrimonial complex (MARTINS, et al., 2012).

The security guards are submitted to various work contexts- as the work shift, in the same time, they've to keep up with the evolution of the economic strategies, that was quoted before in this text. One of this examples are the implantation of electronic rounds, where the security guards should register their own access, with the use of a round control, in specific points in the route that sometimes, are located in unhealthy and dangerous places. Against the context and work

conditions lived by these professionals, it can surge some physical, psychological and social problems, beyond the productive inefficiency in the realization of the job tasks (GRECHI, 2007). In the meantime, to resist to possible sickness, the workers can develop adaptation strategies, it can be collective and individual, objectifying the accomplishment of the imposed tasks, by the management. Examples of these tactics, can be team leader choice, function delegation, rotating work, or the using of substances that combats the drowsiness (MORENO; FISHER; ROTENBERG, 2003).

### **3. THE USE OF INTERMEDIARY OBJECTS IN THE REPROJECT OF WORKING SITUATIONS**

To discuss effective measures intervention in shift work- in this case, the security guards job, it is necessary promoting the involved part participation (FISCHER, 2003). One of the forms of doing it, it's by using intermediary objects, that have the purpose to interconnect the individual and collective project's dimension, been used as a constructive tool, to organize the ergonomist's action in projects (BITTENCOURT; DUARTE; BÉGUIN, 2015). The real point of the intermediate object is to get better interactions between workers and enable the different points of view expressions – in different hierarchical levels, about the compromises that should be achieved in a project (BROBERG; ANDERSEN; SEIM, 2010).

The intermediary objects can be done in two phases (BITTENCOURT; DUARTE; BÉGUIN, 2014). The first is about its appropriation as a tool, which, beyond physical aspects, can offer subsidies to provide the realization of the tasks in an efficient manner, in the way that the collaboration of different 'actors' can occur. This preposition, takes to the next step, that comprehends the functions of the objects, considered a possible action to make through the use of an instrument. So, these functions can variate according the objective it has in the use of the tool in the project.

The objects can be comprehended as any tool that proposed to represent a situation, as maps, plants, drawings, prototypes, computer simulations, scale models, among others. (BROBERG; ANDERSEN; SEIM, 2010). To its utilization, Bittencourt, Duarte and Béguin (2015) define some handling rules, in the way that these rules encourage the discussion and the involved evaluation, as for example: The pieces just can be moved one by one; in each new element added, it should be explained; the substitution of old actions to new ones should be followed by the explanation of the reasons that explains why it's better than the old model. As shown by Daniellou et al. (2014), the question at the center of the decision-making process should not be "How will the system operate?" but rather "How will we operate the system?".

In the end, it's necessary to point that the intermediate object is a tool that comports as an analysis support, without pretension to replace experts' diagnoses, or to do the act of diagnosing. In the opposite, the tool has the idea of helping the dialogue between the actors-the workers, and their participation in the management process, enriching in this way, the experiences sharing of the use of new situations of work (CONCEIÇÃO, 2011).

Different researches have demonstrated the importance of using ergonomic simulations, often through intermediate objects, in the design of future situations. According to Daniellou (2007), ergonomic simulations can be classified according to the role they assign to future users and may produce more than technical improvements, but may result in new developments of individual and collective activity. Borberg et al. (2014) outlined a framework for project simulation methodology from an ergonomic perspective, identifying 15 central elements in the application of the method, and establishing three points of attention: it is important to understand the context of the project; it is necessary to establish, in advance, the questions that the ergonomist will ask in the application of the method; the ergonomist must consider what types of outcomes are desired. Daniellou et al. (2014) propose different scenarios in a chemical plant and conclude that the ergonomic simulations contribute to the early discovery of the future system, modifying the decision-making processes of the designers by means of a confrontation between their initial proposals and the

real world. According to the authors, the conditions for a positive outcome is mainly a thorough knowledge of the tasks to be performed to challenge the planned organization. Lastly, Seim and Broberg (2010) demonstrate the use of ergonomic simulations in an industrial plant that is going to manual labor to automate, to raise the results in a clarity in the production procedures and an indication of the future ergonomic prospects.

#### **4. METHODS AND MATERIALS**

Ergonomics propose an anthropocentric approach, in other words, it's a conception in which the man is seen in the center of the comprehension, so, it's needed to understand their work, as the imposed tasks, the real activity, the adopted strategies and the variabilities lived by them, so in this way, change it. In this sense, it was developed an ergonomic work analysis (GUERIN et al., 2001) in a vigilance company, applied in a Federal University, in the way to build a new point of view about the real work, that clarify the relations between the work conditions, the real activity and the results. It was realized 10 visits in the fieldwork, in four months, where was realized activity observations and interviews with the security guards.

With these analysis, it was possible the identification of a situation that could be changed: the electronic round. According to them, it's one of the first requirements faced in the craft, due the fact to been obligated of proving as for the hiring as well for the hired company that they were doing their activity indeed in determined time in specific points.

To further the transformation of this activity, it was applied intermediary objects, that promote the participant interaction with the Project and mutual learning, once the object allows the comprehension about the approached situations and the expression of different points of view about many problems related in the work. For this, it was developed an institution modified plant, and it was constructed one scale model of the university dependencies, in the way to have an ample visualization about the round activity.

Based in Bittencourt, Duarte and Béguin, (2015) methods, the utilization of the scale model was done in two cycles: in the first - the preparatory cycle - the scale model was presented to the workers as its objectives and rules of applying. In the total, it was done 8 meetings in these phase, composed in this scope, exclusively by security guards, of different shifts. In the second - the complete cycle - it was confronted the workers' views with the managers, trying to find a better richness in the proposal of solutions. In total it was done 2 meetings in these phase.

#### **5. RESULTS: THE DIFFICULTIES OF THE ELETRONIC ROUND AND THE SCALE MODEL CONSTRUCTION**

##### **5.1 The Difficulties In The Activity of The Electronic Round**

The electronic round is a task that consists in the register of the security guard's passage in specific route points, been this register established by electronic buttons, fixed in strategic places. Periodically, the professional have to follow a previous established route, passing in 12 buttons located in different points in the university, and touch them with one electronic control, as the way to prove for the hired company that they're doing their work.

To guarantee the institution and people's security, the hired company requires that during the day, they should do the electronic round hour by hour. But, for a higher control, the managers required they have to do it 20 by 20 minutes since 11:30 p.m. until the end of the day of work.

The points, determined by the hired (university), was defined in a specific sector in the college, with any consult with the professionals. There aren't also, any preoccupation with the maintenance of the area where are located the button by the part of the hired company. As a consequence, the access to some of that points become difficult, dangerous, with the presence of high bush, rubble, venomous animal, as snakes, and Scorpions. The first image exemplifies some of these points.

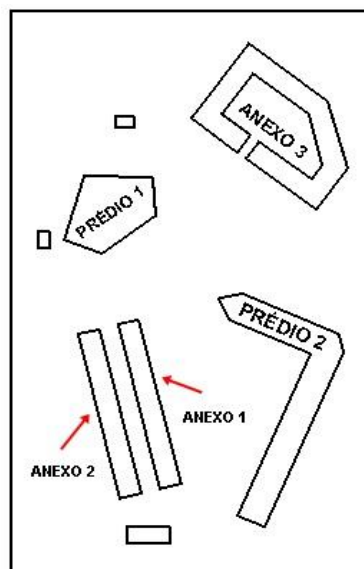


**FIGURE 1:** Example of one of the electronic round access (Point right in the bottom, emphasis in the red circle).

In the desire of making deep the comprehension about the difficulties around the round activity, and purpose solutions that could be effective, one scale model as an intermediate object was done, with the objective of making the workers participate of the process of building the activity, and in this way, make it more coherent with the objective per se of the security guards' activity.

## 5.2 The use of intermediary objects: Modification of the ground plant and the scale model building

The first step to build the intermediate object is to adapt and modify the ground plant, in the way to make it more comprehensible to them who will manipulate the future scale model. In the university situation, there wasn't in their file a complete plant, just fragments that helped in the construction of a sketch of all the university, as it can be seen in the second image.

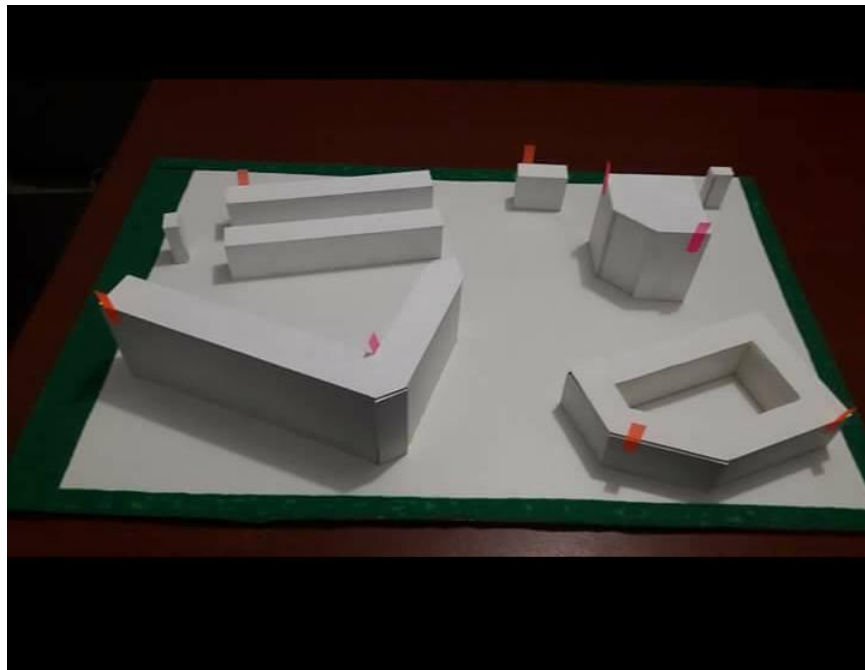


**FIGURE 2:** The Representation of The Modified Plant.

The modified plant, was presented in a meeting with the security guards so that could be identified by the researchers the location of all the round points, with the propose to accompany these professional tasks and validate their accesses difficulties, collected in the interviews and observations, early realized.

The plant provided a global understanding about how the points were distributed in the building in the institution, by part as the researchers as the own workers. However, by itself, the plant showed insufficient, once the security guards just found in it 8 of the 12 round points. At the same time, the plant was used as the base for the construction of the campus scale model, so the workers could use it as a tool for better understanding e improvement of the activity of round.

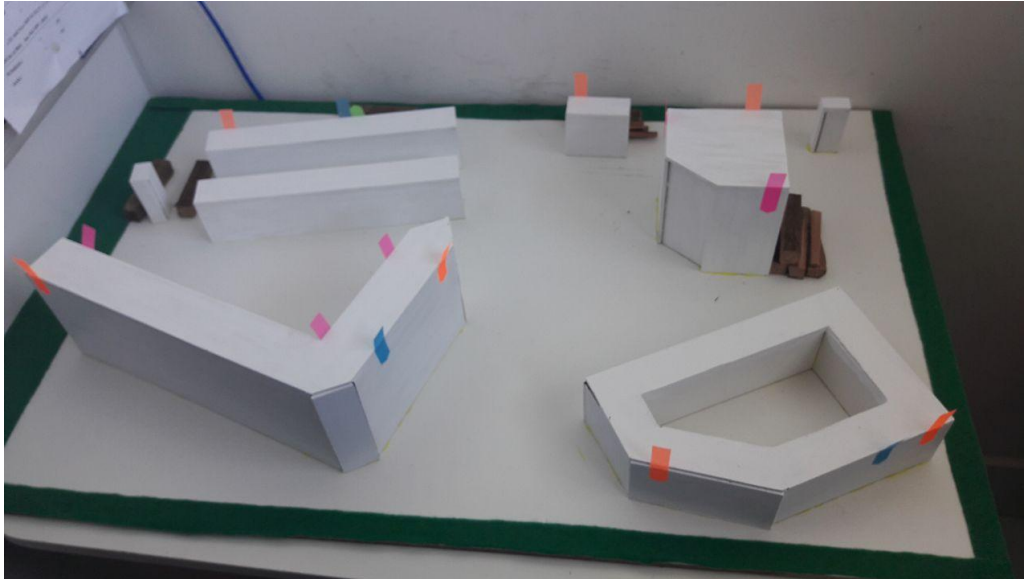
The scale model has the idea of instrumentalizing in a collaborative way the participation of the workers in the building of the round activity. Therefore, after representing each building-with specific lumber, it was presented, through the preparatory cycle, the 8 points earlier founded. These points were represented, through different colorful post its, as is shown in the 3rd Image.



**FIGURE 3:** Representation of The Scale Model.

The different colors represent the intern (pink color) and extern (orange color) points, with the propose to facilitate the workers' comprehension in the identification and remembering of the location about each of the points, and also the embarrassments that exists around it physically.

This first cycle enabled the finding of the other four missing points-in the previous phase, as it can be seen, in the image 4. Beyond it, this action permitted that the security guards could act, manifesting their points of view, how the suggestion of new buttons, in more accessible places, and they also presented some dangerous situations lived, as the existence of many elements around some of the points, for example the existence bushes or rubble.



**FIGURE 4:** Security Guards' Representation In The Cycle.

In the Picture above, the blue and green post its represents to the new points suggested by the workers. This representation was taken to the complete cycle, when it was discussed the places access conditions, the security guards' point of view, and possible improvement measures that the hiring employer could do.

The second cycle provided the visibility of the problems, faced by the workers, in their specific shifts and it was explained to the hiring company the real problems lived in the labor life, in the way to integrate the management process of building a healthier labor place to this professional. In this way, the hiring company compromised itself in the realization of a cleaning of the places, removing the bushes and rubble, installation of new lights, beyond the use of one preventive maintenance plan, nonexistent till then.

Simulation through the physical model scale allowed, therefore, a redistribution of the security points, based on the operational knowledge of the guards. As the participation of the workers themselves in the construction of the round, it was possible to obtain a safer configuration (avoiding dark areas or with venomous animals) and efficient (avoiding areas of difficult access or invisible points), besides valuing the knowledge of the individual in the process of organizational management.

## **6. THE CONTRIBUTION OF INTERMEDIARY OBJECTS IN THE WORK ACTIVITY**

The intermediate object, represented through the constructed scale model, could bring different contributions in the round activity realized by these workers. Following, there's categorized some of this contributions:

- Missing round points location: In the first stage of this research, based in the EAW (Ergonomic analysis of work) and in the modified plant, it was identified cooperatively with the workers, 8 round points. However, according the hiring company, there was 12 round points, not 8. The intermediate object enabled a better definition of the imposed activity, that showed contradictory in the labor place.
- The interaction between the Project involved actors: The security guards could express different point of view related to the Project objective, as their perception in front of the activity risks founded, the elements that shown unnoticed, like bushes and rubble, and

- firstly, the new round points suggested, what demonstrates the interaction and involvement in the purpose.
- Facility of new purposes, and understanding of the represented situation: With the representation of the institution dependences and the identification of the electronic round points with colorful post its, the understanding of the represented situation, and the proposal presentation was facilitated. The use of colorful post its make possible the differentiation of the electronic points and the perception of what extern points were the most problematic, and require a higher effort by the worker part. Beyond it, other colors were also used, so that the workers could express the needs of changing some points, or the adding of some new points, according their day by day perception. This representation was presented by the leader, that tried to translate the consensual needs of the team.
  - Actor's perception improvement related to the activity approached Project: It was possible to observe the influence of the intermediate object in the perceptions of the workers, about the electronic round activity. The security guards could use the scale model to identify the obstacles founded by them during the task realization. Also, the suggestion of adding new buttons, as their own conception.
  - Dialogue support between the organization hierarchical levels: The scale model helped also, in the promotion of dialogue between the hiring management, and the workers, that didn't exist before. The complete cycle application of the scale model, that counted with the representation of some managers beyond the security guards, promoted one approximation between them, as their direct dialogue.

The use of intermediate object of easy comprehension and direct participation of the collaborators, as proposed by Seim and Broberg (2010) can proportionate the emerge of the elements in the real activity, that's unknown in the most part of the time by the managers.

The intermediary objects used in this research had penetrating contributions in many moments of the action, in the same sense evidenced by Bittencourt, Duarte and Béguin (2015), that used the intermediary objects to the reproject the labor place. The actual research, used the scale model as a central object of the action, because it instituted a better comprehension about the studied work activity, making easier the participation of all the involved actors, as the understanding of the new purposes of disposition of the electronic round route.

In this sense, how was proposed by Broberg, Andersen and Seim (2010), with the use of the intermediary objects, it was possible to allow the expression of many perspectives and the articulation of different hierarchical levels of the organization, so that the projects objectives could be achieved.

## **7. CONCLUSION**

The development of this study offered one analysis of how the intermediary objects can contribute for the improvement of work situations, promoting the evaluation of how was the electronic round activity, realized by security guards in a teaching institution, and which obstacles were faced by themselves, in order to become possible, the purpose of improvements in the activity, as the proposition of a new round.

Beyond specific tools application (as the complete and simple cycles), it was possible, non-just the integration of the operational knowledge in the management-beyond the reconception of the route, but also the development of moments in which the workers could develop dialogue about work questions with the management, moment that rarely happens in companies. The dialogue and the articulations of the knowledge between the different actors in the organization is fundamental to assure one ambient that preserves the workers' health and security in the system. The using of tools, like the intermediary objects, have been aided increasingly the action of analysts, however, there is yet, a limited number of scientific studies that details the use of these objects that permeate the actions. This research, in this way, opens one opportunity for that new



studies to apply these intermediate object, starting to use this resource of interaction in the comprehension and improvements in work situations.

Future research should be carried out in the sense of developing intermediate objects as simulation of work situations, to broaden the understanding of this tool in the efficiency and safety of work.

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